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UNESCO Region: EUROPE AND THE NORTH AMERICA

SITE NAME: Jungfrau-Aletsch-Bietschhorn

DATE OF INSCRIPTION: 16th December 2001

STATE PARTY: SWITZERLAND

CRITERIA: N (i)(ii)(iii)

DECISION OF THE WORLD HERITAGE COMMITTEE:

Excerpt from the Report of the 25th Session of the World Heritage Committee

The Committee inscribed the Jungfrau-Aletsch-Bietschhorn on the World Heritage List under criteria (i), (ii), and (iii):

Criterion (i): The Jungfrau-Aletsch-Bietschhorn region is the most glaciated area in the Alps and incorporates the Great Aletsch glacier, the largest and longest in western Eurasia. It is thus of significant scientific interest in the context of glacial history and ongoing processes, particularly related to climate change.

Criterion (ii): The Jungfrau-Aletsch-Bietschhorn region provides a wide range of alpine and sub-alpine habitats. Superb examples of ecological succession exist, including the distinctive upper and lower tree-line of the Aletsch forest. The global phenomenon of climatic change is particularly well illustrated in the region, as reflected in the varying rates of retreat of the different glaciers, in turn providing new substrates for ongoing ecological succession.

Criterion (iii): The impressive landscape of the Jungfrau-Aletsch-Bietschhorn region has played an important role in European literature, art, mountaineering and alpine tourism. The aesthetics of the area have attracted an international clientele and it is globally recognised as one of the most spectacular mountain regions to visit.

BRIEF DESCRIPTIONS

This is the most glaciated part of the Alps, containing Europe's largest glacier and a range of classic glacial features such as U-shaped valleys, cirques, horn peaks and moraines. It provides an outstanding geological record of the uplift and compression that formed the High Alps. The diversity of flora and wildlife is represented in a range of Alpine and sub-Alpine habitats and plant colonization in the wake of retreating glaciers provides an outstanding example of plant succession. The impressive vista of the North Wall of the High Alps, centred on the Eiger, Mönch and Jungfrau peaks, has played an important role in European art and literature.

1.b State, Province or Region: Cantons of Bern and Valais.

1.d Exact location: 46°30' N, 8°2' E

Proposition d'inscription du bien
"Jungfrau – Aletsch – Bietschhorn"
sur la Liste du Patrimoine mondial



Grand Glacier d'Aletsch

Proposition d'inscription du bien

« Jungfrau - Aletsch - Bietschhorn »

sur la Liste du Patrimoine mondial

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Proposition d'inscription du bien
« Jungfrau - Aletsch - Bietschhorn »
sur la Liste du Patrimoine mondial

1. Identification du bien

a. Pays

Suisse

b. Etat

Cantons de Berne et du Valais

c. Nom du bien

Jungfrau - Aletsch - Bietschhorn

d. Localisation précise sur la carte et indication des coordonnées géographiques à la seconde près

Centre: Konkordiaplatz 46° 30' N / 8° 02' E (coordonnées suisses 646 000 / 150 000), carte en annexe 1.

e. Cartes indiquant les limites de la zone proposée pour inscription et celles de toute zone tampon

Le site est délimité de façon à rendre superflue toute zone tampon. Là où il pourrait s'avérer utile d'en prévoir une, elle est intégrée au site. La principale menace pourrait provenir de la construction d'installations touristiques pour la pratique du ski, dans le site. En raison de son statut juridique, cela n'est pas possible, ni à court ni à moyen terme. Cependant, le site est contigu à plusieurs domaines skiables déjà équipés

d'installations touristiques (régions Wengernalp-Kleine Scheidegg-Station Eigergletscher et plateau d'Aletsch-Belalp). Dans les autres régions périphériques, du fait des conditions topographiques, des dangers naturels (avalanches, chutes de pierres et de glace) ou du statut juridique en vigueur, la construction de nouvelles infrastructures n'est pas possible. Pour ces diverses raisons, aucune zone tampon n'est nécessaire.

f. Surface du bien proposé pour inscription (en hectares)

Le site s'étend sur une superficie totale de 53'888 hectares, dont 23 %, soit 12'458 hectares, se situent dans le canton de Berne (BE, versant nord) et 41'430 hectares, soit 77 %, dans le canton du Valais (VS, versant sud).

Sources

KÜTTEL (1999).

Annexes

1, 2

2. Justification de l'inscription

a. Déclaration de valeur

Il s'agit d'un magnifique et grandiose paysage alpin, en grande partie recouvert de glaciers, unique en Europe. Il se caractérise par un spectaculaire versant nord, qui s'étend du fond de la vallée jusqu'à plus de 4000 m d'altitude, et par un versant sud, moins raide, abritant le plus grand glacier des Alpes, le Grand Glacier d'Aletsch. Le site illustre magnifiquement la formation de la chaîne alpine avec un massif central comme noyau, un processus de formation complexe, des placages de gneiss, ainsi que des reliques de sédiments autochtones. Il présente un habitat favorable pour presque toutes les espèces animales typiques des Alpes, ainsi que pour la végétation caractéristique de la haute chaîne des Alpes centrales. Particulièrement dignes de valeur sont les marges proglaciaires avec leurs différents stades de succession.

b. Eventuelle analyse comparative

Il n'a été procédé à aucune analyse comparative approfondie. Elle semble superflue, car le versant bernois avec ses parois nord de l'Eiger, du Mönch et de la Jungfrau, visibles de loin, présentent une muraille de glace et de rocher qui n'a pas son pareil. Selon l'angle de vue, elle se prolonge par l'impressionnante chaîne Gletscherhorn-Äbeni Fluh-Mittaghorn-Grosshorn-Lauterbrunner Breithorn-Tschingelhorn-Mutthorn-Gspaltenhorn, qui ferme la vallée de Lauterbrunnen, ou par l'enchaînement Finsteraarhorn-Lauteraarhorn-Schreckhorn-Mättenberg.

En comparaison, il est fort possible que la région de hautes montagnes située entre les vallées valaisannes de Saas et de St-Nicolas (Mattertal) présente une flore un peu plus riche, en particulier en dessous de la limite des forêts, ce qui ne représente toutefois qu'une petite partie de l'ensemble de la région. En revanche, le contexte géologique est complètement différent, puisqu'on se trouve ici dans un édifice de nappes penniques et austroalpines inférieures. De plus, cette région est, sans comparaison, bien plus gravement perturbée par les nombreuses installations de transport touristique et par les aménagements hydroélectriques.

Aucune région comparable au site « Jungfrau – Aletsch – Bietschhorn » ne figure dans la Liste du Patrimoine mondial.

c. Authenticité/intégrité

Le site est caractérisé par un paysage de haute montagne largement recouvert de glace. Marquée par l'économie alpestre et sylvicole, sa périphérie n'en subit toutefois aucun préjudice. Il s'agit donc essentiellement d'une région sauvage. Sa délimitation suit dans une large mesure des structures naturelles visibles sur le terrain, comme les crêtes, ravines ou limites de végétation. Il renferme une grande variété de névés et de glaciers. Il comprend en particulier des appareils glaciaires complets avec les zones d'accumulation et les zones d'ablation, ainsi que des marges proglaciaires récentes, au sens du projet IGLES (Inventaire des marges proglaciaires et des plaines alluviales alpines). Seul le territoire de la commune de Ried-Mörel déroge à ce principe. Le site comprend également des secteurs libres de glace depuis la fin de la dernière glaciation (Würm). Les différents types de marges proglaciaires, ainsi qu'une grande diversité de formes glaciaires, comme les roches moutonnées, les limites d'érosion et les stades morainiques sont représentés.

Le site traverse également l'édifice tectonique complet d'un massif central alpin, du vieux socle cristallin à la couverture sédimentaire autochtone – pour autant qu'elle n'ait pas été arrachée ni érodée – en passant par les intrusions granitiques.

Tous les étages de végétation compris entre l'étage montagnard et l'étage nival sont représentés. Il en va de même pour les différents stades de succession naturelle.

Pour toutes ces raisons, le site satisfait aux critères d'authenticité et d'intégrité.

d. Critères selon lesquels l'inscription est proposée

Le site remplit les critères des « Orientations devant guider la mise en œuvre de la Convention du patrimoine mondial »:

44 a i: être des exemples éminemment représentatifs des grands stades de l'histoire de la terre, y compris le témoignage de la vie, de processus géologiques en cours dans le développement des formes terrestres ou d'éléments géomorphiques ou physiographiques ayant une grande signification

Le site fournit un bel exemple de formation d'un massif central alpin, engendré et transformé au cours de plusieurs phases orogéniques, en dernier lieu lors de l'orogénèse alpine. Compartiment géologique de la chaîne alpine, où l'on peut discerner d'importants processus exogènes et endogènes, il offre un témoignage exceptionnel de vastes pans de l'histoire de la Terre.

Le site est un exemple de paysage où l'on peut observer l'action de processus géologiques passés et présents, parmi lesquels figurent notamment des phénomènes morphodynamiques contemporains.

44 a ii: être des exemples éminemment représentatifs de processus écologiques et biologiques en cours dans l'évolution et le développement des écosystèmes et communautés de plantes et d'animaux terrestres, aquatiques, côtiers et marins

Le site comprend différents stades de succession et de zonation de biocénoses peuplant divers types de substrats et s'étendant sur une large gamme d'altitudes, de l'étage montagnard à l'étage nival, en passant par les niveaux subalpin et alpin. On trouve aussi bien des roches cristallines que des roches carbonatées parmi les substrats, voire une combinaison des deux. Des conditions aussi variées permettent l'éclosion, dans un espace très restreint, d'un grand nombre d'écosystèmes, avec leur cortège de communautés faunistiques et floristiques parfois rares. En outre, les processus morphodynamiques créent de nouveaux milieux naturels et en détruisent d'autres en permanence, en l'absence de toute influence humaine. La taille du site est plus que suffisante pour circonscrire des processus d'une telle densité spatiale.

44 a iii: représenter des phénomènes naturels ou des aires d'une beauté naturelle et d'une importance esthétique exceptionnelles

Le site est réputé depuis longtemps pour les paysages d'une exceptionnelle beauté naturelle de ses deux versants et pour leur aspect spectaculaire. Situé au cœur de l'Europe, source de vifs sentiments, il a inspiré les œuvres de générations de poètes et de peintres, sans jamais en pâtir.

Sources

ANKER (1996), GERBER *et al.* (1999), HANTKE (1980), HOLZHAUSER (1984), JUNGFRAU-BAHNEN (o. Jahrg., a), LABHART (1992, 1997, 1999), LÜDI (1921), MÜLLER *et al.* (1976), OGGIER (1995), RICHARD (1987), WERNER (1988), WIPF (1999), WOHLGEMUTH (1993), ZUMBÜHL (1980), ZUMBÜHL & HOLZHAUSER (1988).

Annexes

1, 2, 3, 4, 5, 6, 7, 8, 9,10, 24, 25, 27, 29

3. Description

a. Description du bien

Climat

Les conditions climatiques sont influencées par les vents dominants d'ouest et par l'agencement orographique de la région. Elles dépendent également de l'altitude. Il convient de relever que le versant bernois est sensiblement plus arrosé à altitude égale que le versant valaisan, abrité tant par les Alpes bernoises que par les Pennines. Si le climat du versant nord est de type subocéanique, il revêt un caractère subcontinental aux basses et moyennes altitudes en Valais. Dans ce canton, les vallées latérales comme le Lötschental sont notablement plus arrosées que la vallée principale.

Les données suivantes reflètent bien la situation pluviométrique malgré l'hétérogénéité des séries de mesures:

Station	Altitude en m	Somme annuelle en mm
Interlaken	574	1176
Lauterbrunnen	818	1193
Grindelwald	1040	1420
Kleine Scheidegg	2061	1598
Station Eigergletscher	2320	1910
Mönchsgrat	3810	3020
Aletschwald	2075	1226
Ried (Lötschental)	1480	1100
Brig	671	758

Les données suivantes donnent un aperçu des températures:

Station	Altitude en m	Température annuelle moyenne en °C
Interlaken	568	8.1
Grindelwald	1050	5.0
Jungfraujoch	3579	-8.5
Brig	678	9.1

Géologie

La plus grande partie du site fait partie du massif de l'Aar et ne s'étend que très marginalement aux nappes helvétiques, dans la région de Wengernalp.

Le massif de l'Aar fait partie du cristallin autochtone. C'est ainsi que l'on nomme les roches cristallines du socle européen ayant intervenu dans la formation des Alpes.

Le massif de l'Aar est le plus grand ensemble de cristallin autochtone de Suisse. Il comprend deux éléments principaux: d'une part, le Vieux Cristallin composé de roches métamorphiques, et d'autre part, des intrusions granitiques plus récentes. Les roches du Vieux Cristallin se sont formées, il y a 400 à 450 millions d'années, durant l'orogénèse calédonienne, c'est-à-dire au Silurien, à partir de roches encore plus anciennes. Les intrusions de granite datent en revanche de l'orogénèse hercynienne, qui s'est déroulée au Carbonifère, il y a 300 à 350 millions d'années. Durant l'orogénèse alpine, qui a eu lieu pendant le Tertiaire voici 20 à 40 millions d'années, le massif de l'Aar a certes subi d'importantes compressions, quelques écaillages et un léger métamorphisme, mais il n'a pas été disloqué par la formation des nappes, comme l'ont été les massifs voisins.

Du fait de la compression alpine, d'une surrection toujours active et de la forte érosion qui lui est liée, le massif de l'Aar montre aujourd'hui un relief accidenté caractéristique d'une montagne jeune, avec des sommets qui dépassent souvent les 4000 m d'altitude. Des massifs extra-alpins d'âge comparable comme la Forêt-Noire ou les Vosges ont depuis longtemps été aplanis en reliefs estompés de moyenne altitude.

Les roches présentes sur le site peuvent être classées grossièrement en Vieux Cristallin, granites et sédiments calcaires, ces derniers étant limités à la périphérie du massif. Les roches métamorphiques du Vieux Cristallin dominent nettement, en termes de superficie. Il s'agit pour l'essentiel de gneiss et de schistes à micas relativement uniformes, avec d'importantes inclusions d'amphibolite. Ce sont ces roches qui constituent tous les quatre-mille de la région: la Jungfrau, le Mönch, l'Aletschhorn, le Fiescherhorn, le Grünhorn et finalement le Finsteraarhorn, le plus haut sommet du site, avec ses 4274 m. Ces deux derniers sont constitués d'amphibolite verte, une roche très dure et résistante à l'érosion, qui s'est vraisemblablement formée à partir d'un ancien basalte océanique vieux d'un milliard d'années.

Sur le versant nord du massif de l'Aar, dans la partie supérieure de la vallée de Lauterbrunnen, se trouve une roche granitique renfermant un grand nombre d'inclusions métriques de gneiss, de marbre et d'amphibolite. Ce Cristallin de Lauterbrunnen, comme on l'appelle, est une migmatite qui s'est formée dans la phase terminale de l'orogénèse calédonienne par fusion partielle du Vieux Cristallin.

Les granites du site sont disposés en grandes lames parallèles séparées par des zones de gneiss. Ces lames se sont détachées de la grande masse de granite du Grimsel et font partie du complexe du Granite central de l'Aar, qui représente le plus grand massif granitique de Suisse, avec une longueur de près de 100 km, une largeur maximale de 9 km et une superficie de quelque 500 km². Ce granite a donné lieu à la formation de magnifiques montagnes comme le Bietschhorn, le Nesthorn, le Lötschentaler Breithorn, le Schinhorn et les Fusshörner. L'Aletschhorn présente la particularité d'avoir, à son sommet, un chapeau de gneiss, qui n'est autre qu'une relique du Vieux Cristallin.

L'intrusion granitique du Gastern, vieille de 300 millions d'années, est contemporaine du granite de l'Aar et constitue la terminaison nord-ouest du massif de l'Aar.

Entre les orogénèses hercynienne et alpine, plus précisément durant le Mésozoïque, le massif de l'Aar a été recouvert par une mer tropicale pendant environ 200 millions d'années. Les sédiments calcaires ainsi déposés ont formé des couches de roches horizontales de plusieurs kilomètres d'épaisseur au-dessus du cristallin. La disposition actuelle de ces roches mésozoïques à la périphérie du massif permet de reconstituer les déformations du massif liées à l'orogénèse alpine. La compression et la surrection du massif sont mises en évidence par le pendage élevé de ces couches en direction de la vallée du Rhône, le long de la rampe sud du Lötschberg, par leur pendage moyen en direction du nord dans la vallée de Lauterbrunnen, ainsi que par la disposition pratiquement verticale des sédiments dans la région Eiger-Wetterhorn-Grosse Scheidegg.

La plus grande partie de cette couverture sédimentaire a glissé vers le nord pendant l'orogénèse alpine, donnant lieu aux nappes helvétiques. Au cours de ce processus, quelques écailles de Vieux Cristallin ont été entraînées par ces nappes, dans la partie la plus septentrionale du massif. Leurs reliques se retrouvent aujourd'hui aux sommets de la Jungfrau et du Mönch, juchées sur des roches calcaires. Cette inversion géologique – du gneiss par dessus des calcaires – a longtemps intrigué les géologues pionniers du XIX^e siècle.

Géographie/Géomorphologie

La géomorphologie générale du site est le reflet de sa constitution géologique et, plus particulièrement, de sa pétrographie et de sa structure tectonique. Le site est

caractérisé par un flanc nord abrupt et un flanc sud relativement doux. La limite entre ces deux zones forme la crête principale des Alpes, qui constitue aussi une des principales limites de partage des eaux à l'échelle européenne. Le flanc nord appartient au bassin versant de l'Aar, lui-même sous-bassin du Rhin, qui se jette dans la mer du Nord, alors que le flanc sud est drainé par le Rhône, qui aboutit dans la Méditerranée. Les vallées se sont développées à la faveur de zones de faiblesse géologiques et ont pour la plupart été reprises par les glaciations. Les principales vallées du flanc nord, à savoir celles de Lauterbrunnen et du Glacier Inférieur de Grindelwald, présentent une orientation méridienne. La brèche constituée par le Lötschental-Lötschenlücke-Grosser Aletschfirn-Grünhornlücke est en revanche orientée est-ouest, parallèlement à l'arc alpin, dans une zone de schistes relativement tendres du Vieux Cristallin. Les vallées actuellement englacées du Grand Glacier d'Aletsch et du Glacier de Fiesch sont disposées perpendiculairement à cette zone. Le long de la chaîne du Bietschhorn, se trouve un certain nombre de vallées orientées nord-sud. Toutes prennent naissance dans des cirques glaciaires situés à haute altitude et aujourd'hui encore englacés. La morphologie de leur partie supérieure est dominée par des processus glaciaires, tandis que dans leur partie inférieure, notamment en dessous de la rupture de pente à la base du « U » glaciaire, leur morphologie est essentiellement fluvatile. Cette observation est valable aussi bien pour le flanc nord que pour le flanc sud du massif. Un exemple particulièrement spectaculaire de cette organisation est constitué par le Trümelbach, dans la vallée de Lauterbrunnen. Ses eaux, provenant du flanc ouest de l'Eiger et de tout le flanc nord du Mönch et de la Jungfrau, rejoignent le fond de la vallée sous forme de torrents en partie à l'intérieur de la montagne. Les vallées latérales débouchent dans les vallées principales loin au-dessus de leur fond, sous forme de vallées suspendues. Les vallées principales (vallées de Lauterbrunnen et du Rhône) présentent elles aussi des morphologies glaciaires. La vallée de Lauterbrunnen est un cas d'école de vallée glaciaire en « U ».

Les vallées déterminent également la disposition des culminations, à savoir de la Jungfrau dans la chaîne septentrionale, de l'Aletschhorn dans la chaîne méridionale, et enfin du Fieschhorn et du Finsteraarhorn, qui ferment le bassin versant du Glacier de Fiesch et celui du Glacier Inférieur de Grindelwald avec la chaîne Lauteraarhorn-Schreckhorn et l'Eiger.

Dans l'ensemble du site, 9 sommets indépendants dépassent l'altitude de 4000 m.

Ce sont:

Finsteraarhorn	4274 m	Gross Fiescherhorn	4049 m
Aletschhorn	4193 m	Gross Grünhorn	4044 m
Jungfrau	4158 m	Lauteraarhorn	4042 m
Mönch	4107 m	Hinter Fiescherhorn	4025 m
Schreckhorn	4078 m		

L'hypsométrie est donnée par le tableau suivant. Les tranches altimétriques ont été définies par intervalles de 200 m. Ce tableau doit être interprété comme suit: l'aire des surface situées à des altitudes inférieures à 800 m est de 1 ha; l'aire des surfaces situées à des altitudes comprises entre 801 et 1000 m est de 97 ha, respectivement cumulées, on obtient 98 ha, etc.

Tranche altimétrique	Aire (ha)	Aire cumulée (ha)
800	1	1
1000	97	98
1200	369	467
1400	664	1131
1600	1201	2332
1800	2191	4523
2000	2704	7227
2200	3651	10878
2400	4469	15347
2600	5643	20990
2800	6581	27571
3000	6785	34356
3200	6682	41038
3400	5772	46810
3600	4289	51099
3800	2224	53323
4000	525	53848
4200	53	53901
Total	53901	53901

La surface totale ainsi obtenue (53'901 ha) est légèrement supérieure à la surface réelle (53'888) en raison des erreurs d'arrondis.

Il ressort de ce tableau que près de la moitié du site est située au-dessus de 2800 m d'altitude. Il n'est donc pas étonnant qu'une grande partie soit recouverte de glaciers, dans la mesure où la ligne d'équilibre 2:1 séparant les zones d'accumulation des zones d'ablation est située vers 2700 m d'altitude sur le flanc nord et 2900 m d'altitude sur le flanc sud. L'extension actuelle des glaciers ne représente toutefois qu'un faible reflet de ce qu'elle fut vers 1850, sans même parler de leur extension tardiglaciaire, lorsque le Glacier d'Aletsch rejoignait encore celui de Fiesch et que la

langue du Glacier d'Aletsch atteignait la vallée du Rhône. Cependant, on trouve encore de nos jours une multitude de phénomènes glaciaires et fluvioglaciaires. Parmi ceux-ci, on relèvera la diversité des types de glaciers comme le glacier de vallée, le glacier suspendu, le glacier de cirque et le névé, des structures glaciaires comme les ogives, les crevasses et les tables glaciaires, des traces laissées par les glaciers, telles que les polis glaciaires, les roches moutonnées et les stries glaciaires, sans oublier les moraines (médianes, latérales, de fond et frontales) et les marges proglaciaires (à pente plus ou moins importante, avec des zones fluvioglaciaires étendues qui sont autant de plaines alluviales alpines, etc.). Le permafrost se rencontre principalement à haute altitude.

Le retrait d'un glacier de vallée entraîne une décharge des flancs de la vallée qu'il occupait. De tels changements de contraintes peuvent conduire à des écroulements. Des processus de ce type ont été mis en évidence en relation avec le Glacier d'Aletsch (par exemple dans la région de Tälli, en rive droite orographique).

Le Glacier d'Aletsch est le plus grand glacier des Alpes en termes de superficie et de longueur. Il est suivi de près par le Glacier de Fiesch, qui est le troisième plus grand en superficie et le deuxième en longueur. La plus grande épaisseur de glace du Glacier d'Aletsch est de 900 m au niveau de la Konkordiaplatz.

L'altitude respectivement la faible altitude de certaines langues glaciaires est à relever. En effet, le Glacier d'Aletsch et le Glacier Inférieur de Grindelwald ont comme particularité d'étendre leur langue glaciaire plus bas qu'aucun autre glacier des Alpes. De plus, elle est facilement accessible, en particulier pour le Glacier Inférieur de Grindelwald. Il n'est donc guère étonnant que ces deux glaciers aient fait l'objet de très nombreuses illustrations, qui ont été extrêmement utiles pour reconstituer leurs fluctuations, à côté d'autres observations scientifiques. L'histoire de ces glaciers est également bien connue grâce à un certain nombre d'études.

Les moraines permettent généralement de reconnaître de loin et de manière particulièrement éloquente l'avancée glaciaire de 1850. Celle-ci est aussi documentée par la végétation (stades de succession). De plus, on ne rencontre jamais de sols matures en amont des moraines de 1850.

Tous les glaciers du site ont été inventoriés, paramétrés et classifiés. Pour quelques-uns d'entre eux, on dispose de séries de données concernant les variations de leur longueur. Ces séries de mesures systématiques commencent en 1881 pour le

Glacier Inférieur de Grindelwald (au début pas annuellement) et en 1892 pour le Grand Glacier d'Aletsch et le Glacier de Fiesch.



Forêt d'Aletsch et Grand Glacier d'Aletsch



Gletscherhorn - Jungfrau

Biologie: Flore/Végétation

L'ensemble du site s'élève de l'étage montagnard à l'étage nival et s'étire des Alpes du Nord aux Alpes centrales. Sa flore et sa végétation sont donc extraordinairement riches. Au-dessus de la limite supérieure des arbres, on a dénombré 529 espèces de phanérogames et de ptéridophytes. La flore, comme la végétation, sont essentiellement déterminées par le climat, par le substrat géologique et par l'âge du processus évolutif. L'origine biogéographique des plantes joue un moindre rôle, car on trouve, à côté des espèces communes dans l'arc alpin, beaucoup d'éléments de la flore des Alpes occidentales et, dans une moindre mesure, des Alpes orientales.

Avec l'altitude, la période de végétation devient plus brève et les précipitations augmentent; il demeure toutefois des différences climatiques régionales marquées, en particulier entre les versants bernois et valaisan. Le côté valaisan est en général plus sec. Il est protégé des pluies, aussi bien par la chaîne pennine que par les Alpes bernoises. Il peut être considéré comme plus continental en comparaison avec le versant bernois qui est plutôt océanique. Le Lötschental est en situation intermédiaire.

En raison du substrat géologique, les sols acides (ranker, podzol) et leur flore calcifuge sont plus répandus que les rendzines, qui apparaissent localisées surtout dans les secteurs de couches calcaires parautochtone et autochtone, sur les flancs de la crête nord des Alpes et qui abritent une flore calcaire. Là, où les roches calcaires et les roches siliceuses se rencontrent, on trouve un mélange d'espèces calcicoles et calcifuges. Il en va de même lorsque des glaciers, comme le Grand Glacier d'Aletsch, ont transporté des roches calcaires de leur bassin versant jusque dans des secteurs de roches siliceuses.

Sur le versant nord, la limite inférieure du site se situe à peu près à 900 m d'altitude dans l'Hinteres Lauterbrunnental, ce qui correspond à l'étage montagnard ou à celui des forêts feuillues. A partir de 1300 m commence l'étage subalpin ou celui des forêts de conifères, qui fera place à la hauteur de la limite de la forêt, aux environs de 2000 m, à l'étage alpin. De la limite des neiges pérennes, à 2700 m, jusqu'aux plus hauts sommets s'étend ensuite l'étage nival. Sur le versant sud, les limites indiquées se situent environ 200 m plus haut.

Sur le versant nord, l'étage des forêts feuillues est généralement dominé par le hêtre (*Fagus sylvatica*). Il est toutefois remplacé, dans l'Hintere Lauterbrunnental, par d'autres espèces de feuillus. On y trouve ainsi l'érable sycomore (*Acer pseudoplatanus*), l'aulne blanchâtre (*Alnus incana*), le frêne commun (*Fraxinus excelsior*), l'orme montagnard (*Ulmus glabra*) et plus rarement, dans les stations pionnières, le bouleau pendant (*Betula pendula*). Dans certaines micro-stations plus thermophiles poussent même le cornouiller sanguin (*Cornus sanguinea*), l'aubépine à un style (*Crataegus monogyna*), le fusain d'Europe (*Euonymus europaeus*) et l'érable plane (*Acer platanoides*). Avec l'altitude, la forêt feuillue est toutefois rapidement remplacée par l'épicéa (*Picea abies*).

Le versant sud est trop sec pour le hêtre (*Fagus sylvatica*), qui est remplacé par le pin sylvestre (*Pinus silvestris*), pour autant que les arbres puissent encore pousser, car à cette altitude, tout particulièrement sur la rampe sud du Lötschberg, s'est développée une végétation typique des différents secteurs du Valais central. En raison du peu de précipitations, du faible taux d'humidité de l'air, de l'exposition au sud et du climat qui en découle, fait d'un rayonnement solaire intense et d'un fort réchauffement, s'est développé un type de végétation xérique particulier, la pelouse steppique valaisanne. Ce groupement ne dépasse guère les 1000 m d'altitude et abrite de nombreuses espèces végétales xérophiles, continentales ou steppiques, comme la koelérie du Valais (*Koeleria vallesiaca*), la fétuque du Valais (*Festuca vallesiaca*), la centaurée du Valais (*Centaurea vallesiaca*), l'armoise du Valais (*Artemisia vallesiaca*), la stipe pennée (*Stipa pennata*) et le genévrier sabine (*Juniperus sabina*), ainsi qu'une faune caractéristique (papillons, sauterelles, mantes religieuses, lézards, serpents et oiseaux).

L'essence caractéristique de l'étage subalpin est l'épicéa (*Picea abies*). Il a toutefois souffert des défrichements effectués pour permettre le pacage. Certains endroits, régulièrement balayés par les avalanches, ont la préférence de l'aulne vert (*Alnus viridis*). Sur le versant nord, au-dessus de Wengernalp et en dessous du Mittellegigrat, l'épicéa, peu répandu, se mélange au pin couché (*Pinus mugo* ssp. *mugo*), au rare sorbier des oiseleurs (*Sorbus aucuparia*) et au bouleau pendant (*Betula pendula*).

Dans les secteurs bien exposés du versant sud, l'épicéa cède quelque peu la place aux essences continentales. Les sols jeunes, comme dans les marges proglaciaires

par exemple, sont très tôt colonisés par le mélèze (*Larix decidua*). Les forêts climaciques, par contre, sont dominées par l'arole (*Pinus cembra*). Un exemple magnifique de succession complète, de la végétation pionnière à la forêt climacique, se rencontre en marge du Grand Glacier d'Aletsch et dans la forêt d'Aletsch qui le borde. La moraine déposée lors de l'extension maximale du glacier vers 1850 partage la forêt d'Aletsch en deux. A l'intérieur des moraines se trouvent des sols jeunes riches en minéraux sur lesquels se développe une végétation pionnière qui suit le recul du glacier. Ces groupements végétaux pionniers se composent principalement de graminées et d'autres herbacées, mais également de jeunes plants d'arbres en grand nombre: mélèzes (*Larix decidua*), épicéas (*Picea abies*), bouleaux pendants (*Betula pendula*) et trembles (*Populus tremula*). A l'extérieur des moraines de 1850, s'est développée, sur des sols plus vieux (podzol), une forêt d'aroles et de mélèzes comprenant entre autres de très vieux arbres et une lande à éricacées caractéristique, dont les éléments dominants sont le rhododendron ferrugineux (*Rhododendron ferrugineum*) et la myrtille (*Vaccinium myrtillus*). La forêt d'Aletsch, bien qu'elle soit protégée depuis 1933, n'est pas une forêt vierge. Elle a été exploitée intensivement jusqu'aux années 1920 (coupes de bois, pacage).

Certes, on trouve aussi des aroles et des mélèzes sur le versant nord, mais uniquement disséminés à la limite supérieure de la forêt, par exemple au pied de l'Eiger ou sur l'alpe d'Understeinberg dans le Hinteres Lauterbrunnental.

Directement au-dessus de la limite actuelle de la forêt domine une ceinture de lande à arbrisseaux avec le rhododendron cilié (*Rhododendron hirsutum*) sur sol basique et le rhododendron ferrugineux (*Rhododendron ferrugineum*) sur roche acide.

En fonction des divers facteurs environnementaux, tels que le substrat rocheux, l'exposition, l'altitude et la morphodynamique, se développent différentes associations. Les pelouses alpines sont très répandues, telles les pelouses acides de l'étage alpin supérieur et les pelouses rocheuses acides sur roche siliceuse, les pâturages maigres acides, les pelouses calcaires sèches à seslerie, les pelouses calcaires fraîches sur carbonates, les éboulis siliceux et les éboulis carbonatés, la végétation des parois calcaires et siliceuses, les combes à neige calcaires et les combes à neige acides, ainsi que le cryoplancton avec l'algue des glaciers (*Chlamydomonas nivalis*). Plus rares sont les landes alpines ventées, les gazons des crêtes ventées, les pelouses calcaires sèches à laïche ferme et les reposoirs à bétail.

Revêtent à nouveau une grande importance, les différentes associations liées aux marges proglaciaires: la grande diversité des pelouses alpines et des milieux d'éboulis à tous les stades de succession et de zonation, en particulier les alluvions avec végétation pionnière herbacée, ainsi que groupements pionniers des bords de torrents.

Sur substrats appropriés, dans la région de Wengernalp et d'Understeinberg dans le Hinteres Lauterbrunnental, se sont développés des bas-marais acidophiles et basiques. Un marais de transition se trouve ainsi dans la forêt d'Aletsch à 2017 m d'altitude. Il a fait l'objet d'une analyse pollinique. L'histoire de la végétation de ce marais, selon la datation au carbone¹⁴, remonte à plus de 9000 ans lors de la déglaciation.

Biologie: Faune

En raison de l'altitude, il faut s'attendre avant tout à une faune composée d'espèces des étages subalpin et alpin. La faune du site et la taille des populations sont très peu connues dans le détail. Nous ne mentionnerons ici que quelques espèces typiques. En particulier, la biodiversité des invertébrés est vraisemblablement bien plus élevée du côté valaisan (rampe sud du Lötschberg), en raison du climat, que du côté bernois. Parmi les vertébrés, les ongulés figurent naturellement au premier plan. Le site abrite une grande population de chamois (*Rupicapra rupicapra*). Le bouquetin des Alpes (*Capra ibex*), exterminé au début du XX^e siècle, est également représenté par plusieurs colonies issues d'individus provenant de la région du Gran Paradiso. Les colonies de bouquetins de l'Oberland bernois devraient, pour des raisons géographiques, être génétiquement séparées de celles du Valais. Un autre représentant typique de la faune alpine et subalpine est le cerf élaphe (*Cervus elaphus*). Il vit aussi bien sur le versant bernois que valaisan. Les populations valaisannes sont nettement plus étoffées. Le cerf élaphe fut également exterminé au début du XX^e siècle. Des cerfs des Carpates ont été introduits dans la forêt d'Aletsch en 1934. Des individus provenant de la haute vallée de Conches sont venus, dans les années 1960 et 1970, compléter la population. Ils se sont depuis lors si bien reproduits que, pour assurer la protection de la forêt, leurs effectifs doivent être régulés. On ne sait pas si les cerfs des Carpathes ont entre-temps complètement disparus sur le plan génétique. Le chevreuil (*Capreolus capreolus*) est présent, mais

en petit nombre, en raison de l'altitude et de la quantité de neige présente en hiver aux étages subalpin et montagnard.

Parmi les prédateurs, le lynx (*Felis lynx*, exterminé et réintroduit) a été observé du côté bernois et valaisan. Il est possible que le loup (*Canis lupus*) se réinstalle dans la région ces prochaines années. D'autres représentants typiques sont le renard (*Vulpes vulpes*), l'hermine (*Mustela erminea*), la belette commune (*Mustela nivalis*), la fouine (*Martes foina*) et naturellement la marmotte (*Marmota marmota*), une habitante caractéristique des Alpes, de même que le lièvre variable (*Lepus timidus*).

L'avifaune subalpine et alpine est également bien représentée. En règle générale, sont courantes ou bien reconnaissables les espèces, telles que l'aigle royal (*Aquila chrysaetos*), le faucon crécerelle (*Falco tinnunculus*), le chocard à bec jaune (*Pyrhacorax graculus*), le grand corbeau (*Corvus corax*), le crève à bec rouge (*Pyrhacorax pyrrhacorax*), en fait un oiseau rare, le lagopède alpin (*Lagopus mutus*), le tétras-lyre (*Tetrao tetrix*), la gélinotte des bois (*Bonasa bonasia*), la perdrix bartavelle (*Alectoris graeca*) et le cassenoix moucheté (*Nucifraga nucifraga*), qui fut chassé, car supposé nuisible aux aroles. Dans la région d'Aletsch, l'évolution des effectifs de lagopèdes alpins et de tétras-lyres a fait l'objet d'un suivi durant 30 ans. S'ajoutent encore à l'avifaune, la niverolle des Alpes (*Montifrigilla nivalis*), le tichodrome échelette (*Tichodroma muraria*), le merle de roche (*Monticola saxatilis*), le pic noir (*Dryocopus martius*), le pic vert (*Picus viridis*) et le pic épeiche (*Dendrocopos major*). Le gypaète barbu (*Gypaetus barbatus*) a été observé à différentes reprises. La chouette de Tengmalm (*Aegolius funereus*) et la chouette chevêchette (*Glaucidium passerinum*) ont également été signalées.

Différentes espèces de reptiles ont été recensées, telles la vipère péliade (*Vipera berus*), la vipère aspic (*Vipera aspis*), le lézard vivipare (*Lacerta vivipara*), le lézard des murailles (*Podarcis muralis*) et même le lézard vert (*Lacerta viridis*), celui-ci en fait uniquement du côté valaisan. La salamandre noire (*Salamandra atra*), le triton alpestre (*Triturus alpestris*), le crapaud commun (*Bufo bufo*) et la grenouille rousse (*Rana temporaria*) sont présents dans le site, aussi bien sur le versant nord que sud.

La puce des glaciers (*Isotoma saltans*) peut être considérée comme une spécialité de la faune du glacier; elle n'appartient pas aux puces, mais à l'ordre des collemboles. Pour elle, une température dépassant à peine 0 °C est idéale.



Parnassius apollo



Nymphalis antiopa



Sempervivum arachnoideum



Lagopus mutus (été)



Lagopus mutus (hiver)



Tetrao tetrix



Gypaetus barbatus



Aquila chrysaetos



Marmota marmota



Rupicapra rupicapra (♀)



Capra ibex



Cervus elaphus

b. Historique et développement

Le caractère actuel du site est l'aboutissement d'un milliard d'années d'histoire de la Terre. Les particularités pétrographiques et les contraintes tectoniques ont fourni la « pâte » qui sera modelée par des processus naturels exogènes (voir chapitre 3. a.). L'évolution holocène est mineure en regard des événements antérieurs. A la fin du Dryas récent, il y a 10 ka BP, les glaciers se sont retirés pour atteindre plus ou moins leur position actuelle. Ils oscillent depuis lors à l'intérieur d'une fourchette relativement étroite. Si l'extension actuelle figure bien dans cette fourchette, elle doit être considérée comme minimale à l'échelle plurimillénaire. Il est cependant déjà arrivé que l'appareil glaciaire soit encore plus réduit.

Bien que ses alentours plus ou immédiats aient été habités en permanence depuis longtemps - notamment par des Celtes, des Romains et des Alémanes au cours des derniers millénaires – le site lui-même n'a manifestement jamais été habité toute l'année. Il ne s'y prête pas du tout, car les emplacements habitables se trouvent, soit à une altitude trop élevée, soit sont inaccessibles en hiver. Les recherches portant sur l'évolution de la végétation révèlent cependant des interventions humaines dans le paysage à partir d'environ 3.4 ka BP. L'économie alpestre est connue en de nombreux endroits de Suisse à l'âge du Bronze. L'exploitation de pâturages, notamment dans la région d'Aletsch, est attestée non seulement par des constructions ou leurs vestiges, mais également, depuis le Bas Moyen Age, par des documents témoignant de la cession de droits d'alpage. Les seuls bâtiments habités en permanence se trouvent aujourd'hui au Jungfraujoch (gare du train de la Jungfrau et station de recherche scientifique). Les restaurants d'alpage et les cabanes de montagne ne sont en général pas occupés toute l'année.

Le Valais central est une région très sèche, c'est pourquoi elle a vu se développer, il y a longtemps déjà, un système d'irrigation élaboré, composé de canaux nommés « Suonen » dans le Haut-Valais et « bisses » dans le Bas-Valais. De la Savoie au Tyrol, toutes les régions sèches de l'arc alpin sont équipées d'ouvrages d'irrigation similaires. En général, captée dans des torrents glaciaires – parce qu'ils coulent durant toute la période de croissance de la végétation - l'eau est acheminée vers les prés par des canaux s'écoulant parfois en galerie et parfois dans des chenaux taillés dans le rocher. S'il est attesté que les premiers grands bisses ont été construits au

Haut Moyen Age, il n'est en revanche pas certain que leur origine remonte à la période romaine ou pré-romaine.

Les principaux types d'utilisation du site sont aujourd'hui:

- la sylviculture
- l'économie alpestre
- la chasse
- le tourisme
- la recherche scientifique
- la recherche de cristaux

D'autres activités ont été pratiquées, mais elles ont cessé depuis longtemps. On mentionnera en particulier l'exploitation minière. Du minerai de fer a, par exemple, été extrait dès le début du XVIII^e siècle à Trachsellaenen, dans le Hinteres Lauterbrunnental, mais l'exploitation a été abandonnée en 1805 déjà. Le granite de Baltschieder recèle des veines de quartz contenant le minéral molybdénite (MoS₂). Du molybdène a été extrait pendant la seconde guerre mondiale de cette occurrence unique en Suisse, mais en quantités modestes. La concession pour l'exploitation du minerai de molybdène et de tungstène, dans la vallée de Baltschieder, a certainement expiré depuis lors.

La pêche à la ligne revêt une importance négligeable.

La sylviculture est globalement insignifiante et confinée à la bordure la plus externe du site. Elle n'altère pas sa valeur naturelle.

L'économie alpestre est localement un peu plus développée que la sylviculture, mais elle est également limitée aux marges du site. On y élève surtout des génisses, un peu moins souvent des vaches laitières, ainsi que des moutons et quelques chèvres, dont la race particulière des chèvres valaisannes à cou noir. Les directives vont en général dans le sens d'une économie alpestre durable, mais l'exploitation est plutôt sur le déclin. Pour autant qu'elle soit pratiquée de manière durable, l'économie alpestre, qui remonte vraisemblablement à l'âge du Bronze, ne déprécie pas le site. La migration attendue du loup pourrait entrer en conflit avec l'estivage des moutons.



Chèvre à col noir



Moutons à nez-noir

Chasse: On chassait autrefois pour se nourrir, ce qui a certainement affecté les populations de gibier. Différentes espèces, dont le bouquetin, le cerf élaphe, le chevreuil, le loup, l'ours, le lynx et le gypaète barbu, ont été exterminées ou ont vu leur population décimée. La situation a cependant évolué de manière décisive. Les ongulés sont désormais chassés seulement hors des districts francs, à l'exception du bouquetin, dont la chasse est limitée à des tirs de régulation selon l'ordonnance sur la régulation des populations de bouquetins (ORB, RS 922.27). La chasse est pratiquée selon un système de patente (licence), aussi bien dans le canton de Berne que dans celui du Valais. Pour être autorisé à chasser, il faut avoir réussi un examen. Au contraire du Valais, le lièvre variable, le lagopède alpin et le tétras-lyre ne sont pas chassés dans le canton de Berne. La plupart des espèces - pour autant qu'elles puissent être chassées - bénéficient de périodes de protection, déterminées au plan fédéral, que les cantons peuvent prolonger (art. 5 de la loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages, RS 922.0). Pour autant que la chasse soit planifiée en fonction des particularités du gibier, ce qui est de plus en plus souvent le cas, elle n'affaiblit pas les valeurs du site.

Tourisme: La crainte que les montagnes suscitaient au Moyen Age s'estompe aux XVIII^e et XIX^e siècles pour laisser la place au romantisme et à l'exaltation de la nature. C'est un monde étonné qui écoute les premiers voyageurs parler des merveilles de la nature, des géants de glace, des glaciers et des cascades, ainsi que des coutumes jusqu'alors ignorées des populations de montagne. Si l'intérêt est d'abord de nature artistique ou scientifique, la situation évolue au cours du XIX^e siècle. L'apparition des premiers touristes suscite un développement qui se poursuit aujourd'hui encore. Les conditions de vie des populations de montagne changent dans la région de la Jungfrau comme dans celle d'Aletsch. Autrefois agricole, la société se transforme en prestataire de services.

C'est le tourisme estival qui se développe le premier. A la fin du XIX^e siècle, toutes les principales montagnes de la région sont gravies, à commencer par la Jungfrau en 1811, pour finir avec le Hinter Fiescherhorn en 1885.

Premières ascensions

Jungfrau	1811	Bietschhorn	1859
Finsteraarhorn	1812 (probable)	Schreckhorn	1861
Lauteraarhorn	1842	Gross Fiescherhorn	1862
Mönch	1857	Gross Grünhorn	1865
Eiger	1858	Gspaltenhorn	1869
Aletschhorn	1859	Hinter Fiescherhorn	1885

Il faut attendre les années trente pour que le ski devienne un sport populaire et provoque un déplacement du pôle de l'activité touristique de l'été à l'hiver.

L'Oberland bernois connaît dans les années 1870 – 1914, puis à nouveau dès 1950, une véritable euphorie du rail liée au développement touristique. C'est durant la première période qu'est construit le chemin de fer de la Jungfrau, conçu dès le début pour fonctionner à l'énergie électrique et exploité selon ce procédé. Il amène le voyageur de la Kleine Scheidegg, à 2061 m d'altitude, au Jungfraujoch, à 3454 m, en suivant un tracé dont la majeure partie passe à l'intérieur des masses rocheuses de l'Eiger et du Mönch. Le chantier est ouvert en 1896 et la gare du Jungfraujoch est inaugurée le 1^{er} août 1912. Tout à la fois prouesse technique et monument historique, le chemin de fer de la Jungfrau reflète l'esprit de son époque. Il était même prévu à l'origine d'atteindre le sommet de la Jungfrau par un ascenseur et un escalier en colimaçon.

Le site ne comprend pas d'autres moyens de transport touristique que le chemin de fer de la Jungfrau et le funiculaire du Trümmelbach. En tout état de cause, il est trop escarpé pour se prêter à des installations dévolues au tourisme de masse. En revanche, il représente été comme hiver un terrain particulièrement attrayant pour l'alpiniste chevronné. L'ensemble du site est décrit dans les guides du Club Alpin Suisse (Berner Alpen 2 – 5) et par d'autres guides. L'alpiniste dispose d'un réseau bien développé de refuges, en général des cabanes propriété du Club Alpin Suisse (CAS), du Club Alpin Académique de Berne (AACB) ou de privés.

Cabane Baltschieder	2783 m, CAS	Cabane Oberaarjoch	3256 m, CAS
Cabane Bergli	3299 m, CAS	Cabane Oberaletsch	2640 m, CAS
Cabanes Finsteraarhorn	3048 m, CAS	Cabane Rottal	2755 m, CAS
Cabane Guggi	2791 m, CAS	Cabane Schreckhorn	2529 m, CAS
Cabane Konkordia	2850 m, CAS	Cabane Silberhorn	2663 m, CAS
Cabane Hollandia	3235 m, CAS	Bivouac du Stockhorn	2598 m, CAS
Bivouac du Mittelaletsch	3013 m, CAS	Cabane Strahlegg	2687 m, CAS
Cabane Mutthorn	2898 m, CAS		
Cabane Bietschhorn	2565 m, AACB	Cabane Schmadri	2262 m, AACB
Cabane Anen	2355 m, privée	Cabane Mittellegi	3355 m, privée
Hôtel Obersteinberg	1778 m, privé	Cabane Mönchsloch	3657 m, privée
Hôtel Tschingelhorn	1678 m, privé	Cabane Wiwanni	2460 m, privée
Jungfraujoch	3454 m, privé		
(pas de possibilité de passer la nuit)			

Le réseau de chemins de randonnée pédestre est bien développé dans les secteurs proches de la périphérie du site, notamment dans celui d'Aletsch. Sinon, le site est en grande partie inaccessible aux promeneurs.

Les seules pistes de ski touchant le site se trouvent au voisinage de la station d'Eigerletscher et sous l'Eggishorn. Leur influence est négligeable.

Recherche scientifique: Une station scientifique d'altitude est sise au Jungfrauoch. Sa situation à plus de 3500 m d'altitude, unique en Europe, et la desserte permanente par le chemin de fer de la Jungfrau offrent d'excellentes conditions de recherche, notamment dans les domaines de la physique de l'environnement, de la physique de l'atmosphère terrestre et solaire, et de l'astronomie. L'ensemble du site fait en outre l'objet, à divers degrés, de recherches dans des disciplines très variées comme la géologie, la glaciologie, la géomorphologie, la botanique, la zoologie ou le tourisme. Ces travaux ont eu pour effet d'accroître la notoriété du site et d'améliorer la prise de conscience de ses valeurs naturelles.

Recherche de cristaux: Des fentes et des fissures, dites fissures de tension, se sont ouvertes sous les contraintes tectoniques inhérentes à l'orogénèse alpine. Elles ont été parcourues par des solutions chaudes, à partir desquelles des cristaux individuels se sont formés lors du refroidissement qui s'en est suivi. On connaît surtout le quartz, qui revêt souvent la forme de quartz fumé, mais aussi l'adulaire, le sphène, l'épidote et bien d'autres. La recherche des cristaux, en général comme loisirs, a une longue tradition dans la région. Il n'y a cependant jamais eu d'exploitation recourant aux techniques minières, ce qui signifie que des sites d'extraction de grande extension n'entrent pas en ligne de compte.

c. **Forme et date des documents les plus récents concernant le bien**

Les principaux ouvrages figurent dans la liste bibliographique (chapitre 7. c.).

Signalons en particulier: ALBRECHT (1997), ANKER (1996), BERTRAM (2000), BURRI (1992), HALDER (2000), HAUSSER (1995), HOLZHAUSER (1984), LABHART (1997), MASELLI (1990), OGGIER (1995), RICHARD (1987), SCHMID *et al.* (1998), WELTEN (1982), WELTEN & SUTTER (1982), WERNER (1988), WIPF (1999), WOHLGEMUTH (1993), ZUMBÜHL (1980).

Les listes floristiques et faunistiques se trouvent dans les annexes 6 - 9.

Les documents relatifs à la situation juridique du site et aux plans directeurs sont énumérés dans les chapitres **4. b.**, **4. c.** et **7. f.**

d. Etat actuel de conservation

Le statut juridique du site et sa planification en matière d'aménagement du territoire figurent dans les chapitres **4. b.** et **4. f.** Dans la réalité des faits, il y a lieu de retenir qu'il s'agit essentiellement d'une région sauvage. L'être humain ne se l'est appropriée que très ponctuellement (cabanes de montagne), parfois depuis plusieurs décennies, mais sans en altérer le moins du monde le caractère. Si ces atteintes revêtent une certaine importance sur le plan local, elles sont négligeables dans l'ensemble. L'élimination des matières fécales pose notamment des problèmes dans les cabanes très fréquentées. Cependant, des efforts sont actuellement consentis en vue de les résoudre. Au Jungfraujoch, ils sont réglés par des installations adaptées: les eaux usées sont acheminées via la Kleine Scheidegg vers la station d'épuration de Grindelwald.

En bordure du site, la sylviculture est aujourd'hui régie selon des principes de durabilité, car il s'agit presque exclusivement de forêts protectrices. Il est donc moins question de les exploiter que de maintenir des forêts stables.

L'économie alpestre, qui ne concerne en tout état de cause que des secteurs marginaux, est elle aussi régie selon des principes de durabilité. Elle est de plus sur le déclin.

e. Politiques et programmes relatifs à la mise en valeur et à la promotion du bien

Il convient encore d'élaborer des programmes spécialement consacrés à la mise en valeur et à la promotion du bien (voir aussi les chapitres **4. i.** et **4. j.**).

Sources

ALBRECHT (1997), ANCHISI (1995), ANKER (1996, 1997, 1998), BECHERER (1972), BERTRAM (2000), BLUM (1994), BURRI (1992), CADISCH (1953), DELARZE *et al.* (1998), GERBER *et al.* (1998), HALDER (2000), HANTKE (1980), HAUSMANN (1997), HAUSSER (1995), HEIM (1921), HESS (1921), HÖGL (1994), HOELZLE *et al.* (1999), HOLZHAUSER (1984), JUNGFRAUBAHNEN (o. Jahrg., b), KÄÄB & FUCHS (1998), LABHART (1992, 1997,

1999), LIGUE SUISSE POUR LA PROTECTION DE LA NATURE (1987), LÜDI (1921, 1945, 1946, 1950, 1958), MASELLI (1990), MOSIMANN (1996, 1999), MÜLLER (1993), MÜLLER *et al.* (1976), OGGIER (1995), RICHARD (1987), RIKLI (1909), SCHMID *et al.* (1998), THEURILLAT (1992), WELTEN (1982), WELTEN & SUTTER (1982), WERNER (1988), WIPF (1999), WOHLGEMUTH (1993), ZUMBÜHL (1980), ZUMBÜHL & HOLZHAUSER (1988).

Loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages; RS 922.0;

Ordonnance sur la régulation des populations de bouquetins; RS 922.27.

Annexes

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 23, 24, 25, 28, 29.

4. Gestion

a. Droit de propriété

Les cantons de Berne **BE** et du Valais **VS** se partagent le site de la manière suivante:

Canton	Surface (ha)	Surface (km²)	Part (%)
BE	12'457.94	124.58	23.1
VS	41'430.15	414.30	76.9
Total	53'888.09	538.88	100.0

Au total, on dénombre 13 communes, dont les surfaces respectives sont présentées ci-dessous:

N°	Commune	Surface (ha)	Surface (km²)
BE			
576	Grindelwald	4'850.24	48.50
584	Lauterbrunnen	7'607.70	76.08
VS			
6001	Birgisch	1'168.27	11.68
6006	Mund	5'257.69	52.58
6007	Naters	6'770.62	67.71
6052	Bellwald	225.23	2.25
6058	Fieschertal	15'966.16	159.66
6171	Betten	1'777.86	17.78
6180	Ried-Mörel	597.61	5.98
6191	Ausserberg	989.98	9.90
6192	Blatten	5'312.88	53.13
6198	Niedergesteln	1'212.55	12.13
6199	Raron	2'151.32	21.51
Total		53'888.09	538.88

Environ 30 % de la surface totale du site sont situés sur le territoire de la seule commune de Fieschertal.

La plus grande partie du sol est propriété des pouvoirs publics, autrement dit des communes. La propriété privée se limite généralement aux terrains cultivables, donc aux secteurs situés en bordure du site. Parmi les plus grands propriétaires privés, il y a l'organisation de protection de la nature « Pro Natura » (Alpes Understeinberg et Breitlauenen dans le Hinteres Lauterbrunnental, avec une surface totale d'environ 500 ha).

b. Statut juridique

c. Mesures de protection et moyens de mise en œuvre

Le site est protégé à quatre échelons, mais sur des surfaces différentes. Aux côtés de ceux utilisés au niveau de la Confédération, il existe des instruments de protection cantonaux et communaux. A ceux-là s'ajoute une protection contractuelle sur certaines surfaces.

A l'échelle de la Confédération, la totalité du site fait partie, depuis 1983, de l'objet N°1507/1706 "Berner Hochalpen und Aletsch-Bietschhorn-Gebiet" de l'Inventaire fédéral des paysages, sites et monuments naturels d'importance nationale (IFP). Le Conseil fédéral, qui est également compétent pour l'inscription d'objets dans l'IFP, a révisé le périmètre en 1998.

L'IFP se fonde sur l'article 5 de la loi fédérale du 1^{er} juillet 1966 sur la protection de la nature et du paysage (LPN, RS 451) et sur l'ordonnance concernant l'inventaire fédéral des paysages, sites et monuments naturels (OIFP, RS 451.11). Selon l'article 6 LPN, l'inscription d'un objet d'importance nationale dans un inventaire fédéral indique que l'objet mérite spécialement d'être conservé intact ou en tout cas d'être ménagé le plus possible, y compris au moyen de mesures de reconstitution ou de remplacement adéquates. Lorsqu'il s'agit d'une tâche de la Confédération, la règle suivant laquelle un objet doit être conservé intact ne souffre d'exception que si des intérêts équivalents ou supérieurs, d'importance nationale également, s'opposent à cette conservation (pondération qualifiée des intérêts en présence). Sont réputées tâches de la Confédération, l'étude, la construction et la modification de constructions et d'installations par la Confédération ou ses entreprises, l'octroi de concessions et d'autorisations, par exemple pour la construction et l'exploitation d'installations de transport et de communications, l'octroi de contributions à des études, ouvrages et installations, tels que des améliorations foncières, des corrections de cours d'eau, etc. Les valeurs du site sur le plan écologique et paysager sont éminentes, ce que nul ne conteste d'ailleurs. C'est la raison pour laquelle l'efficacité de l'IFP qui, généralement, est relative sous l'angle de la protection qu'il confère, est très grande en l'occurrence. De plus, à la protection assurée par l'IFP, s'ajoute en partie celle conférée par d'autres instruments juridiques dont l'effet à ce titre est encore plus fort. Font partie de tels instruments, d'autres inventaires fédéraux et leurs ordonnances y relatives, ainsi que des décrets cantonaux de protection et des contrats de droit public.

A l'intérieur du site se trouvent deux objets inscrits à l'Inventaire fédéral des zones alluviales d'importance nationale, à savoir le N°136 Ganderen et le N°137 Jegital. Dans le cadre de la révision en cours de l'inventaire précité, il est prévu d'étendre le périmètre de l'objet N°136 et d'y inscrire un troisième objet, à savoir la marge proglaciaire du glacier Üssre Baltschiedergetscher. Les zones alluviales d'importance nationale doivent être conservées intactes (ordonnance sur la protection des zones alluviales d'importance nationale, RS 451.31). Cette règle ne souffre d'exception qu'à condition que des intérêts équivalents, imposés par leur destination et d'importance nationale également, puissent être pris en considération. Doivent être également conservés intacts, l'objet N°941 Aletschwald, un marais de transition inscrit dans l'Inventaire fédéral des hauts-marais et des marais de transition d'importance nationale (ordonnance sur la protection des hauts-marais et des marais de transition d'importance nationale, RS 451.32), l'objet N°606 Understeinberg, l'objet N°607 Station Wengernalp, tous deux des hauts-marais d'importance nationale, ainsi que l'objet N°3625, portant aussi le nom de Station Wengernalp, inscrit dans l'Inventaire fédéral des bas-marais d'importance nationale (ordonnance sur la protection des bas-marais d'importance nationale, RS 451.33).

Divers territoires du côté valaisan sont situés dans les districts francs fédéraux : N°32 Aletschwald, N°33 Alpjuhorn, N°34 Wilerhorn et N°35 Bietschhorn. Les districts francs fédéraux sont fondés, tant sur la loi sur la chasse (loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages, RS 922.0) que sur la LPN. Ces deux textes ne se contentent pas seulement d'interdire la chasse, mais ils instituent l'obligation de conserver les zones en question comme des espaces vitaux pour les mammifères et les oiseaux sauvages. Cet objectif doit être atteint par l'instauration d'une série de mesures (voir articles 5 et 6 de l'ordonnance concernant les districts francs fédéraux, RS 922.31). Il convient de citer notamment à cet égard l'interdiction de déranger les animaux, la pratique d'une agriculture et d'une sylviculture appropriées, ainsi que la prise en considération des districts francs dans le cadre des plans directeurs et des plans d'affectation cantonaux et communaux.

Des décisions cantonales de protection existent du côté bernois pour le Hinteres Lauterbrunnental depuis 1960 et, sur le versant valaisan, pour la forêt d'Aletsch depuis 1933 et pour Märjelen depuis 1938. La zone de protection de la nature dans le Hinteres Lauterbrunnental est en outre couverte partiellement par le district franc cantonal N° 5 Breithorn (ordonnance du 5 août 1992 sur les districts francs et les

régions protégées). Les alpes Understeinberg et Breitlauenen, également situées dans la zone protégée cantonale, sont aussi la propriété de Pro Natura.

S'agissant de la forêt d'Aletsch, Pro Natura a passé un contrat de protection avec la commune de Ried-Mörel pour une durée de 99 ans. Le périmètre sous contrat a été étendu en 1999.

La protection du Baltschieder tal est régie, depuis 1986, par un contrat passé entre les communes de Baltschieder, Eggerberg et Mund d'une part et, de l'autre, la Fondation suisse pour la protection et l'aménagement du paysage, ainsi que Pro Natura Valais. La commune d'Ausserberg est aussi partie au contrat depuis 1994. Celui-ci prévoit qu'il faut conserver l'état tel qu'il était en l'année de référence 1986.

Sont sur le point d'être conclus pour une durée de 40 ans, des contrats pour le Seetal, Jolital, Bietschtal, Baltschieder tal, Gredetschtal et le bassin versant de la Massa, sur le territoire des communes de Naters et Ried-Mörel. Ils prévoient la renonciation à l'exploitation de la force hydraulique et sont fondés sur l'ordonnance sur la compensation des pertes subies dans l'utilisation de la force hydraulique (OCFH, RS 721.821). Les contrats seront passés entre la Confédération suisse, représentée par l'Office fédéral des eaux et de la géologie, les communes concernées et le canton. Les dispositions de protection prévoient, outre la renonciation à l'utilisation de la force hydraulique, la conservation de toutes les valeurs qui confèrent à cette région le caractère d'importance nationale. Par conséquent, l'édification de constructions et d'installations de quelque nature que ce soit, les modifications de la configuration du terrain, ainsi que les téléphériques, téléskis et autres installations similaires ne sont en principe pas autorisés. Pour que les contrats entrent en force et que des indemnités puissent être versées, les dispositions de protection doivent être contraignantes pour les particuliers, ce qui sera le cas après leur concrétisation dans les plans d'affectation communaux.

Si les instruments juridiques de protection sont multiples, leur mise en œuvre s'avère également variée. Comme l'IFP produit essentiellement ses effets de protection dans le cadre des tâches de la Confédération, c'est cette dernière qui est chargée en premier lieu de sa mise en œuvre. Celle-ci se traduit par l'évaluation des projets sous l'angle de leur compatibilité avec les dispositions en matière de protection selon la LPN et l'IFP, par les services compétents de l'Office fédéral de l'environnement, des forêts et du paysage (OFEFP), et par l'examen obligatoire de la Commission fédérale

pour la protection de la nature et du paysage (CFNP). La mise en œuvre des autres inventaires fédéraux relève de la compétence des cantons, qui sont libres de choisir à cet effet les instruments appropriés (décrets cantonaux de protection, contrats, etc.). Pour les marais situés près de la station de Wengernalp, le canton de Berne a par exemple délimité, par décret, une zone de protection de la nature, et le canton du Valais en a fait de même pour les marges proglaciaires du Langgletscher et du Jegigletscher.

Les cantons ont aussi pour devoir de veiller au respect des prescriptions. S'agissant des districts francs fédéraux, ils doivent désigner pour chaque zone un ou plusieurs gardes-chasse qui sont des fonctionnaires cantonaux (article 11 de l'ordonnance concernant les districts francs fédéraux). Quant à la mise en œuvre de zones de protection communales, ce sont les communes qui sont compétentes. En l'occurrence, le canton a une fonction de surveillance. Dans le cas de la réserve de la forêt d'Aletsch, la responsabilité est partagée (canton, Pro Natura).

Les mesures de protection, d'entretien et de mise en valeur sont généralement du ressort des cantons. La Confédération soutient ces derniers sur le plan technique et participe aux coûts en versant des contributions substantielles.

d. Organismes chargés de la gestion

Confédération	Office fédéral de l'environnement, des forêts et du paysage (OFEFP) Division Nature CH-3003 Berne
Canton de Berne	Office des affaires communales et de l'organisation du territoire Division Planification cantonale Nydegasse 11/13 CH-3011 Berne
	Office de la nature Inspection de la protection de la nature Herrengasse 22 CH-3011 Berne

Canton du Valais Service des forêts et du paysage
Bâtiments Mutua
CH-1951 Sion

ONG Pro Natura Centre d'Aletsch
Villa Cassel
CH-3987 Riederalp

e. Echelon auquel s'effectue la gestion et nom et adresse de la personne responsable à contacter

Selon le niveau de protection (Confédération, cantons, communes, particuliers), la responsabilité est également partagée. Il n'y a donc pas une seule personne responsable.

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f. Plans adoptés concernant le bien

Canton du Valais

En Valais, sur le plan de l'aménagement du territoire, c'est le Plan directeur cantonal, Canton du Valais (mis à jour le 31.12.1999) qui s'applique au site. Conformément à la fiche de coordination f.603/2, les organes compétents ont à veiller à ce que les tâches et les conditions engendrées par l'inscription du site dans l'IFP soient respectées. En règle générale, ceci se fait par l'inclusion d'une zone de protection du paysage dans le plan de zone communal, zone assortie de dispositions instituant les mesures de protection y afférentes.

Canton de Berne

Sous l'angle de l'aménagement du territoire, c'est le plan directeur cantonal, avec divers instruments, qui couvre le territoire en question. Il revêt un caractère d'instruction à l'attention des autorités et, dans cette mesure, il n'a pas d'effet obligatoire pour les propriétaires fonciers. Font partie des instruments déterminants du plan directeur, le plan directeur de la région Oberland Est (Regionaler Richtplan Oberland Ost 1984), le plan forestier régional de Lüttschinentäler

(Waldentwicklungsplan Lüttschinentäler 1999), ainsi que le concept de développement 2005 (Entwicklungskonzept 2005 1991). Dans le plan directeur de la région de l'Oberland Est, le site est **a.** délimité en tant que paysage d'importance nationale, dans lequel viennent s'imbriquer **b.** des zones de protection du paysage, **c.** des sites dotés d'une protection de haute montagne et **e.** des zones de danger. Le point **a.** implique une renonciation à des interventions modifiant le paysage, alors que sous **b.**, les constructions et installations imposées par leur destination sont avant tout possibles pour l'économie agricole et sylvicole, ainsi que pour des installations d'approvisionnement et des équipements destinés à des activités de détente, pour autant qu'elles ne portent pas atteinte à l'image globale ou à des éléments caractéristiques du paysage et qu'elles s'intègrent bien dans ce dernier. La protection de haute montagne **c.** a pour but, à large échelle, de conserver la haute montagne, dans sa globalité, en particulier en ce qui concerne son apparence, sa fonction de compensation écologique et le calme qu'elle offre. Des atteintes de tout genre, qui vont à l'encontre du but de protection, sont à prohiber. Sont indésirables, par exemple, les installations de remontées mécaniques, le nivellement des pistes de ski, les places d'atterrissage en montagne, les restaurants d'altitude d'une certaine importance. Pour des projets imposés par leur destination, tels que des refuges, des stations de recherches, la preuve devrait être faite que leur réalisation sur le site envisagé est appropriée. Le périmètre de danger **e.** recouvre partiellement les territoires mentionnés. A l'intérieur de cette zone, il ne faut tolérer aucune construction, installation ou utilisation dont l'existence pourrait être mise en danger par des événements naturels.

Dans le concept de développement 2005, la zone de risques d'avalanches qualifiés d'extrêmes, située au-dessous de la paroi nord de l'Eiger, est délimitée comme zone de ski hors piste. La piste de ski, comprise entre la station d'Eigergletscher et les stations inférieures des téléskis de Wixi et Fallboden, touche le site en sa périphérie. Pour la zone attenante Männlichen-Kleine Scheidegg, l'objectif formulé est de ne pas équiper d'installations de remontées mécaniques de nouveaux secteurs, mais au contraire de renouveler et de compléter l'offre touristique pour les skieurs conformément aux règles du marché.

Le plan forestier régional exige la mise en oeuvre d'une gestion forestière proche de la nature et la délimitation de réserves forestières à l'intérieur du site.

A l'échelon du plan d'affectation, qui a un caractère obligatoire pour les propriétaires fonciers, le plan d'aménagement paysager est en cours d'élaboration dans les deux communes bernoises de Grindelwald et de Lauterbrunnen.

g. Sources et niveaux de financement

Le montant exact des dépenses occasionnées pour le site ne peut pas être chiffré. En premier lieu, les coûts, dans le cas d'une zone sauvage, sont relativement modestes. Sous réserve des exceptions mentionnées ci-dessous, il n'y a pas non plus d'indemnités considérables à verser. De plus, les dépenses générales (surveillance, entretien, etc.) font partie intégrante des budgets des cantons concernés et de la Confédération; elles ne sont donc pas mentionnées séparément. Les indemnités pour les pertes consécutives à la renonciation de l'exploitation de la force hydraulique sont prélevées sur les redevances hydrauliques. A cela s'ajoutent les investissements de Pro Natura dans la zone de protection de la nature du Hinteres Lauterbrunnental et pour la surveillance exercée dans la forêt d'Aletsch.

h. Sources de compétences et de formation en matière de techniques de conservation et de gestion

Les responsables de la protection de la nature et du paysage, qui travaillent dans les offices cantonaux ou fédéraux compétents, ont suivi des formations académiques et obtenu des titres universitaires, en règle générale en biologie ou en géographie.

i. Aménagements pour le visiteur et statistiques les concernant

Un véritable « Visitor's Center » n'existe pas encore. Mais Pro Natura exerce une activité spécifique en ce domaine avec son Centre d'Aletsch – la Villa Cassel – au-dessus de Riederalp. La Villa Cassel est idéalement située à la limite d'un paysage façonné par l'homme et d'un paysage naturel. En plus d'une exposition, d'une présentation vidéo et d'un jardin alpin, Pro Natura organise également, depuis son centre, des excursions, cours, rencontres et séminaires sur la formation en matière d'environnement. La forêt d'Aletsch est visitée chaque année par 50'000 à 70'000 personnes.

Au Jungfrauoch, se trouve un refuge de montagne avec restaurant, une gare ferroviaire (dans le rocher) et une station de recherches. Le visiteur n'a pas la possibilité d'y passer la nuit. Mais le Jungfrauoch est sans nul doute une attraction touristique. Il est aussi un lieu idéal pour la recherche. Une exposition présente les travaux qui y sont menés, les découvertes scientifiques et l'histoire de cette station d'altitude. A peu près 500'000 personnes visitent le Jungfrauoch chaque année.

D'autres équipements, qui sont destinés avant tout à l'alpinisme, sont présentés dans le chapitre **3. b.** du présent document.

Des études préliminaires portant sur la création à Naters d'un Culturama Aletsch sont en cours. Dans ce culturama seront traitées, documentées et présentées de manière vivante la culture et la nature entourant le Glacier d'Aletsch. Un « Tour du patrimoine mondial » sera développé et reliera le patrimoine mondial culturel que constitue la « Vieille Ville de Berne » avec le patrimoine mondial naturel.

j. Plan de gestion du bien et exposé des objectifs

Un plan de gestion doit encore être élaborer. Les objectifs s'orienteront prioritairement sur la protection intégrale des processus, autrement dit la sauvegarde de la dynamique naturelle.

Un groupe d'accompagnement, dans lequel la Confédération, les deux cantons, les communes concernées, Pro Natura et des entreprises touristiques sont représentés, doit aussi être mis sur pied.

k. Nombre d'employés

Personne n'est employé, à l'échelon cantonal ou à l'échelon national, exclusivement pour la protection, l'entretien et la surveillance du site. Tous les personnes concernées assument également d'autres tâches.

Sources

HALDER (2000), JUNGFRAUBAHNEN (o. Jahrg., b), RUPPEN (2000), VISCHER (1946).

Loi fédérale sur la protection de la nature et du paysage; RS 451;
Ordonnance sur la protection de la nature et du paysage; RS 451.1;
Ordonnance concernant l'inventaire fédéral des paysages, sites et monuments naturels, RS 451.11;
Ordonnance sur la protection des zones alluviales d'importance nationale; RS 451.31;
Ordonnance sur la protection des hauts-marais et des marais de transition d'importance nationale; RS 451.32;
Ordonnance sur la protection des bas-marais d'importance nationale; RS 451.33;
Ordonnance sur la compensation des pertes subies dans l'utilisation de la force hydraulique; RS 721.821;
Loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages; RS 922.0;
Ordonnance concernant les districts francs fédéraux; RS 922.31;
Ordonnance sur la régulation des populations de bouquetins; RS 922.27.
Ordonnance sur les refuges de chasse et les réserves; RSB 922.63;
Naturschutzgebiet 4.1.1.39, Hinteres Lauterbrunnental, Extrait du procès verbal No 3804 du Conseil-exécutif du Canton de Berne, 21 Juin 1960;
Naturschutzgebiet 4.1.1.206, Wengernalp, Extrait du procès verbal No 3502 du Conseil-exécutif du Canton de Berne, 22 Décembre 1999;
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Beschluss des Staatsrates des Kantons Wallis zum Schutz der Gegend des Märjelensees vom 23. Februar 1938;
Entscheidung des Staatsrates des Kantons Wallis betreffend den Schutz der vier Auengebiete von nationaler Bedeutung und der Gletschervorfelder des Jegi- und des Langgletschers im Lötschental vom 20. Mai 1998

Annexes

1, 2, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 26, 27, 28, 29.

5. Facteurs affectant le bien

a. Pressions dues au développement

La plus grande partie du site est protégée naturellement par sa topographie et par sa situation en altitude. De vastes secteurs sont inaccessibles été comme hiver à qui ne dispose pas d'une expérience et d'un équipement spécifiques, à moins d'en avoir assez de la vie. Le site ne se prête pas non plus aux sports à la mode, tels le canyoning ou le vélo tout terrain.

Incompatibles avec la législation en vigueur et avec la politique d'octroi de concession de la Confédération, de nouveaux aménagements touristiques ou autres graves atteintes au site sont exclus jusqu'à nouvel ordre.

Situé en bordure du site, mais encore à l'intérieur de celui-ci, le barrage de Gibidum endigue la Massa, qui draine les eaux de la région d'Aletsch (glaciers d'Oberaletsch et de Mittelaletsch, Grand Glacier d'Aletsch). L'eau accumulée est turbinée à Bitsch, dans la vallée du Rhône. Le débit résiduel s'écoule dans les gorges de la Massa situées hors du site. Actuellement, il n'est pas intéressant au plan économique de prévoir une nouvelle exploitation de l'énergie hydraulique. D'ailleurs, quelques sites seulement s'y prêteraient. On part du principe que l'on renonce à exploiter l'énergie hydraulique même là où ce serait possible (voir les explications à ce sujet aux chapitres **4. b.** et **4. c.**).

En bordure du site, une extension des infrastructures nécessaires à l'agriculture et à la sylviculture est envisageable. Mais les projets susceptibles d'avoir des répercussions négatives, préjudiciables à la valeur du site, ne seraient pas autorisés en vertu de la législation en vigueur et de sa stricte application. Cependant, comme les terres en question ne leur sont pas très favorables, il faut miser sur l'extensification de l'agriculture et de la sylviculture plutôt que sur leur intensification. L'entretien et la rénovation de bâtiments et d'installations construits légalement sont autorisés et conformes aux buts visés par la protection.

Le site ne comprend pas de gisement exploitable de minerai ni de minéraux. En tout état de cause, il est presque exclu que des concessions soient octroyées, en raison de la valeur naturelle élevée du site.



Barrage de Gibidum

b. Contraintes liées à l'environnement

Le réchauffement climatique global qui se manifeste depuis le milieu du XIX^e siècle est désormais un phénomène connu. Il s'accompagne d'un retrait généralisé des glaciers à l'échelle du globe, que l'on peut aussi observer dans le site. On ignore si ce réchauffement climatique – dont l'ampleur semble toujours se situer dans la fourchette d'oscillation des 10'000 dernières années – est d'origine naturelle, humaine ou mixte. Selon certains indices, il résulte d'un renforcement de l'effet de serre naturel, dont la cause est à rechercher dans l'augmentation d'origine anthropique de la teneur de l'atmosphère en gaz à effet de serre.

La mesure des oscillations des glaciers au cours de la période de référence courant de 1850 à 1973 permet de calculer des scénarios de fonte des glaciers. Même si la ligne d'équilibre 2:1 devait ne monter que de 100 m, il ne subsisterait que les trois quarts de la superficie englacée de 1973. Quant à l'ampleur de la fonte des différents glaciers, elle dépend également de leur configuration, c'est-à-dire de la répartition altimétrique de leur superficie.

Le réchauffement ne se répercute pas seulement sur l'étendue des zones englacées. Il affecte par exemple aussi la limite inférieure du pergélisol, partant la stabilité des pentes. Comme la limite inférieure du pergélisol, notamment du pergélisol discontinu, est décalée vers le haut, la stabilité des pentes s'amenuise dans cette tranche altimétrique. Il en va de même pour les glaciers suspendus, qui tendent eux aussi à devenir instables. Le danger de chutes et d'avalanches de glace s'accroît. Ces phénomènes sont susceptibles de toucher quelques bâtiments et installations situés à l'intérieur comme à l'extérieur du site. Il faut en outre s'attendre à long terme à un changement du régime hydrique.

Le réchauffement climatique aura également un effet sur le règne végétal. Les limites de végétation, telle la limite supérieure des forêts, seront décalées vers le haut et la répartition altimétrique de certaines espèces végétales sera modifiée.

Ces transformations échappent à toute mesure de planification. On ne peut agir sur leurs causes à petite échelle, car le phénomène est global. En tout état de cause, la nature ne s'en trouverait pas détruite, mais seulement modifiée. Les particularités esthétiques de la région, comme le canevas de répartition de la glace et du rocher, qui contribue aujourd'hui à la valeur du site, disparaîtraient certainement si la

tendance devait se poursuivre à long terme. Mais il est également possible que de nouvelles valeurs apparaissent.

c. Catastrophes naturelles et planification préalable

Du point de vue de la nature, des événements catastrophiques aux yeux de l'être humain ne sont rien de plus que des facteurs environnementaux parmi d'autres de l'écosystème considéré. Il en va ainsi des fortes précipitations sous forme de pluie ou de neige, des avalanches, des chutes de glace, des éboulements, des tassements rocheux ou autres laves torrentielles. A l'étage subalpin, en particulier sur le versant valaisan, les feux de forêts sont également possibles. Comme la plus grande partie du site est sauvage, il faut en accepter le principe, car ces phénomènes font partie intégrante de la nature. Des problèmes se posent également dans certains secteurs périphériques, mais il s'agit d'une question d'aménagement du territoire à l'extérieur du site plutôt qu'à l'intérieur (définition de zones de dangers et détermination des mesures à prendre, voir chapitre 4. f.). Il est toutefois possible que des mesures supplémentaires – matérielles et non seulement d'aménagement du territoire – doivent être prises à l'intérieur du site pour protéger, contre les dangers naturels, des personnes et des biens de valeur notable situés à l'extérieur. Cela s'applique surtout au domaine parcouru par la voie de chemin de fer du BLS (Berne-Lötschberg-Simplon) sur le versant sud du Lötschberg. Des ouvrages de protection ont par exemple été construits à l'aplomb de Rarnerchumma, sur le territoire de la commune de Rarogne. Comme seules les marges du site sont concernées, ses valeurs principales ne sont pas affectées. Pour ce qui est du changement climatique et de ses conséquences, on se référera aux explications ci-dessus (5. b.) et ci-dessous (5. f.).

d. Contraintes dues aux flux de visiteurs / au tourisme

Le nombre de visiteurs est naturellement limité par la disposition spatiale du site. Cet effet est particulièrement prononcé en hiver, où une partie des vallées et certains pôles d'attraction touristiques comme le Trümmelbach ou la forêt d'Aletsch sont inaccessibles. Il ne faut donc pas s'attendre à un afflux supplémentaire de visiteurs en hiver.

La situation est quelque peu différente en été. Les sites les plus souvent visités par les touristes sont le Jungfrauoch, puis le Trümmelbach et la région forêt d'Aletsch-Märjelen, ainsi que Fafleralp-Langgletscher dans le Lötschental. Le Jungfrauoch et le Trümmelbach, où l'approvisionnement et l'élimination des déchets sont réglementés, ne devraient pas poser de problèmes. Dans les sites de randonnée du Lötschental et du plateau d'Aletsch, il est possible de canaliser les visiteurs en mettant à leur disposition un réseau attrayant et bien entretenu de chemins de randonnée pédestre. Grâce à ce dernier, complété par une information adéquate et par des mesures de surveillance, comme dans la forêt d'Aletsch, les atteintes à la nature peuvent être maintenues à un niveau minimum. Il ne faut pas s'attendre à ce qu'elles augmentent par rapport à la situation actuelle.

Indépendamment de l'inscription du site, il est possible que les chemins de randonnée pédestre reliant Riederalp à Belalp doivent être améliorés en raison du recul du Grand Glacier d'Aletsch.

Il est peu probable que l'inscription du site provoque un afflux supplémentaire d'alpinistes. La liaison Jungfrauoch-Lötschenlücke-Fafleralp est en effet déjà très fréquentée aujourd'hui. Le problème posé par l'élimination des déchets de certaines cabanes est évoqué au chapitre **3. d**. Il s'agit parfois d'une question esthétique plutôt qu'écologique. La difficulté est malaisée à surmonter en raison des basses températures inhérentes à l'altitude. L'entretien et la rénovation des cabanes doivent également être pris en compte. Selon l'appréciation actuelle, il n'y a pas lieu d'en densifier le réseau.

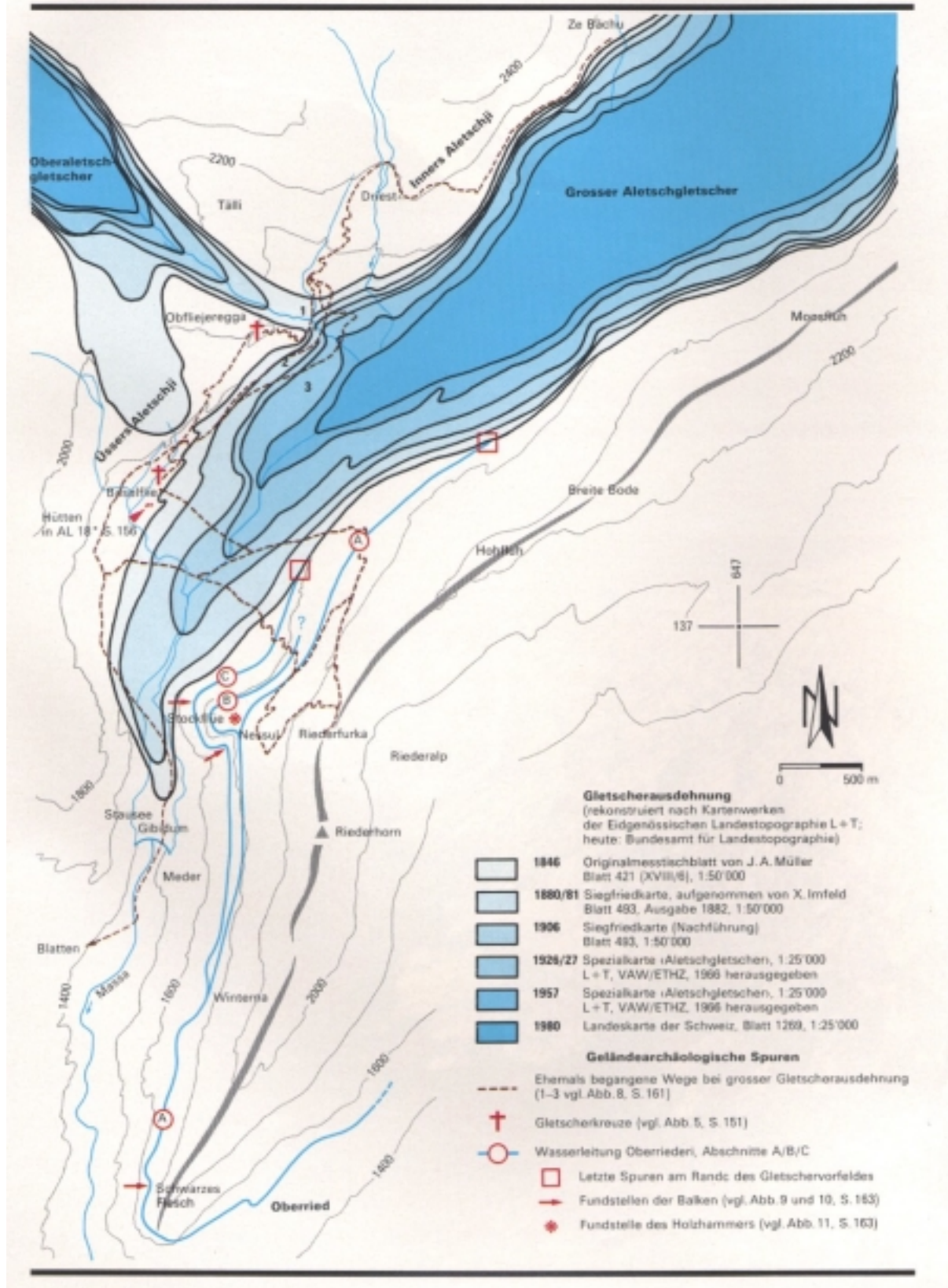
e. Nombre d'habitants à l'intérieur du bien

Le nombre des habitants séjournant de manière permanente dans le site se limite aux quelques personnes composant le personnel de la gare et de la station scientifique du Jungfrauoch.

f. Autre

Il est pas possible de discerner quelles seront les conséquences économiques à moyen et à long terme d'un éventuel réchauffement climatique, ni quelles conclusions en seront tirées.

Karte 1
Grosser Aletsch- und Oberaletschgletscher:
Ausdehnungen 1846-1980
und geländearchäologische Spuren



Source: HOLZHAUSER (1984)

Sources

ALBRECHT (1997), HALDER (2000), HOELZLE *et al.* (1999), HOLZHAUSER (1984), KÄÄB & FUCHS (1998), MÜLLER *et al.* (1976), WELTEN (1982), WIPF (1999), ZUMBÜHL (1980), ZUMBÜHL & HOLZHAUSER (1988).

Ordonnance sur la compensation des pertes subies dans l'utilisation de la force hydraulique; RS 721.821.

Annexes

1, 2, 10, 14, 23, 24, 25, 27, 28, 29.

6. Suivi

a. Indicateurs clés permettant de mesurer l'état de conservation

Le suivi en tant qu'instrument n'est pas encore mis en place pour le site dans son ensemble (voir sous **6. b.**). L'utilisation des indicateurs clés ci-dessous pourrait vraisemblablement être judicieuse. Il faut toutefois encore les discuter en détail. Il est, en particulier, nécessaire de vérifier que les données correspondantes puissent être réunies avec suffisamment d'exactitude et pour un coût supportable:

Indicateurs biologiques

Effectifs et taux de reproduction de la population de lynx

Effectifs et taux de reproduction de la population de loups (est actuellement vraisemblablement de 0 individu)

Effectifs des populations d'ongulés (bouquetin des Alpes, cerf élaphe, chamois)

Effectifs et taux de reproduction de la population de gypaètes barbus (domaine marginal actuellement)

Effectifs et taux de reproduction de la population d'aigles royaux

Densité de certaines populations d'oiseaux (par exemple des tétraonidés)

Indicateurs concernant les écosystèmes

Capacité d'accueil des milieux pour les ongulés en fonction de leurs effectifs

Quantité et qualité des marais

Degré de l'état naturel des forêts

Capacité des alpages à être pâturés

Indicateurs socioculturels

Nombre de nuitées

Qualité de l'approvisionnement et de l'évacuation des déchets

Remontées mécaniques

Modification absolue de la longueur des chemins de randonnées

Longueur des sentiers d'escalade

Nouvelles routes forestières

Longueur des routes avec revêtement en dur

Nouveaux ponts

Changement d'affectation de cabanes existantes

Constructions de nouvelles cabanes

Programmes relatifs à la mise en valeur du site

Programmes relatifs à la promotion du site

Indicateurs de planification

Mise en œuvre du site dans le plan directeur

Mise en œuvre du site dans le plan de zone

Le système des indicateurs clés doit encore être affiné et rendu opérationnel.

b. Dispositions administratives concernant le suivi du bien

Ces dernières années, la Confédération a travaillé intensivement à un programme de suivi, tant au plan stratégique qu'opérationnel. La "Conception Paysage suisse" demande dans la Mesure 7.28 (Suivi des inventaires fédéraux) *"la mise sur pied d'un suivi pour chaque inventaire fédéral, afin d'assurer la qualité des objets protégés. Le suivi permet de rectifier rapidement les mesures d'entretien et les objectifs, ainsi que de corriger les déficiences qui apparaîtraient à la mise en œuvre. La méthode de suivi, standardisée, est compatible avec celles des cantons."*

Entre-temps, une terminologie a été mise au point et un nouvel article 27a, introduit dans l'ordonnance sur la protection de la nature et du paysage (RS 451.1), est entré en vigueur le 1^{er} août 2000. Cet article prévoit à l'alinéa 2 que *"l'OFEFP (Office fédéral de l'environnement, des forêts et du paysage) et l'OFC (Office fédéral de la culture) effectuent un suivi afin d'examiner la mise en œuvre des mesures légales et leur efficacité. Ils y associent étroitement les offices fédéraux concernés et les cantons."*

Le suivi de la protection des marais est devenu entre-temps opérationnel. Les marais d'importance nationale situés dans le site sont donc pris en compte, spécialement le marais de la forêt d'Aletsch. Il ne faut toutefois pas attendre de résultats avant 2002. Un suivi des zones alluviales et des prairies et pâturages secs d'importance nationale est en préparation. L'IFP – le site y est également recensé – sera révisé ces prochaines années en vue de renforcer les dispositions de protection pour tous les objets. Dans ce contexte, un programme de suivi sera également conçu et mis en place pour tous les objets IFP en général et, de manière spécifique, pour le site qui nous occupe.

Des suivis sectoriels ont lieu dans les districts francs fédéraux. Les gardes-chasses établissent chaque année un rapport à l'intention de l'OFEFP comprenant des estimations des effectifs d'animaux sauvages dans les districts francs.

Les colonies de bouquetins font l'objet d'une surveillance particulière. Les cantons relèvent chaque année la grandeur de la population, la structure des sexes et des âges, l'accroissement, les pertes et l'évolution de la population (article 2, alinéa 1, de l'ordonnance sur la régulation des populations de bouquetins; RS 922.27).

Les modifications de l'extension d'un certain nombre de glaciers sont, en règle générale, mesurées chaque année, mais moins dans le sens d'un suivi que d'une

contribution à l'observation de l'environnement. Font partie des glaciers compris dans ce réseau de mesures:

VS

Fieschergletscher
Grosser Aletschgletscher
Oberaletschgletscher
Langgletscher

BE

Unterer Grindelwaldgletscher
Eigergletscher
Tschingelgletscher

Le bilan de masse de ces glaciers est depuis longtemps négatif.

Un Programme de monitoring de la biodiversité en Suisse est actuellement en cours d'élaboration. Il y aura certainement dans ce cadre des synergies à exploiter.

c. Résultats des précédents exercices de soumission de rapports

Des rapports concernant le site dans son ensemble n'ont pas encore été établis (voir **6. b.** ci-dessus). Les colonies de bouquetins se développent bien. Les cerfs élaphe posent un problème lié à leur répartition territoriale et à l'utilisation du territoire, surtout dans la forêt d'Aletsch. Ils y trouvent là un territoire stable, où ils ne sont ni dérangés ni chassés, contrairement à la situation qu'ils rencontrent sur le très touristique plateau d'Aletsch. La densité de leur population est donc problématique pour l'établissement du recrû.

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Ordonnance sur la protection de la nature et du paysage; RS 451.1;

Loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages; RS 922.0;

Ordonnance sur la régulation des populations de bouquetins; RS 922.27.

Annexes

1, 2, 11, 13, 21, 22, 23, 24, 25,

7. Documentation

a. Photos, diapositives

Voir annexes 27, 29 et pages 16, 22, 23, 24, 25, 28, 45.

b. Plans relatifs au bien

Voir annexes 1 – 3.

c. Bibliographie et autres sources

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Textes juridiques et documents de planification

Confédération

- Loi fédérale sur la protection de la nature et du paysage; RS 451;
- Ordonnance sur la protection de la nature et du paysage; RS 451.1;
- Ordonnance concernant l'inventaire fédéral des paysages, sites et monuments naturels, RS 451.11;
- Ordonnance sur la protection des zones alluviales d'importance nationale; RS 451.31;
- Ordonnance sur la protection des hauts-marais et des marais de transition d'importance nationale; RS 451.32;
- Ordonnance sur la protection des bas-marais d'importance nationale; RS 451.33;

Ordonnance sur la compensation des pertes subies dans l'utilisation de la force hydraulique; RS 721.821;

Loi fédérale sur la chasse et la protection des mammifères et oiseaux sauvages; RS 922.0;

Ordonnance concernant les districts francs fédéraux; RS 922.31;

Ordonnance sur la régulation des populations de bouquetins; RS 922.27.

Canton de Berne

Ordonnance sur les refuges de chasse et les réserves; RSB 922.63;

Naturschutzgebiet 4.1.1.39, Hinteres Lauterbrunnental, Extrait du procès verbal No 3804 du Conseil-exécutif du Canton de Berne, 21 Juin 1960;

Naturschutzgebiet 4.1.1.206, Wengernalp, Extrait du procès verbal No 3502 du Conseil-exécutif du Canton de Berne, 22 Décembre 1999;

Planungsverband Jungfrau/Planungsverein Oberer Brienersee – Haslital (1984):

Richtplan Region Oberland Ost;

Regionaler Waldplan Lüttschinentäler (1999);

Regionalplanung Oberland Ost (1991): Entwicklungskonzept 2005.

Canton du Valais

Plan directeur cantonal, Canton du Valais, actualisation 31.12.1999;

Beschluss des Staatsrates des Kantons Wallis zum Schutz des Aletschwaldes vom 5. Mai 1933;

Beschluss des Staatsrates des Kantons Wallis zum Schutz der Gegend des Märjelensees vom 23. Februar 1938;

Entscheid des Staatsrates des Kantons Wallis betreffend den Schutz der vier Auengebiete von nationaler Bedeutung und der Gletschervorfelder des Jegi- und des Langgletschers im Lötschental vom 20. Mai 1998.

Websites

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<http://www.wsl.ch/land/products/webflora>

<http://www.unine.ch/cscf>

<http://www.ifjungo.ch>

d. Adresse où sont conservés l'inventaire, les dossiers et les archives

Office fédéral de l'environnement des forêts et du paysage
(OFEFP)
Division nature
CH-3003 Berne
Suisse

e. Rapport de nomination

Ce rapport a été élaboré à l'
par
avec l'aide de

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Pressedienst Jungfraubahnen, Interlaken

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16.
Jungfraubahnen: Annexe 29: 6, 7, 8, 9, 10.

8. Signature au nom de l'Etat partie

Berne, le 15 août 2000

**OFFICE FEDERAL DE L'ENVIRONNEMENT,
DES FORETS ET DU PAYSAGE**


**Franz-Sepp Stulz
CHEF DE LA DIVISION NATURE**

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- 21 Concept de suivi de la conservation des marais (MARTI 1997)
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Jungfrau - Aletsch - Bietschhorn



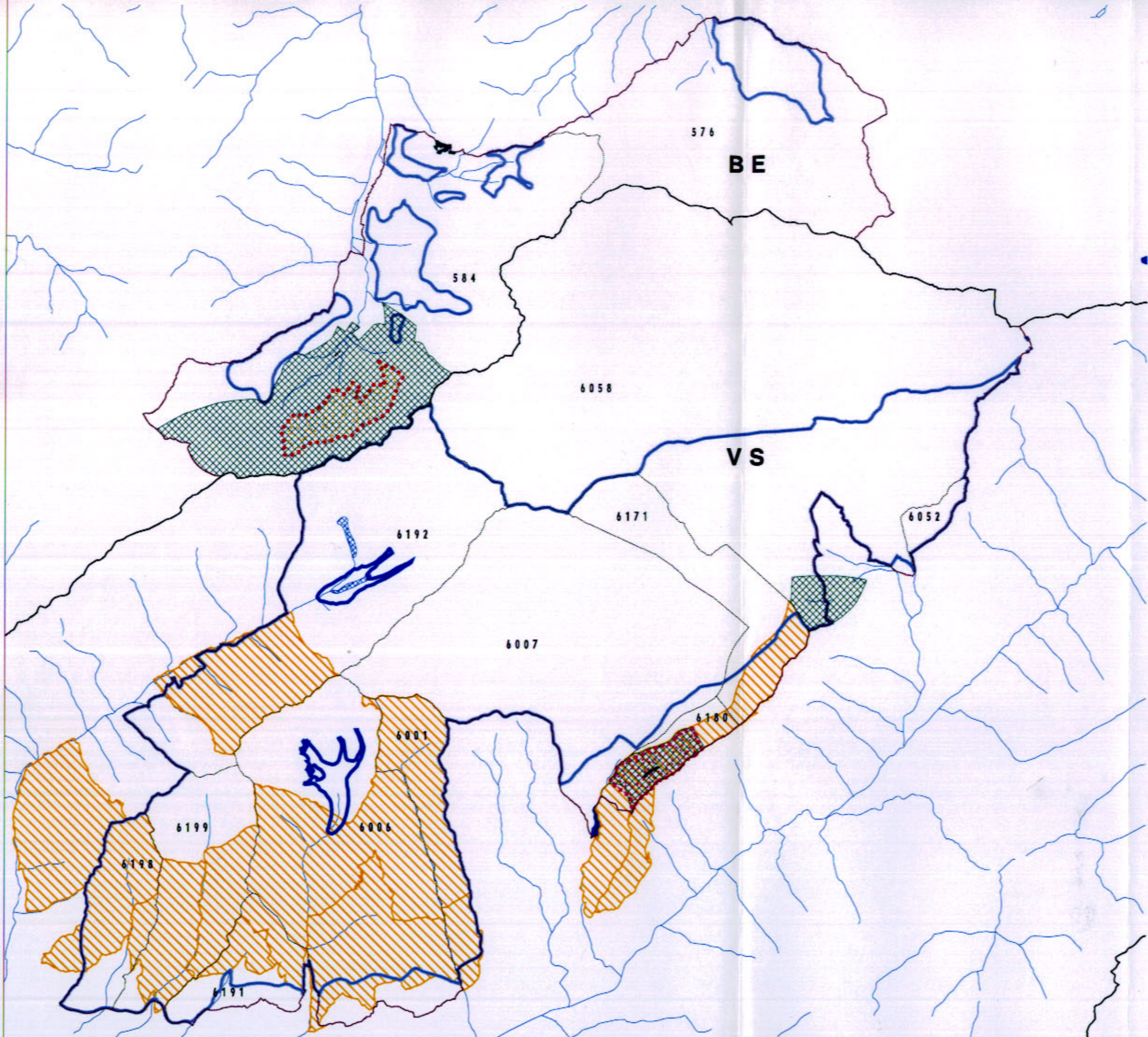
 UNESCO
BLN 1507/1706



Masstab 1:120000

Kartengrundlage PK100: (c) L+T

Jungfrau-Aletsch - Bietschhorn



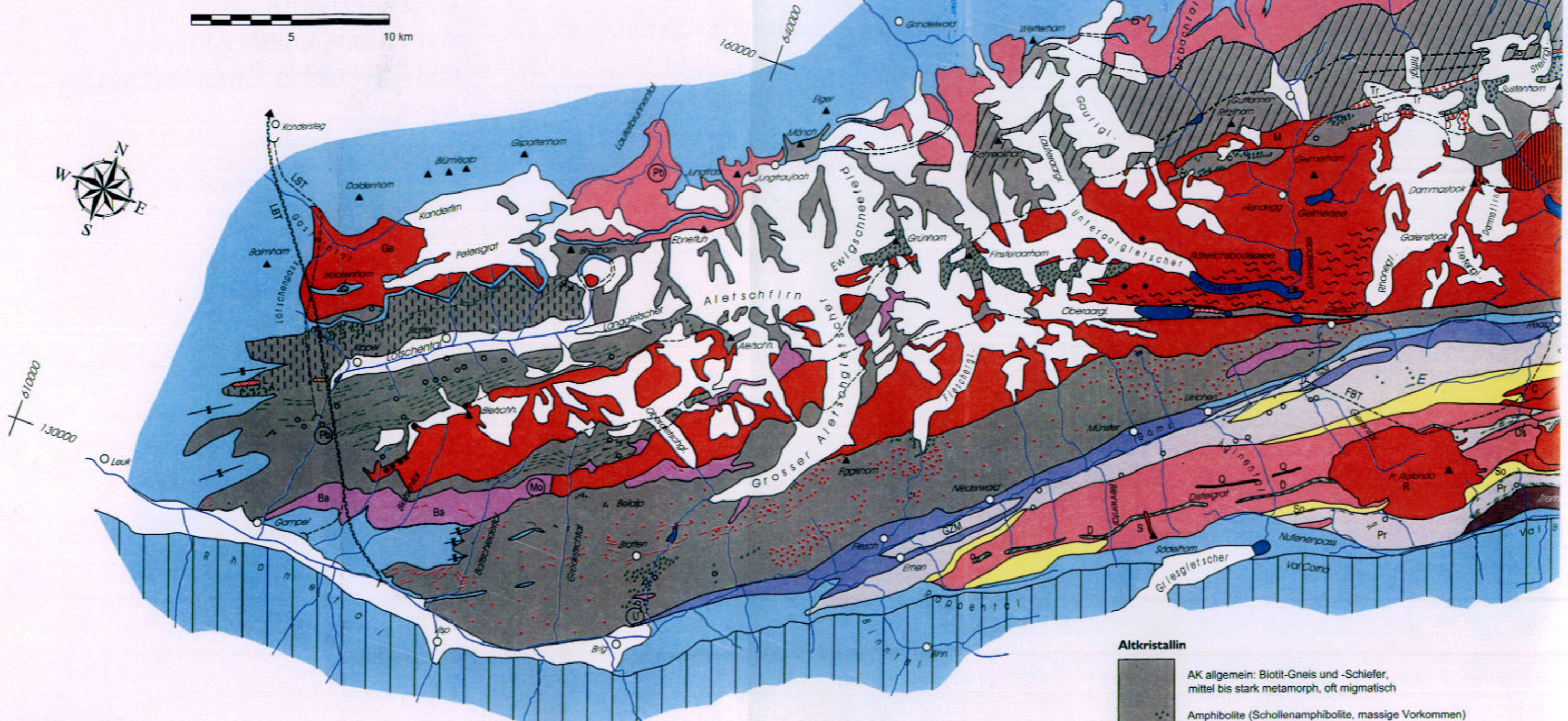
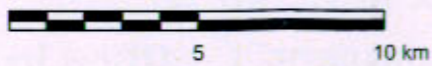
- Site proposee
- Bas-marais
- Haut-marais
- Districts francs federaux
- Marges proglaciaires
- Zones alluviales
- Colonies de bouquetins
- Reserves cantonales
- Contract de droit privee
- Propriete NGO
- 6191 No Commune

Echelle 1:120'000

Hintergrund: BFS

Tunnelbauten

- | | | | |
|-------|-------------------------|-----|---------------------------|
| FBT | Furka-Basistunnel | GBT | Gotthard-Basistunnel |
| GST | Gotthard-Scheiteltunnel | LST | Lötschberg-Scheiteltunnel |
| GStrT | Gotthard-Strassentunnel | LBT | Lötschberg-Basistunnel |



AARMASSIV

Variszische Magmatite

Vulkano-sedimentäre Serien:

- Jüngere, oberkarbonische Formationen und solche unsicheren Alters:
Bg (Bifertengrätli-Formation), F (Färnigen), L (Lötschental), M (Maderanertal-Intschi), Tr (Trift-Formation), Ts (Tscharren-Formation), S (Sandalp-Rhyolith), W (Windgällenformation), We (Wendenjoch)
- Ältere, unterkarbonische Formationen:
Bf (Bifertenfirn-Formation), D (Diechtergletscher-Formation), G (Gliems-Formation)
- Rhyolith. Gänge ("Quarzporphyre")

Plutonite:

- Ga Gastern-Granit
- Zentraler Aaregranit
Nebengesteins-Schollen
Mittagfluh-Granit
Grimsel-Granodiorit
Südl. Aaregranit des östl. Aarmassivs
- Brunni- und Voralp-Granit (B,V)
Schöllenen-Diorit
Düssi- und Fruttstock-Diorit (DF)

- Givv-Syenit (G)
Tödi-Granit (T)
Punteglias-Granit (P)
Punteglias-Diorit (P)

Granitoide unbestimmten Alters

- Granite, Granodiorite, Tonalite
Ba (Balschieder-Granit), Bg (Bugnei-Granodiorit)

Ordovizische Migmatite

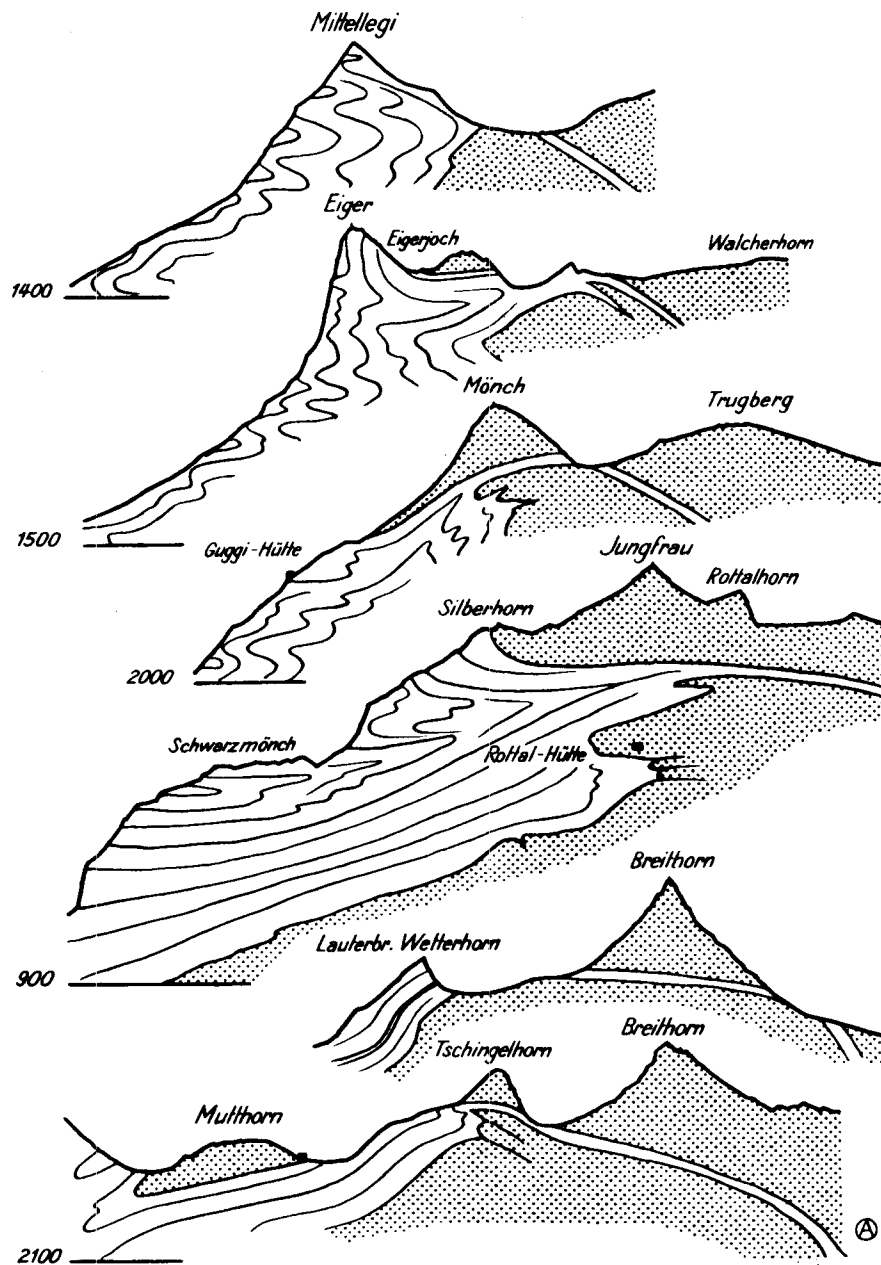
- Innertkirchner-Lauterbrunner-Kristallin

Altkristallin

- AK allgemein: Biotit-Gneis und -Schiefer, mittel bis stark metamorph, oft migmatisch
- Amphibolite (Schollenamphibolite, massige Vorkommen)
- Bänderamphibolite
- Serpentin-Schollen
- Kalksilikatfels-Schollen
- Marmor-Schollen und -Züge
- Muskovit-Gneis (grössere Komplexe)
- Augengneis (z.T. Orthogneis)
- Erstfeldergneis-Zone inkl. retrograde Bereiche im Süden

**Geologische Querprofile durch den Nordrand des Aarmassivs
zwischen Eiger und Multhorn**

*Ursprüngliche Anordnung
vor der Alpenfaltung**

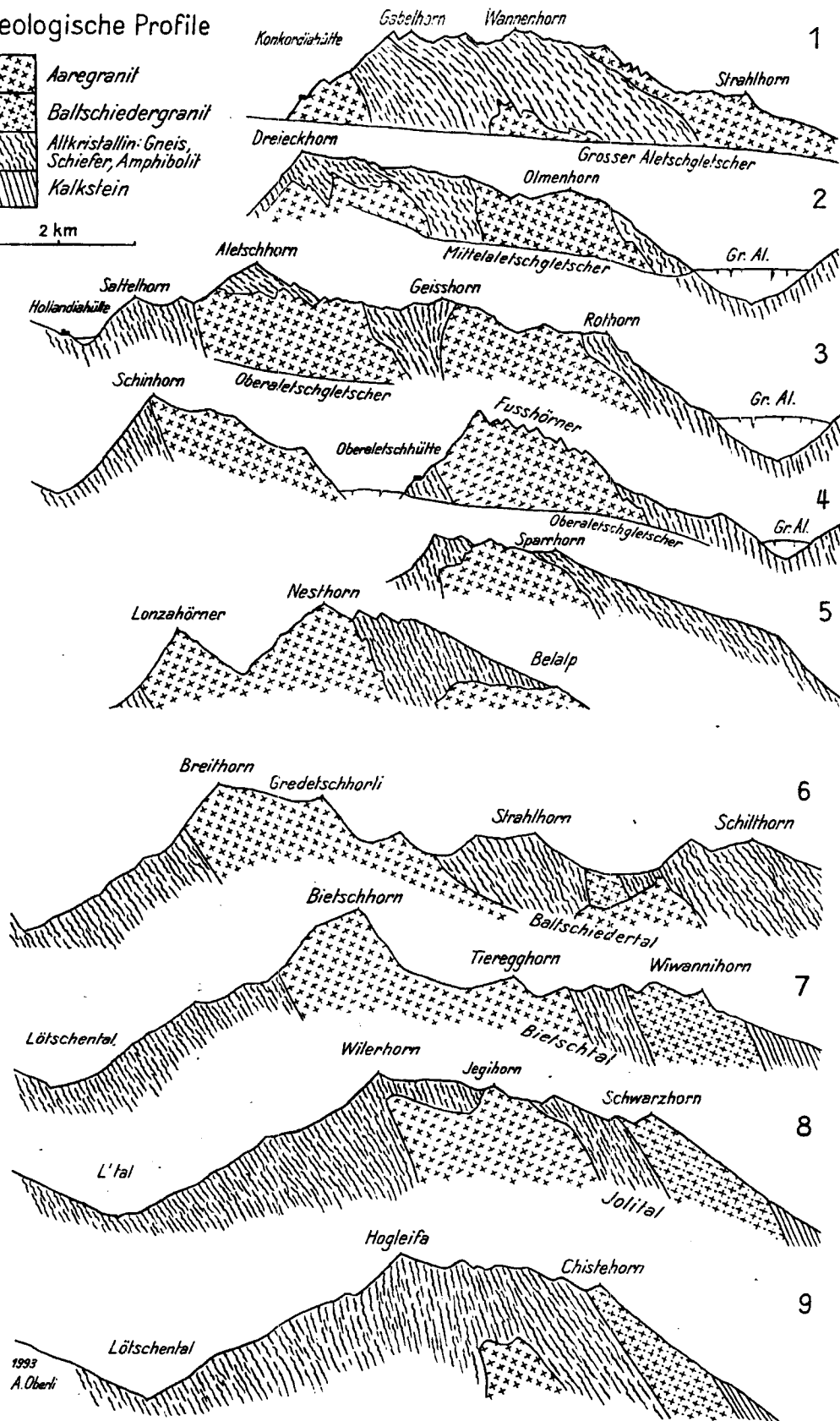


Labhart 1997

Geologische Profile



2 km



1993
A. Oberli

32

Geologie

Geologie

33

Données floristiques, état 1998 : au total 529 espèces recensées

Explications des tableaux (annexes 6 et 7)

La nomenclature utilisée est celle de WELTEN & SUTTER (1982). Les secteurs cités ont été déterminés pour la cartographie floristique de la Suisse (secteurs de recensement). Il s'agit exclusivement de secteurs dits de haute altitude. Ils ne couvrent cependant pas totalement le périmètre du site, mais se trouvent en partie à l'extérieur. Seul N° 718 « Konkordiaplatz » est situé entièrement dans le site. Les données floristiques des secteurs dits de basse altitude, situés en marge du site mais empiétant sur celui-ci, n'ont pas été prises en compte, la plus grande partie de la surface du secteur étant située hors du site.

Les données reflètent la diversité floristique des étages alpin et nival. Au total, on a dénombré 529 espèces de phanérogames et de ptéridophytes. La moyenne suisse du nombre d'espèces recensées pour l'ensemble des secteurs de haute altitude est de 352 espèces (maximum 548). En comparaison, le nombre d'espèces dénombrées pour les secteurs de basse altitude est de 751 en moyenne (avec un maximum de 1400). Dans le cas particulier, la comparaison avec le nombre moyen d'espèces de tous les secteurs de haute altitude de Suisse n'est pas tout à fait exacte; en effet, sur le tableau, la surface prise en compte est plus étendue que celle d'un secteur de haute altitude moyen et de plus, en règle générale, le nombre d'espèces recensées augmente avec la surface.

Données floristiques, état 1998: espèces recensées

Secteur 716, Bietschhorn, 2100 – 3934 m, 78.2 km ² , 284 espèces	Secteur 717, Aletschhorn, 2100 – 4195 m, 95.1 km ² , 317 espèces	Secteur 799, Wannenhorn, 2100 – 3906 m, 62.6 km ² , 354 espèces	Secteur 718, Konkordiaplatz, 2300 – 4274 m, 107.0 km ² , 161 espèces	Secteur 584, Schreckhorn, 1900 – 4274 m, 108.6 km ² , 390 espèces
<i>Achillea millefolium</i>	<i>Achillea millefolium</i>	<i>Achillea millefolium</i>	<i>Achillea moschata</i>	<i>Acer pseudoplatanus</i>
<i>Achillea moschata</i>	<i>Achillea moschata</i>	<i>Achillea moschata</i>	<i>Achillea nana</i>	<i>Achillea atrata</i>
<i>Acinos alpinus</i>	<i>Achillea nana</i>	<i>Achillea nana</i>	<i>Agrostis rupestris</i>	<i>Achillea millefolium</i>
<i>Adenostyles alliariae</i>	<i>Adenostyles leucophylla</i>	<i>Adenostyles alliariae</i>	<i>Ajuga pyramidalis</i>	<i>Achillea moschata</i>
<i>Adenostyles leucophylla</i>	<i>Agrostis alpina</i>	<i>Adenostyles glabra</i>	<i>Alchemilla alpina</i> s.l.	<i>Achillea nana</i>
<i>Agrostis alpina</i>	<i>Agrostis rupestris</i>	<i>Adenostyles leucophylla</i>	<i>Alchemilla coriacea</i> s.l.	<i>Acinos alpinus</i>
<i>Agrostis rupestris</i>	<i>Agrostis schraderiana</i>	<i>Agrostis alpina</i>	<i>Alchemilla fissa</i> s.l.	<i>Aconitum napellus</i> s.l.
<i>Agrostis schraderiana</i>	<i>Agrostis stolonifera</i>	<i>Agrostis rupestris</i>	<i>Alchemilla hybrida</i> s.l.	<i>Aconitum paniculatum</i>
<i>Alchemilla alpina</i> s.l.	<i>Agrostis tenuis</i>	<i>Agrostis schraderiana</i>	<i>Alchemilla pentaphyllea</i>	<i>Aconitum vulparia</i>
<i>Alchemilla conjuncta</i> s.l.	<i>Ajuga pyramidalis</i>	<i>Agrostis tenuis</i>	<i>Alchemilla vulgaris</i> s.l.	<i>Adenostyles alliariae</i>
<i>Alchemilla fissa</i> s.l.	<i>Alchemilla alpina</i> sl	<i>Ajuga pyramidalis</i>	<i>Androsace alpina</i>	<i>Adenostyles glabra</i>
<i>Alchemilla glabra</i> s.l.	<i>Alchemilla conjuncta</i> sl	<i>Alchemilla alpina</i> s.l.	<i>Androsace obtusifolia</i>	<i>Adenostyles leucophylla</i>
<i>Alchemilla pentaphyllea</i>	<i>Alchemilla coriacea</i> sl	<i>Alchemilla conjuncta</i> s.l.	<i>Androsace vandellii</i>	<i>Agropyron caninum</i>
<i>Alnus viridis</i>	<i>Alchemilla fissasl</i>	<i>Alchemilla coriacea</i> s.l.	<i>Antennaria carpatica</i>	<i>Agrostis alpina</i>
<i>Androsace alpina</i>	<i>Alchemilla hybridasl</i>	<i>Alchemilla fissa</i> s.l.	<i>Antennaria dioeca</i>	<i>Agrostis rupestris</i>
<i>Androsace carnea</i>	<i>Alchemilla pentaphyllea</i>	<i>Alchemilla glabra</i> s.l.	<i>Anthoxanthum alpinum</i>	<i>Agrostis schleicheri</i>
<i>Androsace obtusifolia</i>	<i>Alchemilla vulgaris</i> s.l.	<i>Alchemilla hybrida</i> s.l.	<i>Anthyllis vulneraria</i>	<i>Agrostis stolonifera</i>
<i>Antennaria dioeca</i>	<i>Allium schoenoprasum</i>	<i>Alchemilla pentaphyllea</i>	<i>Arabis alpina</i>	<i>Alchemilla alpina</i> s.l.
<i>Anthoxanthum alpinum</i>	<i>Allium senescens</i> ssp. montanum	<i>Alchemilla vulgaris</i> s.l.	<i>Arenaria biflora</i>	<i>Alchemilla conjuncta</i> s.l.
<i>Anthyllis alpestris</i>	<i>Alopecurus aequalis</i>	<i>Alnus viridis</i>	<i>Arenaria marschlinzii</i>	<i>Alchemilla coriacea</i> s.l.
<i>Arabis alpina</i>	<i>Androsace alpina</i>	<i>Alopecurus aequalis</i>	<i>Arnica montana</i>	<i>Alchemilla fissa</i> s.l.
<i>Arabis ciliata</i>	<i>Androsace obtusifolia</i>	<i>Androsace alpina</i>	<i>Artemisia genipi</i>	<i>Alchemilla glabra</i> s.l.
<i>Arctostaphylos alpina</i>	<i>Androsace vandellii</i>	<i>Androsace obtusifolia</i>	<i>Artemisia mutellina</i>	<i>Alchemilla hybrida</i> s.l.
<i>Arctostaphylos uva-ursi</i>	<i>Anemone narcissiflora</i>	<i>Androsace pubescens</i>	<i>Aster alpinus</i>	<i>Alchemilla pentaphyllea</i>
<i>Arenaria biflora</i>	<i>Antennaria carpatica</i>	<i>Androsace vandellii</i>	<i>Aster bellidiastrum</i>	<i>Alchemilla vulgaris</i> s.l.
<i>Arenaria ciliata</i>	<i>Antennaria dioeca</i>	<i>Antennaria carpatica</i>	<i>Astragalus penduliflorus</i>	<i>Allium schoenoprasum</i>
<i>Arnica montana</i>	<i>Anthoxanthum alpinum</i>	<i>Antennaria dioeca</i>	<i>Athyrium distentifolium</i>	<i>Allium victorialis</i>
<i>Artemisia genipi</i>	<i>Anthoxanthum odoratum</i>	<i>Anthoxanthum alpinum</i>	<i>Avenula versicolor</i>	<i>Alnus viridis</i>
<i>Artemisia mutellina</i>	<i>Anthyllis vulneraria</i>	<i>Anthyllis alpestris</i>	<i>Botrychium lunaria</i>	<i>Alopecurus pratensis</i>
<i>Asplenium ruta-muraria</i>	<i>Arabis alpina</i>	<i>Arabis alpina</i>	<i>Bupleurum stellatum</i>	<i>Androsace alpina</i>
<i>Asplenium septentrionale</i>	<i>Arctostaphylos alpina</i>	<i>Arabis ciliata</i>	<i>Calluna vulgaris</i>	<i>Androsace chamaejasme</i>
<i>Asplenium trichomanes</i>	<i>Arctostaphylos uva-ursi</i>	<i>Arctostaphylos alpina</i>	<i>Campanula barbata</i>	<i>Androsace obtusifolia</i>
<i>Asplenium viride</i>	<i>Arenaria biflora</i>	<i>Arctostaphylos uva-ursi</i>	<i>Campanula scheuchzeri</i>	<i>Anemone narcissiflora</i>
<i>Aster alpinus</i>	<i>Arenaria ciliata</i>	<i>Arenaria biflora</i>	<i>Cardamine resedifolia</i>	<i>Antennaria carpatica</i>
<i>Astrantia minor</i>	<i>Arenaria marschlinzii</i>	<i>Arenaria marschlinzii</i>	<i>Carex curvula</i>	<i>Antennaria dioeca</i>
<i>Avenella flexuosa</i>	<i>Arnica montana</i>	<i>Arnica montana</i>	<i>Carex foetida</i>	<i>Anthoxanthum alpinum</i>
<i>Avenula versicolor</i>	<i>Artemisia genipi</i>	<i>Artemisia genipi</i>	<i>Carex frigida</i>	<i>Anthyllis alpestris</i>
<i>Bartsia alpina</i>	<i>Artemisia mutellina</i>	<i>Artemisia mutellina</i>	<i>Carex lachenalii</i>	<i>Arabis alpina</i>
<i>Berberis vulgaris</i>	<i>Asplenium ruta-muraria</i>	<i>Asplenium septentrionale</i>	<i>Carex pallescens</i>	<i>Arabis hirsuta</i>

Betula pendula	Asplenium viride	Asplenium viride	Carex parviflora	Arctostaphylos uva-ursi
Botrychium lunaria	Aster alpinus	Aster alpinus	Carex sempervirens	Arenaria ciliata
Briza media	Aster bellidialstrum	Aster bellidialstrum	Cerastium arvense ssp. strictum	Arnica montana
Calamagrostis villosa	Astragalus penduliflorus	Astragalus penduliflorus	Cerastium cerastoides	Artemisia genipi
Calluna vulgaris	Athyrium filix-femina	Athyrium distentifolium	Cerastium pedunculatum	Artemisia mutellina
Campanula barbata	Avenella flexuosa	Athyrium filix-femina	Cerastium uniflorum	Asplenium ruta-muraria
Campanula cochleariifolia	Avenula versicolor	Avenella flexuosa	Cirsium spinosissimum	Asplenium trichomanes
Campanula scheuchzeri	Bartsia alpina	Avenula versicolor	Crepis aurea	Asplenium viride
Cardamine alpina	Berberis vulgaris	Bartsia alpina	Cystopteris fragilis	Aster alpinus
Cardamine resedifolia	Botrychium lunaria	Betula pendula	Diphasium alpinum	Aster bellidialstrum
Carduus defloratus	Bupleurum stellatum	Botrychium lunaria	Doronicum clusii	Astragalus alpinus
Carduus defloratus ssp. rhaeticus	Callitriche hamulata	Bupleurum stellatum	Dryopteris filix-mas	Astragalus australis
Carex atrata	Calluna vulgaris	Calamagrostis villosa	Elyna myosuroides	Astragalus frigidus
Carex curvula	Caltha palustris	Callitriche palustris	Empetrum hermaphroditum	Astragalus penduliflorus
Carex echinata	Campanula barbata	Calluna vulgaris	Epilobium anagallidifolium	Astrantia major
Carex ericetorum	Campanula cochleariifolia	Caltha palustris	Epilobium fleischeri	Astrantia minor
Carex ferruginea	Campanula excisa	Campanula barbata	Equisetum variegatum	Athamanta cretensis
Carex foetida	Campanula scheuchzeri	Campanula cenisia	Erigeron alpinus	Athyrium distentifolium
Carex frigida	Campanula spicata	Campanula cochleariifolia	Erigeron uniflorus	Athyrium filix-femina
Carex leporina	Cardamine alpina	Campanula rhomboidalis	Eriophorum scheuchzeri	Avenella flexuosa
Carex nigra	Cardamine resedifolia	Campanula scheuchzeri	Euphrasia minima	Avenula versicolor
Carex pallescens	Carduus defloratus	Cardamine alpina	Euphrasia pulchella	Bartsia alpina
Carex sempervirens	Carduus defloratus ssp. rhaeticus	Cardamine amara	Festuca halleri	Bellis perennis
Carlina acaulis	Carex atrata	Cardamine resedifolia	Festuca rubra s.l.	Berberis vulgaris
Cerastium alpinum	Carex brunnescens	Carduus defloratus	Festuca violacea s.l.	Betula pendula
Cerastium arvense ssp. strictum	Carex caryophyllea	Carduus defloratus ssp. rhaeticus	Galium anisophyllum	Biscutella laevigata
Cerastium cerastoides	Carex curvula	Carex brunnescens	Gentiana acaulis	Botrychium lunaria
Cerastium pedunculatum	Carex davalliana	Carex canescens	Gentiana bavarica	Briza media
Cerastium uniflorum	Carex echinata	Carex capillaris	Gentiana brachyphylla	Bupleurum ranunculoides
Chaerophyllum villarsii	Carex flava	Carex curvula	Gentiana nivalis	Calamagrostis varia
Chenopodium bonus-henricus	Carex foetida	Carex davalliana	Gentiana ramosa	Calluna vulgaris
Cirsium spinosissimum	Carex frigida	Carex echinata	Geum montanum	Campanula barbata
Coeloglossum viride	Carex leporina	Carex elata	Geum reptans	Campanula cenisia
Cotoneaster integerrimus	Carex nigra	Carex flava	Gnaphalium norvegicum	Campanula cochleariifolia
Crepis aurea	Carex ornithopoda	Carex foetida	Gnaphalium supinum	Campanula rhomboidalis
Crocus albiflorus	Carex pallescens	Carex frigida	Hieracium alpinum	Campanula rotundifolia s.l.
Cryptogramma crispa	Carex panicea	Carex lachenalii	Hieracium glaciale	Campanula scheuchzeri
Cuscuta epithymum	Carex parviflora	Carex limosa	Hieracium glanduliferum ssp. piliferum	Capsella bursa-pastoris
Cystopteris fragilis	Carex pauciflora	Carex nigra	Hieracium pilosella	Cardamine alpina
Cystopteris regia	Carex paupercula	Carex ornithopoda	Hippocrepis comosa	Cardamine resedifolia
Dactylis glomerata	Carex rostrata	Carex pallescens	Homogyne alpina .	Carduus defloratus
Dactylorhiza majalis	Carex sempervirens	Carex parviflora	Juncus jacquinii	Carex atrata
Daphne mezereum	Carlina acaulis	Carex paupercula	Juncus trifidus	Carex capillaris
Deschampsia caespitosa	Centaurea montana	Carex rostrata	Juniperus communis ssp. alpina	Carex curvula
Dianthus sylvestris	Centaurea triumfettii	Carex sempervirens	Laserpitium halleri	Carex ferruginea

Diphasium alpinum	Cerastium alpinum	Carlina acaulis	Leontodon helveticus	Carex firma
Doronicum clusii	Cerastium arvense ssp. strictum	Cerastium arvense ssp. strictum	Leucanthemopsis alpina	Carex frigida
Doronicum grandiflorum	Cerastium cerastoides	Cerastium cerastoides	Ligusticum mutellina	Carex nigra
Draba aizoides	Cerastium holosteoides	Cerastium pedunculatum	Linaria alpina	Carex parviflora
Draba dubia	Cerastium pedunculatum	Cerastium uniflorum	Lotus alpinus	Carex sempervirens
Dryas octopetala	Cerastium uniflorum	Chaerophyllum hirsutum	Luzula alpino-pilosa	Carlina acaulis
Dryopteris austriaca	Cirsium spinosissimum	Chaerophyllum villarsii	Luzula multiflora	Carum carvi
Dryopteris filix-mas	Coeloglossum viride	Chamorchis alpina	Luzula spicata	Centaurea montana
Empetrum hermaphroditum	Cotoneaster integerrimus	Chenopodium bonus-henricus	Minuartia recurva	Centaurea scabiosa
Epilobium alsinifolium	Crepis aurea	Cicerbita alpina	Minuartia sedoides	Cerastium arvense ssp. strictum
Epilobium anagallidifolium	Crepis conyzifolia	Cirsium spinosissimum	Minuartia verna	Cerastium cerastoides
Epilobium fleischeri	Cystopteris fragilis	Coeloglossum viride	Myosotis alpestris	Cerastium holosteoides
Erigeron acris	Dactylorhiza majalis	Crepis conyzifolia	Nardus stricta	Cerastium latifolium
Erigeron alpinus	Daphne mezereum	Crocus albiflorus	Nigritella nigra	Cerastium pedunculatum
Erigeron uniflorus	Deschampsia caespitosa	Cryptogramma crispa	Oxyria digyna	Cerastium uniflorum
Euphorbia cyparissias	Dianthus sylvestris	Cystopteris fragilis	Pedicularis kernerii	Chaerophyllum villarsii
Euphrasia minima	Diphasium alpinum	Dactylis glomerata	Pedicularis tuberosa	Chamorchis alpina
Euphrasia rostkoviana ssp. montana	Doronicum clusii	Dactylorhiza sambucina	Peucedanum ostruthium	Chenopodium bonus-henricus
Euphrasia salisburgensis	Draba aizoides	Deschampsia caespitosa	Phleum alpinum	Cirsium acaule
Euphrasia versicolor	Draba dubia	Dianthus carthusianorum	Phyteuma betonicifolium	Cirsium spinosissimum
Festuca halleri	Draba fladnizensis	Diphasium alpinum	Phyteuma hemisphaericum	Clinopodium vulgare
Festuca rubra s.l.	Draba siliquosa	Doronicum clusii	Poa alpina	Coeloglossum viride
Festuca varia	Dryopteris filix-mas	Draba dubia	Poa laxa	Convallaria majalis
Festuca violacea s.l.	Elyna myosuroides	Draba siliquosa	Poa violacea	Cotoneaster integerrimus
Galeopsis ladanum	Empetrum hermaphroditum	Dryas octopetala	Polygonum viviparum	Crepis aurea
Galium anisophyllum	Epilobium alsinifolium	Dryopteris austriaca	Polystichum lonchitis	Crepis pyrenaica
Galium pumilum	Epilobium anagallidifolium	Dryopteris filix-mas	Potentilla aurea	Cryptogramma crispa
Gentiana acaulis	Epilobium collinum	Dryopteris pseudomas	Potentilla frigida	Cuscuta epithimum
Gentiana bavarica	Epilobium fleischeri	Elyna myosuroides	Potentilla grandiflora	Cystopteris fragilis
Gentiana brachyphylla	Equisetum palustre	Empetrum hermaphroditum	Primula farinosa	Cystopteris regia
Gentiana campestris	Erigeron alpinus	Epilobium alsinifolium	Primula hirsuta	Dactylis glomerata
Gentiana nivalis	Erigeron uniflorus	Epilobium anagallidifolium	Pulsatilla apiifolia	Dactylorhiza maculata
Gentiana purpurea	Eriophorum angustifolium	Epilobium angustifolium	Pulsatilla vernalis	Daphne mezereum
Gentiana ramosa	Eriophorum scheuchzeri	Epilobium fleischeri	Ranunculus glacialis	Delphinium elatum
Gentiana verna	Eriophorum vaginatum	Epilobium nutans	Ranunculus grenierianus	Deschampsia caespitosa
Geum montanum	Euphorbia cyparissias	Equisetum palustre	Ranunculus pyrenaicus	Dianthus sylvestris
Geum reptans	Euphrasia alpina	Equisetum variegatum	Rhinanthus glacialis	Doronicum clusii
Globularia cordifolia	Euphrasia minima	Erigeron alpinus	Rhododendron ferrugineum	Doronicum grandiflorum
Gnaphalium norvegicum	Euphrasia pulchella	Erigeron polymorphus	Sagina procumbens	Draba aizoides
Gnaphalium supinum	Euphrasia versicolor	Erigeron uniflorus	Salix hastata	Draba tomentosa
Gymnocarpium dryopteris	Festuca alpina	Erigeron angustifolium	Salix helvetica	Dryas octopetala
Gypsophila repens	Festuca curvula s.l.	Eriophorum palustre	Salix herbacea	Dryopteris carthusiana
Helianthemum grandiflorum ssp. grand	Festuca halleri	Eriophorum scheuchzeri	Salix serpyllifolia	Dryopteris filix-mas
Hepatica nobilis	Festuca quadriflora	Eriophorum vaginatum	Saxifraga androsacea	Elyna myosuroides
Herniaria alpina	Festuca rubra s.l.	Euphrasia alpina	Saxifraga bryoides	Empetrum hermaphroditum
		Euphrasia hirtella		

Hieracium alpinum	Festuca varia	Euphrasia minima	Saxifraga exarata	Epilobium alpestre
Hieracium glaciale	Festuca violaceas	Euphrasia pulchella	Saxifraga oppositifolia	Epilobium alsinifolium
Hieracium glanduliferum ssp. piliferum	Gagea fistulosa	Euphrasia salisburgensis	Saxifraga paniculata	Epilobium collinum
Hieracium intybaceum	Galium anisophyllum	Euphrasia stricta	Saxifraga seguieri	Epilobium fleischeri
Hieracium lactucella	Gentiana acaulis	Euphrasia versicolor	Sedum alpestre	Epilobium nutans
Hieracium laevigatum	Gentiana bavarica	Festuca halleri	Selaginella selaginoides	Epilobium palustre
Hieracium prenanthoides	Gentiana brachyphylla	Festuca intercedens	Sempervivum montanum	Epipactis atrorubens
Hieracium staticifolium	Gentiana nivalis	Festuca quadriflora	Senecio doronicum	Erica herbacea
Hieracium villosum	Gentiana purpurea	Festuca rubra s.l.	Senecio incanus	Erigeron alpinus
Hippocrepis comosa	Gentiana ramosa	Festuca varia	Sibbaldia procumbens	Erigeron uniflorus
Homogyne alpina	Gentiana tenella	Festuca violacea s.l.	Silene exscapa	Erinus alpinus
Huperzia selago	Gentiana verna	Gagea fistulosa	Silene rupestris	Euphorbia cyparissias
Hypericum maculatum	Geranium silvaticum	Galium anisophyllum	Soldanella pusilla	Euphrasia alpina
Juncus trifidus	Geum montanum	Galium pumilum	Solidago virgaurea ssp. minuta	Euphrasia minima
Juniperus communis ssp. alpina	Geum reptans	Gentiana acaulis	Taraxacum alpinum	Euphrasia salisburgensis
Juniperus sabina	Gnaphalium silvaticum	Gentiana bavarica	Taraxacum schroeterianum	Festuca halleri
Larix decidua	Gnaphalium supinum	Gentiana brachyphylla	Thesium alpinum	Festuca pratensis
Laserpitium halleri	Gymnadenia conopsea	Gentiana campestris	Thymus praecox ssp. polytrichus	Festuca pulchella
Leontodon helveticus	Gymnocarpium dryopteris	Gentiana nivalis	Trifolium alpinum	Festuca quadriflora
Leontopodium alpinum	Gypsophila repens	Gentiana purpurea	Trifolium badium	Festuca rubra s.l.
Leucanthemopsis alpina	Helianthemum grandiflorum ssp. grand	Gentiana ramosa	Trifolium pallescens	Festuca violacea s.l.
Leucanthemum adustum	Hieracium alpinum	Gentiana tenella	Trifolium pratense ssp. nivale	Gagea lutea
Ligusticum mutellina	Hieracium glaciale	Gentiana verna	Tussilago farfara	Galeopsis ladanum
Ligusticum mutellinoides	Hieracium glanduliferum ssp. piliferum	Geranium rivulare	Vaccinium myrtillus	Galeopsis tetrahit
Linaria alpina	Hieracium intybaceum	Geranium silvaticum	Vaccinium uliginosum s.l.	Galium megalospermum
Linum catharticum	Hieracium lactucella	Geum montanum	Vaccinium vitis-idaea	Galium pumilum
Listera cordata	Hieracium laevigatum	Geum reptans	Veronica alpina	Gentiana acaulis
Lloydia serotina	Hieracium pilosella	Gnaphalium norvegicum	Veronica bellidioides	Gentiana asclepiadea
Loiseleuria procumbens	Hieracium prenanthoides	Gnaphalium silvaticum	Veronica fruticans	Gentiana bavarica
Lonicera coerulea	Hieracium saussureoides	Gnaphalium supinum	Viola biflora	Gentiana campestris
Lotus alpinus	Hieracium staticifolium	Gymnocarpium dryopteris	Viola calcarata	Gentiana clusii
Lotus corniculatus	Hippocrepis comosa	Helianthemum grandiflorum ssp. grand	Viola palustris	Gentiana germanica
Luzula alpino-pilosa	Homogyne alpina	Helianthemum tomentosum		Gentiana lutea
Luzula lutea	Huperzia selago	Hieracium alpinum		Gentiana nivalis
Luzula spicata	Hutchinsia brevicaulis	Hieracium bifidum		Gentiana punctata
Luzula sudetica	Hypericum maculatum	Hieracium glaciale		Gentiana purpurea
Lychnis flos-jovis	Hypochoeris uniflora	Hieracium glanduliferum ssp. piliferum		Gentiana verna
Lycopodium annotinum	Juncus alpino-articulatus	Hieracium intybaceum		Geranium silvaticum
Melampyrum pratense s.l.	Juncus filiformis	Hieracium lactucella		Geum montanum
Melampyrum silvaticum s.l.	Juncus jacquinii	Hieracium pallidum		Geum reptans
Minuartia mutabilis	Juncus trifidus	Hieracium pilosella		Globularia cordifolia
Minuartia recurva	Juncus triglumis	Hieracium prenanthoides		Globularia nudicaulis
Minuartia sedoides	Juniperus communis ssp. alpina	Hieracium silvaticum		Gnaphalium norvegicum
Myosotis alpestris	Larix decidua	Hieracium staticifolium		Gnaphalium silvaticum
Nardus stricta	Laserpitium halleri	Homogyne alpina		Gnaphalium supinum

Nigritella nigra	Leontodon autumnalis	Huperzia selago	Gymnadenia conopsea
Oxyria digyna	Leontodon helveticus	Hutchinsia alpina	Gymnadenia odoratissima
Oxytropis campestris s.l.	Leontodon hispidus	Hutchinsia brevicaulis	Gymnocarpium robertianum
Parnassia palustris	Leucanthemopsis alpina	Hypericum maculatum	Gypsophila repens
Pedicularis kernerii	Leucanthemum adustum	Juncus alpino-articulatus	Hedysarum hedysaroides
Pedicularis tuberosa	Ligusticum mutellina	Juncus filiformis	Helianthemum alpestre
Peucedanum ostruthium	Ligusticum mutellinoides	Juncus jacquinii	Helianthemum grandiflorum ssp. grand
Phleum alpinum	Lilium martagon	Juncus trifidus	Heracleum sphondylium ssp. elegans
Phleum commutatum	Linaria alpina	Juncus triglumis	Hieracium alpinum
Phyteuma betonicifolium	Linum catharticum	Juniperus communis ssp. alpina	Hieracium bifidum
Phyteuma hemisphaericum	Lloydia serotina	Larix decidua	Hieracium glaciale
Phyteuma orbiculare	Loiseleuria procumbens	Laserpitium halleri	Hieracium intybaceum
Picea abies	Lonicera coerulea	Leontodon autumnalis	Hieracium morisianum
Pinguicula alpina	Lotus alpinus	Leontodon helveticus	Hieracium pilosella
Pinguicula leptoceras	Lotus corniculatus	Leontodon hispidus	Hieracium staticifolium
Pinus cembra	Luzula alpino-pilosa	Leontodon pseudocrispus	Hieracium villosum
Plantago alpina	Luzula lutea	Leucanthemopsis alpina	Hippocrepis comosa
Plantago atrata	Luzula multiflora	Leucanthemum adustum	Homogyne alpina
Poa alpina	Luzula silvatica s.l.	Leucanthemum praecox	Hutchinsia alpina
Poa chaixii	Luzula spicata	Leucanthemum vulgare	Hutchinsia brevicaulis
Poa laxa	Luzula sudetica	Ligusticum mutellina	Hypericum maculatum
Poa nemoralis	Minuartia laricifolia	Ligusticum mutellinoides	Hypochoeris uniflora
Poa supina	Minuartia recurva	Lilium martagon	Juncus articulatus
Polygala alpestris	Minuartia sedoides	Linaria alpina	Juncus filiformis
Polygonum viviparum	Minuartia verna	Listera cordata	Juncus jacquinii
Polypodium vulgare	Myosotis alpestris	Lloydia serotina	Juncus trifidus
Polystichum aculeatum	Nardus stricta	Loiseleuria procumbens	Juncus triglumis
Polystichum lonchitis	Nigritella nigra	Lotus alpinus	Juniperus communis ssp. alpina
Potentilla aurea	Oxyria digyna	Lotus corniculatus	Knautia dipsacifolia
Potentilla erecta	Paradisea liliastrum	Luzula alpino-pilosa	Lamium purpureum
Potentilla frigida	Parnassia palustris	Luzula campestris	Laserpitium halleri
Potentilla grandiflora	Pedicularis kernerii	Luzula lutea	Laserpitium latifolium
Primula hirsuta	Pedicularis tuberosa	Luzula multiflora	Laserpitium siler
Pseudorchis albida	Pedicularis verticillata	Luzula silvatica s.l.	Leontodon hispidus
Pulsatilla apiifolia	Peucedanum ostruthium	Luzula spicata	Leontopodium alpinum
Pulsatilla vernalis	Phleum alpinum	Luzula sudetica	Leucanthemopsis alpina
Pyrola minor	Phyteum abetonifolium	Melampyrum pratense s.l.	Leucanthemum adustum
Ranunculus glacialis	Phyteuma hemisphaericum	Melampyrum silvaticum s.l.	Leucanthemum halleri
Ranunculus grenierianus	Picea abies	Meum athamanticum	Leucanthemum praecox
Ranunculus montanus	Pinguicula alpina	Minuartia recurva	Leucanthemum vulgare
Rhamnus pumilus	Pinguicula leptoceras	Minuartia sedoides	Ligusticum mutellina
Rhinanthus glacialis	Pinguicula vulgaris	Minuartia verna	Ligusticum mutellinoides
Rhododendron ferrugineum	Plantago alpina	Myosotis alpestris	Lilium martagon
Rosa pendulina	Poa alpina	Myosotis silvatica	Linaria alpina
Rumex alpestris	Poa laxa	Nardus stricta	Linum catharticum

Rumex scutatus	Poa minor	Nigritella nigra	Listera ovata
Sagina saginoides	Poa trivialis	Orchis mascula	Lloydia serotina
Salix appendiculata	Poa violacea	Orthilia secunda	Loiseleuria procumbens
Salix glaucosericea	Polygala chamaebuxus	Oxalis acetosella	Lonicera coerulea
Salix helvetica	Polygala vulgaris	Oxyria digyna	Lotus alpinus
Salix herbacea	Polygonum viviparum	Paradisea liliastrum	Lotus corniculatus
Salix retusa	Polypodium vulgare	Parnassia palustris	Luzula alpino-pilosa
Salix serpyllifolia	Polystichum lonchitis	Pedicularis kernerii	Luzula lutea
Saponaria ocymoides	Potentilla aurea	Pedicularis tuberosa	Luzula multiflora
Saxifraga aizoides	Potentilla crantzii	Peucedanum ostruthium	Luzula spicata
Saxifraga androsacea	Potentilla erecta	Phleum alpinum	Luzula sudetica
Saxifraga aspera	Potentilla frigida	Phleum commutatum	Melica nutans
Saxifraga exarata	Potentilla grandiflora	Phleum pratense	Minuartia sedoides
Saxifraga oppositifolia	Primula farinosa	Phyteuma betonicifolium	Minuartia verna
Saxifraga paniculata	Primula hirsuta	Phyteuma hemisphaericum	Moehringia ciliata
Saxifraga seguieri	Pseudorchis albida	Phyteuma orbiculare	Moehringia muscosa
Saxifraga stellaris	Pulsatilla apiifolia	Picea abies	Myosotis alpestris
Scabiosa lucida	Pulsatilla vernalis	Pinguicula leptoceras	Myosotis arvensis
Sedum album	Pyrola minor	Pinus cembra	Myosotis silvatica
Sedum alpestre	Ranunculus aconitifolius	Plantago alpina	Nardus stricta
Sedum annuum	Ranunculus acris	Plantago atrata	Nigritella nigra
Sedum atratum	Ranunculus glacialis	Poa alpina	Onobrychis montana
Sedum dasyphyllum	Ranunculus grenierianus	Poa chaixii	Oxalis acetosella
Selaginella selaginoides	Ranunculus montanus	Poa laxa	Oxyria digyna
Sempervivum arachnoideum	Rhododendron ferrugineum	Poa minor	Oxytropis campestris s.l.
Sempervivum montanum	Rubus saxatilis	Poa nemoralis	Oxytropis jacquini
Sempervivum tectorum	Rumex acetosella s.l.	Poa supina	Paradisea liliastrum
Senecio incanus	Rumex alpestris	Poa violacea	Pedicularis ascendens
Sesleria varia	Rumex scutatus	Polygala alpestris	Pedicularis foliosa
Sibbaldia procumbens	Sagina glabra	Polygala chamaebuxus	Pedicularis kernerii
Silene acaulis	Sagina saginoides	Polygonum viviparum	Pedicularis tuberosa
Silene exscapa	Salix breviserrata	Polypodium vulgare	Pedicularis verticillata
Silene nutans	Salix hastata	Polystichum aculeatum	Petasites hybridus
Silene rupestris	Salix helvetica	Polystichum lonchitis	Peucedanum ostruthium
Silene vulgaris	Salix herbacea	Populus tremula	Phleum alpinum
Soldanella alpina	Salix retusa	Potentilla aurea	Phleum hirsutum
Soldanella pusilla	Sambucus racemosa	Potentilla erecta	Phyteuma betonicifolium
Solidago virgaurea ssp. minuta	Saxifraga aizoides	Potentilla frigida	Phyteuma hemisphaericum
Stachys recta	Saxifraga androsacea	Potentilla grandiflora	Phyteuma orbiculare
Taraxacum alpinum	Saxifraga aspera	Potentilla palustris	Pimpinella major
Thesium alpinum	Saxifraga bryoides	Primula hirsuta	Pinguicula alpina
Thymus praecox ssp. polytrichus	Saxifraga cotyledon	Pseudorchis albida	Pinguicula vulgaris
Trichophorum caespitosum	Saxifraga cuneifolia	Pulsatilla apiifolia	Pinus cembra
Trifolium alpinum	Saxifraga exarata	Pulsatilla vernalis	Pinus mugo ssp. arborea
Trifolium badium	Saxifraga moschata	Pyrola minor	Plantago alpina

Trifolium montanum	Saxifraga muscoides	Ranunculus acris ssp. friesianus	Plantago atrata
Trifolium pallescens	Saxifraga oppositifolia	Ranunculus glacialis	Plantago lanceolata
Trifolium pratense ssp. nivale	Saxifraga paniculata	Ranunculus grenierianus	Plantago major
Trisetum distichophyllum	Saxifraga seguieri	Ranunculus montanus	Plantago media
Trisetum spicatum	Saxifraga stellaris	Ranunculus pyrenaicus	Poa alpina
Urtica dioeca	Scabiosa lucida	Rhaponticum scariosum	Poa annua
Vaccinium myrtillus	Sedum alpestre	Rhinanthus glacialis	Poa laxa
Vaccinium uliginosum s.l.	Sedum annuum	Rhododendron ferrugineum	Poa minor
Vaccinium vitis-idaea	Selaginella selaginoides	Rorippa islandica	Poa nemoralis
Valeriana tripteris	Sempervivum arachnoideum	Rosa pendulina	Poa supina
Veratrum album	Sempervivum montanum	Rubus idaeus	Polygala alpestris
Veronica alpina	Sempervivum tectorum	Rumex acetosella s.l.	Polygonatum verticillatum
Veronica bellidioides	Senecio incanus	Rumex alpestris	Polygonum bistorta
Veronica chamaedrys	Sesleria varia	Rumex alpinus	Polygonum viviparum
Veronica fruticans	Sibbaldia procumbens	Rumex scutatus	Polypodium vulgare
Veronica serpyllifolia s.l.	Silene acaulis	Sagina saginoides	Polystichum aculeatum
Viola biflora	Silene exscapa	Salix appendiculata	Polystichum lonchitis
Viola calcarata	Silene nutans	Salix foetida	Potentilla aurea
Viola palustris	Silene rupestris	Salix glaucosericea	Potentilla brauneana
	Silene vulgaris	Salix hastata	Potentilla crantzii
	Silene vulgaris ssp. glareosa	Salix helvetica	Potentilla erecta
	Soldanella alpina	Salix herbacea	Potentilla frigida
	Soldanella pusilla	Salix purpurea	Potentilla grandiflora
	Solidago virgaurea ssp. minuta	Salix reticulata	Primula auricula
	Sorbus aucuparia	Salix retusa	Primula farinosa
	Taraxacum alpinum	Salix serpyllifolia	Primula hirsuta
	Taraxacum schroeterianum	Saxifraga aizoides	Prunella grandiflora
	Thalictrum minus	Saxifraga androsacea	Pseudorchis albida
	Thesium alpinum	Saxifraga aspera	Pulsatilla alpina
	Thymus froelichianus	Saxifraga bryoides	Pulsatilla apiifolia
	Thymus praecox ssp. polytrichus	Saxifraga cotyledon	Pulsatilla vernalis
	Tofieldia calyculata	Saxifraga cuneifolia	Pyrola minor
	Trichophorum caespitosum	Saxifraga exarata	Ranunculus acris ssp. friesianus
	Trifolium alpinum	Saxifraga muscoides	Ranunculus alpestris
	Trifolium badium	Saxifraga oppositifolia	Ranunculus glacialis
	Trifolium pallescens	Saxifraga paniculata	Ranunculus montanus
	Trifolium pratense	Saxifraga seguieri	Ranunculus platanifolius
	Trifolium pratense ssp. nivale	Saxifraga stellaris	Rhinanthus alectorolophus
	Trifolium thalii	Sedum alpestre	Rhinanthus minor
	Trisetum spicatum	Sedum atratum	Rhododendron ferrugineum
	Tussilago farfara	Sedum sexangulare	Rhododendron hirsutum
	Urtica dioeca	Selaginella selaginoides	Rosa pendulina
	Vaccinium myrtillus	Sempervivum montanum	Rubus idaeus
	Vaccinium uliginosum s.l.	Senecio doronicum	Rumex acetosa
	Vaccinium vitis-idaea	Senecio incanus	Rumex alpestris

Valeriana tripteris
Veronica alpina
Veronica bellidioides
Veronica fruticans
Veronica officinalis
Viola biflora
Viola calcarata
Viola palustris

Sibbaldia procumbens
Silene exscapa
Silene nutans
Silene rupestris
Silene vulgaris
Soldanella alpina
Soldanella pusilla
Solidago virgaurea ssp. minuta
Sparganium angustifolium
Spargularia rubra
Stellaria nemorum
Taraxacum alpinum
Taraxacum officinale
Taraxacum schroeterianum
Thalictrum aquilegifolium
Thesium alpinum
Thymus praecox ssp. polytrichus
Tofieldia calyculata
Trichophorum caespitosum
Trifolium alpinum
Trifolium badium
Trifolium pallescens
Trifolium pratense
Trifolium pratense ssp. nivale
Trifolium repens
Trisetum spicatum
Tussilago farfara
Urtica dioeca
Vaccinium myrtillus
Vaccinium uliginosum s.l.
Vaccinium vitis-idaea
Valeriana officinalis s.l.
Valeriana tripteris
Veronica alpina
Veronica aphylla
Veronica bellidioides
Veronica chamaedrys
Veronica fruticans
Veronica fruticulosa
Veronica officinalis
Veronica serpyllifolia ssp. humifusa
Viola biflora
Viola calcarata
Viola palustris
Viola rupestris

Rumex scutatus
Sagina saginoides
Salix appendiculata
Salix caprea
Salix hastata
Salix herbacea
Salix nigricans
Salix reticulata
Salix retusa
Salix serpyllifolia
Saxifraga aizoides
Saxifraga androsacea
Saxifraga aspera
Saxifraga bryoides
Saxifraga caesia
Saxifraga exarata
Saxifraga moschata
Saxifraga muscoides
Saxifraga oppositifolia
Saxifraga paniculata
Saxifraga seguieri
Saxifraga stellaris
Scabiosa lucida
Sedum alpestre
Sedum atratum
Sedum dasyphyllum
Selaginella selaginoides
Sempervivum montanum
Sempervivum tectorum
Senecio doronicum
Sesleria varia
Sibbaldia procumbens
Silene acaulis
Silene dioica
Silene exscapa
Silene nutans
Silene rupestris
Silene vulgaris
Soldanella alpina
Solidago virgaurea
Solidago virgaurea ssp. minuta
Sorbus aucuparia
Stellaria graminea
Stellaria nemorum
Taraxacum alpinum

Viola thomasiana

Thalictrum aquilegifolium
Thalictrum minus
Thelypteris phegopteris
Thesium alpinum
Thesium pyrenaicum
Thlaspi rotundifolium
Thymus praecox ssp. polytrichus
Tofieldia calyculata
Trichophorum caespitosum
Trifolium alpinum
Trifolium badium
Trifolium pallescens
Trifolium pratense
Trifolium pratense ssp. nivale
Trifolium repens
Trifolium thalii
Trisetum distichophyllum
Trisetum spicatum
Trollius europaeus
Tussilago farfara
Urtica dioeca
Vaccinium myrtillus
Vaccinium uliginosum s.l.
Vaccinium vitis-idaea
Valeriana tripteris
Veratrum album
Veronica alpina
Veronica aphylla
Veronica bellidioides
Veronica chamaedrys
Veronica fruticans
Veronica fruticulosa
Veronica serpyllifolia s.l.
Viola biflora
Viola calcarata
Viola cenisia

Données floristiques, état 1998: espèces recensées

Tableau de synthèse des secteurs de haute altitude 716 Bietschhorn, 717 Aletschhorn, 799 Wannenhorn, 718 Konkordiaplatz, 584 Schreckhorn, total 529 espèces

<i>Acer pseudoplatanus</i>	<i>Anemone narcissiflora</i>	<i>Betula pendula</i>	<i>Carex nigra</i>	<i>Dactylorhiza maculata</i>
<i>Achillea atrata</i>	<i>Antennaria carpatica</i>	<i>Biscutella laevigata</i>	<i>Carex ornithopoda</i>	<i>Dactylorhiza majalis</i>
<i>Achillea millefolium</i>	<i>Antennaria dioeca</i>	<i>Botrychium lunaria</i>	<i>Carex pallescens</i>	<i>Daphne mezereum</i>
<i>Achillea moschata</i>	<i>Anthoxanthum alpinum</i>	<i>Briza media</i>	<i>Carex panicea</i>	<i>Delphinium elatum</i>
<i>Achillea nana</i>	<i>Anthoxanthum odoratum</i>	<i>Bupleurum ranunculoides</i>	<i>Carex parviflora</i>	<i>Deschampsia caespitosa</i>
<i>Acinos alpinus</i>	<i>Anthyllis alpestris</i>	<i>Bupleurum stellatum</i>	<i>Carex pauciflora</i>	<i>Dianthus sylvestris</i>
<i>Aconitum napellus s.l.</i>	<i>Anthyllis vulneraria</i>	<i>Calamagrostis varia</i>	<i>Carex paupercula</i>	<i>Diphysium alpinum</i>
<i>Aconitum paniculatum</i>	<i>Arabis alpina</i>	<i>Calamagrostis villosa</i>	<i>Carex rostrata</i>	<i>Doronicum clusii</i>
<i>Aconitum vulparia</i>	<i>Arabis ciliata</i>	<i>Callitriche hamulata</i>	<i>Carex sempervirens</i>	<i>Doronicum grandiflorum</i>
<i>Adenostyles alliariae</i>	<i>Arabis hirsuta</i>	<i>Calluna vulgaris</i>	<i>Carlina acaulis</i>	<i>Draba aizoides</i>
<i>Adenostyles glabra</i>	<i>Arctostaphylos alpina</i>	<i>Caltha palustris</i>	<i>Carum carvi</i>	<i>Draba dubia</i>
<i>Adenostyles leucophylla</i>	<i>Arctostaphylos uva-ursi</i>	<i>Campanula barbata</i>	<i>Centaurea montana</i>	<i>Draba fladnizensis</i>
<i>Agropyron caninum</i>	<i>Arenaria biflora</i>	<i>Campanula cenisia</i>	<i>Centaurea scabiosa</i>	<i>Draba siliquosa</i>
<i>Agrostis alpina</i>	<i>Arenaria ciliata</i>	<i>Campanula cochleariifolia</i>	<i>Centaurea triumfettii</i>	<i>Draba tomentosa</i>
<i>Agrostis rupestris</i>	<i>Arenaria marschlinii</i>	<i>Campanula excisa</i>	<i>Cerastium alpinum</i>	<i>Dryas octopetala</i>
<i>Agrostis schleicheri</i>	<i>Arnica montana</i>	<i>Campanula rhomboidalis</i>	<i>Cerastium arvense ssp. strictum</i>	<i>Dryopteris austriaca</i>
<i>Agrostis schraderiana</i>	<i>Artemisia genipi</i>	<i>Campanula rotundifolia s.l.</i>	<i>Cerastium cerastoides</i>	<i>Dryopteris carthusiana</i>
<i>Agrostis stolonifera</i>	<i>Artemisia mutellina</i>	<i>Campanula scheuchzeri</i>	<i>Cerastium holosteoides</i>	<i>Dryopteris filix-mas</i>
<i>Agrostis tenuis</i>	<i>Asplenium ruta-muraria</i>	<i>Campanula spicata</i>	<i>Cerastium latifolium</i>	<i>Elyna myosuroides</i>
<i>Ajuga pyramidalis</i>	<i>Asplenium septentrionale</i>	<i>Capsella bursa-pastoris</i>	<i>Cerastium pedunculatum</i>	<i>Empetrum hermaphroditum</i>
<i>Alchemilla alpina s.l.</i>	<i>Asplenium trichomanes</i>	<i>Cardamine alpina</i>	<i>Cerastium uniflorum</i>	<i>Epilobium alpestre</i>
<i>Alchemilla conjuncta s.l.</i>	<i>Asplenium viride</i>	<i>Cardamine resedifolia</i>	<i>Chaerophyllum villarsii</i>	<i>Epilobium aisinifolium</i>
<i>Alchemilla coriacea s.l.</i>	<i>Asplenium ruta-muraria</i>	<i>Carduus defloratus</i>	<i>Chamorchis alpina</i>	<i>Epilobium anagallidifolium</i>
<i>Alchemilla fissas l.</i>	<i>Aster alpinus</i>	<i>Carduus defloratus ssp. rhaeticus</i>	<i>Chenopodium bonus-henricus</i>	<i>Epilobium collinum</i>
<i>Alchemilla glabra s.l.</i>	<i>Aster bellidiastrum</i>	<i>Carex atrata</i>	<i>Chenopodium acaule</i>	<i>Epilobium fleischeri</i>
<i>Alchemilla hybridas l.</i>	<i>Astragalus alpinus</i>	<i>Carex brunnescens</i>	<i>Cirsium spinosissimum</i>	<i>Epilobium nutans</i>
<i>Alchemilla pentaphyllea</i>	<i>Astragalus australis</i>	<i>Carex capillaris</i>	<i>Clinopodium vulgare</i>	<i>Epilobium palustre</i>
<i>Alchemilla vulgaris s.l.</i>	<i>Astragalus frigidus</i>	<i>Carex caryophyllea</i>	<i>Coeloglossum viride</i>	<i>Epipactis atrorubens</i>
<i>Allium schoenoprasum</i>	<i>Astragalus penduliflorus</i>	<i>Carex curvula</i>	<i>Convallaria majalis</i>	<i>Equisetum palustre</i>
<i>Allium senescens ssp. montanum</i>	<i>Astrantia major</i>	<i>Carex davalliana</i>	<i>Cotoneaster integerrimus</i>	<i>Equisetum variegatum</i>
<i>Allium victorialis</i>	<i>Astrantia minor</i>	<i>Carex echinata</i>	<i>Crepis aurea</i>	<i>Erica herbacea</i>
<i>Alnus viridis</i>	<i>Athamanta cretensis</i>	<i>Carex ericetorum</i>	<i>Crepis conyzifolia</i>	<i>Erigeron acris</i>
<i>Alopecurus aequalis</i>	<i>Athyrium distentifolium</i>	<i>Carex ferruginea</i>	<i>Crepis pyrenaica</i>	<i>Erigeron alpinus</i>
<i>Alopecurus pratensis</i>	<i>Athyrium filix-femina</i>	<i>Carex firma</i>	<i>Crocus albiflorus</i>	<i>Erigeron uniflorus</i>
<i>Androsace alpina</i>	<i>Avenella flexuosa</i>	<i>Carex flava</i>	<i>Cryptogramma crispa</i>	<i>Erinus alpinus</i>
<i>Androsace carnea</i>	<i>Avenula versicolor</i>	<i>Carex foetida</i>	<i>Cuscuta epithimum</i>	<i>Eriophorum angustifolium</i>
<i>Androsace chamaejasme</i>	<i>Bartsia alpina</i>	<i>Carex frigida</i>	<i>Cystopteris fragilis</i>	<i>Eriophorum scheuchzeri</i>
<i>Androsace obtusifolia</i>	<i>Bellis perennis</i>	<i>Carex lachenalii</i>	<i>Cystopteris regia</i>	<i>Euphorbia cyparissias</i>
<i>Androsace vandellii</i>	<i>Berberis vulgaris</i>	<i>Carex leporina</i>	<i>Dactylis glomerata</i>	<i>Euphrasia alpina</i>

Euphrasia minima	Gymnocarpium dryopteris	Leontodon hispidus	Oxytropis jacquini	Polystichum onchitis
Euphrasia pulchella	Gymnocarpium robertianum	Leontopodium alpinum	Paradisea liliastrum	Populus tremula
Euphrasia rostkoviana ssp. montana	Gypsophila repens	Leucanthemopsis alpina	Parnassia palustris	Potentilla aurea
Euphrasia salisburgensis	Hedysarum hedysaroides	Leucanthemum adustum	Pedicularis ascendens	Potentilla brauneana
Euphrasia versicolor	Helianthemum alpestre	Leucanthemum halleri	Pedicularis foliosa	Potentilla crantzii
Festuca alpina	Helianthemum grandiflorum ssp. grand	Leucanthemum praecox	Pedicularis kernerii	Potentilla erecta
Festuca curvula s.l.	Hepatica nobilis	Leucanthemum vulgare	Pedicularis tuberosa	Potentilla frigida
Festuca halleri	Heracleum sphondylium ssp. elegans	Ligusticum mutellina	Pedicularis verticillata	Potentilla grandiflora
Festuca pratensis	Herniaria alpina	Ligusticum mutellinoides	Petasites hybridus	Potentilla palustris
Festuca pulchella	Hieracium alpinum	Lilium martagon	Peucedanum ostruthium	Primula auricula
Festuca quadriflora	Hieracium bifidum	Linaria alpina	Phleum alpinum	Primula farinosa
Festuca rubra s.l.	Hieracium rubra s.l.	Linum catharticum	Phleum commutatum	Primula hirsuta
Festuca varia	Hieracium glaciale	Listera cordata	Phleum hirsutum	Prunella grandiflora
Festuca violacea	Hieracium glanduliferum ssp. piliferum	Listera ovata	Phyteuma betonicifolium	Pseudorchis albida
Gagea fistulosa	Hieracium intybaceum	Lloydia serotina	Phyteuma hemisphaericum	Pulsatilla alpina
Gagea lutea	Hieracium lactucella	Loiseleuria procumbens	Phyteuma orbiculare	Pulsatilla apiifolia
Galeopsis ladanum	Hieracium laevigatum	Lonicera coerulea	Picea abies	Pulsatilla vernalis
Galeopsis tetrahit	Hieracium morisianum	Lotus alpinus	Pimpinella major	Pyrola minor
Galium anisophyllum	Hieracium pilosella	Lotus corniculatus	Pinguicula alpina	Ranunculus acronitifolius
Galium megalospermum	Hieracium prenanthoides	Luzula alpino-pilosa	Pinguicula leptoceras	Ranunculus acris
Galium pumilum	Hieracium saussureoides	Luzula lutea	Pinguicula vulgaris	Ranunculus acris ssp. friesianus
Gentiana acaulis	Hieracium staticifolium	Luzula lutea	Pinus cembra	Ranunculus glacialis
Gentiana asclepiadea	Hieracium villosum	Luzula multiflora	Pinus mugo ssp. arborea	Ranunculus alpensis
Gentiana bavarica	Hippocrepis comosa	Luzula silvatica s.l.	Plantago alpina	Ranunculus glacialis
Gentiana brachyphylla	Homogyne alpina .	Luzula spicata	Plantago atrata	Ranunculus grenierianus
Gentiana campestris	Huperzia selago	Luzula sudetica	Plantago lanceolata	Ranunculus montanus
Gentiana clusii	Hutchinsia alpina	Lychnis flos-jovis	Plantago media	Ranunculus platanifolius
Gentiana germanica	Hutchinsia brevicaulis	Lycopodium annotinum	Poa alpina	Ranunculus pyrenaicus
Gentiana lutea	Hypericum maculatum	Melampyrum pratense s.l.	Poa annua	Rhamnus pumilus
Gentiana nivalis	Hypochoeris uniflora	Melampyrum silvaticum s.l.	Poa chaixii	Rhaponticum scariosum
Gentiana punctata	Juncus alpino-articulatus	Melica nutans	Poa laxa	Rhinanthus alectorolophus
Gentiana purpurea	Juncus articulatus	Minuartia laricifolia	Poa minor	Rhinanthus glacialis
Gentiana ramosa	Juncus filiformis	Minuartia recurva	Poa nemoralis	Rhinanthus minor
Gentiana tenella	Juncus jacquini	Minuartia sedoides	Poa supina	Rhododendron ferrugineum
Gentiana verna	Juncus trifidus	Minuartia verna	Poa trivialis	Rhododendron hirsutum
Geranium silvaticum	Juncus triglumis	Moehringia ciliata	Poa violacea	Rorippa islandica
Geum montanum	Juniperus communis ssp. alpina	Moehringia muscosa	Polygala alpestris	Rosa pendulina
Geum reptans	Juniperus sabina	Myosotis arvensis	Polygala chamaebuxus	Rubus idaeus
Globularia cordifolia	Knautia dipsacifolia	Myosotis silvatica	Polygala vulgaris	Rubus saxatilis
Globularia nudicaulis	Lamium purpureum	Nardus stricta	Polygonatum verticillatum	Rumex acetosa
Gnaphalium norvegicum	Larix decidua	Nigritella nigra	Polygonum bistorta	Rumex acetosella s.l.
Gnaphalium silvaticum	Laserpitium halleri	Onobrychis montana	Polygonum viviparum	Rumex alpestris
Gnaphalium supinum	Laserpitium latifolium	Oxalis acetosella	Polypodium vulgare	Rumex alpinus
Gymnadenia conopsea	Laserpitium siler	Oxyria digyna	Polystichum aculeatum	Rumex scutatus
Gymnadenia odoratissima	Leontodon autumnalis	Oxytropis campestris s.l.		Sagina glabra
	Leontodon helveticus			Sagina procumbens

Sagina saginoides	Silene acaulis	Vaccinium vitis-idaea
Salix appendiculata	Silene dioica	Valeriana officinalis s.l.
Salix breviserrata	Silene exscapa	Valeriana tripteris
Salix caprea	Silene nutans	Veratrum album
Salix foetida	Silene rupestris	Veronica alpina
Salix glaucosericea	Silene vulgaris	Veronica aphylla
Salix hastata	Silene vulgaris ssp. glareosa	Veronica bellidioides
Salix helvetica	Soldanella alpina	Veronica chamaedrys
Salix herbacea	Soldanella pusilla	Veronica fruticans
Salix nigricans	Solidago virgaurea	Veronica fruticulosa
Salix purpurea	Solidago virgaurea ssp. minuta	Veronica officinalis
Salix reticulata	Sorbus aucuparia	Veronica serpyllifolia s.l.
Salix retusa	Sparganium angustifolium	Veronica serpyllifolia ssp. humifusa
Salix serpyllifolia	Spergularia rubra	Viola biflora
Sambucus racemosa	Stachys recta	Viola calcarata
Saponaria ocymoides	Stellaria graminea	Viola cenisia
Saxifraga aizoides	Stellaria nemorum	Viola palustris
Saxifraga androsacea	Taraxacum alpinum	Viola rupestris
Saxifraga aspera	Taraxacum officinale	Viola thomasiana
Saxifraga bryoides	Taraxacum schroeterianum	
Saxifraga caesia	Thalictrum aquilegifolium	
Saxifraga cotyledon	Thalictrum minus	
Saxifraga cuneifolia	Thelypteris phegopteris	
Saxifraga exarata	Thesium alpinum	
Saxifraga moschata	Thesium pyrenaicum	
Saxifraga muscoides	Thlaspi rotundifolium	
Saxifraga oppositifolia	Thymus froelichianus	
Saxifraga paniculata	Thymus praecox ssp. polytrichus	
Saxifraga seguieri	Tofieldia calyculata	
Saxifraga stellaris	Trichophorum caespitosum	
Scabiosa lucida	Trifolium alpinum	
Sedum album	Trifolium badium	
Sedum alpestre	Trifolium montanum	
Sedum annuum	Trifolium pallescens	
Sedum atratum	Trifolium pratense	
Sedum dasyphyllum	Trifolium pratense ssp. nivale	
Sedum sexangulare	Trifolium repens	
Selaginella selaginoides	Trifolium thalii	
Sempervivum arachnoideum	Trisetum distichophyllum	
Sempervivum montanum	Trisetum spicatum	
Sempervivum tectorum	Trollius europaeus	
Senecio doronicum	Tussilago farfara	
Senecio incanus	Urtica dioeca	
Sesleria varia	Vaccinium myrtillus	
Sibbaldia procumbens	Vaccinium uliginosum s.l.	

Flore des mousses de la réserve d'Aletsch

Source: BERTRAM (2000)

HEPATICAE

Anastrophyllum	minutum	Diplophyllum	taxifolium	Lophozia	sudetica
Aneura	pinguis	Frullania	dilatata	Lophozia	ventricosa
Anthelia	julacea ssp. juratzkana	Frullania	tamarisci	Lophozia	ventricosa var. silvicola
Apometzgeria	pubescens	Gymnocolea	inflata	Lophozia	wenzelii
Barbilophozia	barbata var. biloba	Gymnomitrium	concinatum	Marchantia	polymorpha ssp. montivagans
Barbilophozia	floerkei	Gymnomitrium	corallioides	Marsupella	brevissima
Barbilophozia	hatcheri var. hatcheri	Jungermannia	confertissima	Marsupella	emarginata
Barbilophozia	hatcheri var. palmatifolia	Jungermannia	hyalina	Marsupella	funkii
Barbilophozia	kunzeana	Jungermannia	leiantha	Marsupella	sparsifolia
Barbilophozia	lycopodioides	Jungermannia	obovata	Marsupella	sphacelata
Barbilophozia	quadriloba	Jungermannia	sphaerocarpa	Marsupella	sprucei
Bazzania	tricrenata	Kurzia	pauciflora	Metzgeria	furcata
Blasia	pusilla	Lejeunea	cavifolia	Moerckia	blyttii
Blepharostoma	trichophyllum	Lepidozia	reptans	Nardia	geoscyphus
Calypogeia	azurea	Lophocolea	bidentata	Nardia	scalaris
Calypogeia	integristipula	Lophocolea	heterophylla	Pellia	neesiana
Calypogeia	muelleriana	Lophocolea	minor	Plagiochila	asplenioides
Calypogeia	neesiana	Lophozia	ascendens	Plagiochila	porelloides
Calypogeia	suecica	Lophozia	bantriensis	Pleurocladula	albescens
Cephalozia	bicuspidata	Lophozia	bicrenata	Porella	cordaeana
Cephalozia	lunulifolia	Lophozia	collaris	Preissia	quadrata
Cephalozia	pleniceps	Lophozia	decolorans	Ptilidium	ciliare
Cephaloziella	divaricata	Lophozia	excisa	Ptilidium	pulcherrimum
Cephaloziella	divaricata var. scabra	Lophozia	gillmanii	Radula	complanata ssp. complanata
Cephaloziella	grimsulana	Lophozia	heterocolpos	Radula	complanata ssp. lindenbergiana
Cephaloziella	hampeana	Lophozia	incisa ssp. incisa	Riccardia	incurvata
Cephaloziella	integerrima	Lophozia	incisa ssp. opacifolia	Riccardia	palmata
Cephaloziella	cf. rubella	Lophozia	longidens	Riccia	sorocarpa
Chiloscyphus	polyanthos ssp. polyanthos	Lophozia	longiflora	Scapania	aequiloba
Chiloscyphus	polyanthos ssp. pallescens	Lophozia	obtusa	Scapania	cf. calcicola
Conocephalum	conicum	Lophozia	perssonii	Scapania	curta

Scapania	cuspiduligera	Scapania	paludosa	Tritomaria	exsecta
Scapania	helvetica	Scapania	scandica	Tritomaria	exsectiformis
Scapania	irrigua	Scapania	subalpina	Tritomaria	polita
Scapania	cf. mucronata	Scapania	umbrosa	Tritomaria	quinquedentata
Scapania	paludicola	Scapania	undulata	Tritomaria	scitula

MUSCI

Aloina	rigida	Brachythecium	populeum	Buxbaumia	aphylla
Amblystegium	jungermannioides	Brachythecium	reflexum	Calliergon	sarmentosum
Amblystegium	subtile	Brachythecium	rivulare	Calliergon	stramineum
Amblystegium	varium	Brachythecium	salebrosum ssp.salebrosum	Campylium	cf. chrysophyllum
Amphidium	mougeotii	Brachythecium	starkei ssp. starkei	Campylium	stellatum ssp. protensum
Andreaea	rupestris ssp. rupestris	Brachythecium	starkei ssp.curtum	Campylium	stellatum ssp. stellatum
Anomobryum	julaceum var. concinatum	Brachythecium	trachypodium	Ceratodon	cf. heterophyllum
Antitrichia	curtipendula	Brachythecium	velutinum	Ceratodon	purpureus
Aongstroemia	longipes	Bryoerythrophyllum	ferruginascens	Cirriphyllum	cirrosium
Atrichum	undulatum	Bryoerythrophyllum	recurvirostre	Cirriphyllum	piliferum
Aulacomnium	palustre	Bryum	arcticum	Climacium	dendroides
Barbula	acuta ssp. icmadophila	Bryum	argenteum ssp. argenteum	Cratoneuron	decipiens
Barbula	convoluta	Bryum	caespiticiun	Cratoneuron	falcatum
Barbula	fallax	Bryum	caespiticiun cf. ssp. culmannii	Cratoneuron	filicinum
Barbula	ferruginea	Bryum	caespiticiun ssp. kunzei	Cratoneuron	filicinum var. curvicaule
Barbula	unguiculata	Bryum	capillare ssp. capillare	Cratoneuron	irrigatum
Bartramia	halleriana	Bryum	creberrimum	Cynodontium	bruntonii
Bartramia	ithyphylla	Bryum	elegans	Cynodontium	fallax
Blindia	acuta	Bryum	cf. imbricatum	Cynodontium	gracilescens
Brachydontium	trichodes	Bryum	muehlenbeckii	Cynodontium	polycarpon ssp. polycarpon
Brachythecium	albicans	Bryum	pallens	Cynodontium	polycarpon ssp. strumiferuum
Brachythecium	erythrorrhizon	Bryum	palloescens	Cynodontium	tenellum
Brachythecium	fendleri	Bryum	pseudotriquetrum ssp. pseudotriquetrum	Desmatodon	latifolius var. latifolius
Brachythecium	glaciale	Bryum	pseudotriquetrum ssp. bimum	Desmatodon	latifolius var. muticus
Brachythecium	glareosum	Bryum	schleicheri	Desmatodon	latifolius var. pilifer
Brachythecium	latifolium	Bryum	subelegans	Dichelyma	falcatum
Brachythecium	mildeanum	Bryum	turbinatum	Dichodontium	pellucidum
Brachythecium	plumosum	Bryum	weigeli	Dicranella	grevilleana

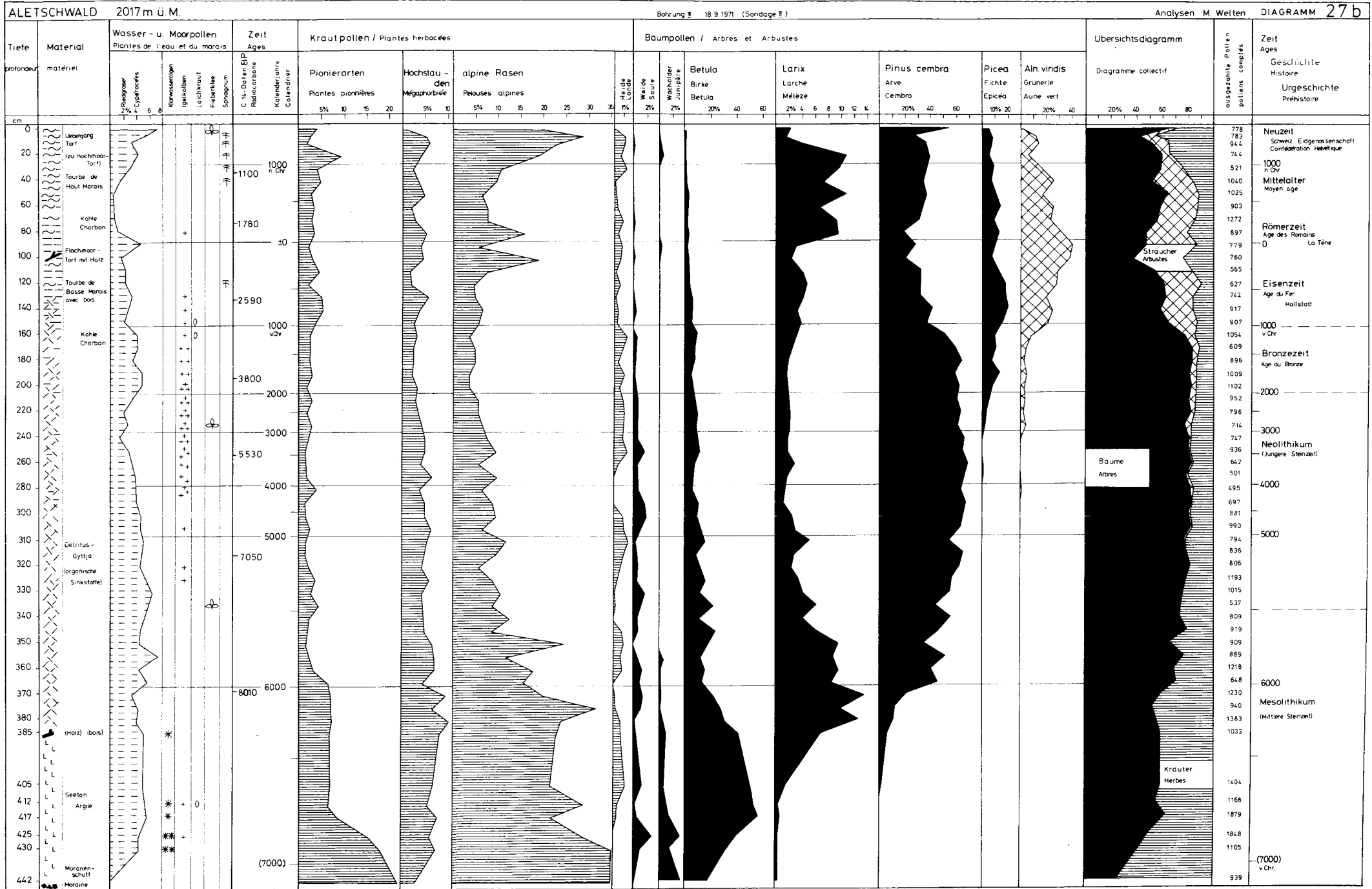
Dicranella	palustris	Fissidens	adianthoides	Isopterygium	elegans
Dicranella	schreberiana	Fissidens	bryoides	Isopterygium	pulchellum
Dicranella	subulata	Fissidens	viridulus ssp. viridulus	Isothecium	alopecuroides
Dicranella	varia	Funaria	hygrometrica	Isothecium	myosuroides
Dicranodontium	alpinum	Grimmia	affinis	Kiaeria	blyttii
Dicranoweisia	crispula	Grimmia	anomala	Kiaeria	starkei
Dicranum	acutifolium	Grimmia	caespiticia	Leptobryum	pyriforme
Dicranum	bonjeanii	Grimmia	curvata	Lescuraea	saxicola
Dicranum	brevifolium	Grimmia	donniana	Leucodon	sciuroides
Dicranum	elongatum	Grimmia	elator	Meesia	uliginosa
Dicranum	flagellare	Grimmia	elongata	Mnium	ambiguum
Dicranum	flexicaule	Grimmia	funalis	Mnium	marginatum
Dicranum	fuscescens	Grimmia	hartmanii	Mnium	spinosum
Dicranum	montanum	Grimmia	incurva	Mnium	spinulosum
Dicranum	muehlenbeckii	Grimmia	laevigata	Mnium	stellare
Dicranum	scoparium	Grimmia	montana	Mnium	thomsonii
Dicranum	spadiceum	Grimmia	muehlenbeckii	Neckera	complanata
Dicranum	tauricum	Grimmia	ovalis	Neckera	crispa
Diphyscium	foliosum	Grimmia	sessitana	Oligotrichum	hercynicum
Distichium	capillaceum	Grimmia	sudetica	Oncophorus	virens
Distichium	inclinatum	Grimmia	torquata	Orthotrichum	affine ssp. fastigiatum
Ditrichum	flexicaule var. densum	Gymnostomum	aeruginosum	Orthotrichum	alpestre
Ditrichum	flexicaule var. flexicaule	Heterociadium	dimorphum	Orthotrichum	laevigatum
Ditrichum	heteromallum	Homalothecium	lutescens	Orthotrichum	obtusifolium
Ditrichum	cf. zonatum	Homalothecium	sericeum	Orthotrichum	pallens
Drepanocladus	aduncus	Hygrohypnum	duriusculum	Orthotrichum	rupestre
Drepanocladus	exannulatus	Hygrohypnum	luridum	Orthotrichum	speciosum
Drepanocladus	fluitans	Hylocomium	pyrenaicum	Orthotrichum	striatum
Drepanocladus	uncinatus	Hylocomium	splendens	Oxystegus	tenuirostris
Encalypta	affinis	Hylocomium	umbratum	Paraleucobryum	albicans
Encalypta	ciliata	Hymenostylium	recurvirostre	Paraleucobryum	longifolium
Encalypta	rhaptoarpa ssp. rhaptoarpa	Hypnum	cupressiforme ssp. cupressiforme	Philonotis	calcareae
Encalypta	streptocarpa	Hypnum	cupressiforme ssp. mamillatum	Philonotis	fontana
Eurhynchium	hians	Hypnum	recurvatum	Philonotis	seriata
Eurhynchium	praelongum	Hypnum	reptile	Philonotis	cf. tomentella
Eurhynchium	pulchellum	Hypnum	revolutum	Plagiobryum	zierii

Plagiomnium	affine	Pseudoleskea	patens	Sphagnum	inundatum
Plagiomnium	medium	Pseudoleskea	plicata	Sphagnum	magellanicum
Plagiopus	oederianus	Pseudoleskea	radicosa	Sphagnum	palustre
Plagiothecium	curvifolium	Pseudoleskeella	catenulata var. acuminata	Sphagnum	platyphyllum
Plagiothecium	denticulatum	Pseudoleskeella	nervosa	Sphagnum	quinquefarium
Plagiothecium	laetum	Pterigynandrum	filliforme	Sphagnum	recurvum ssp. angustifolium
Plagiothecium	platyphyllum	Ptilium	crista-castrensis	Sphagnum	russowii
Plagiothecium	roeseanum s. l.	Racomitrium	aciculare	Sphagnum	squarrosum
Plagiothecium	roeseanum s. str.	Racomitrium	affine	Sphagnum	subnitens
Plagiothecium	ruthei	Racomitrium	aquaticum	Sphagnum	subsecundum
Pleurozium	schreberi	Racomitrium	canescens ssp. canescens	Sphagnum	teres
Pogonatum	aloides	Racomitrium	canescens mod. mollissimum	Sphagnum	warnstorffii
Pogonatum	urnigerum	Racomitrium	elongatum	Tayloria	acuminata
Pohlia	andalusica	Racomitrium	ericoidees	Tayloria	serrata ssp. serrata
Pohlia	andrewsii	Racomitrium	fasciculare	Tayloria	serrata ssp. tenuis
Pohlia	annotina	Racomitrium	heterostichum	Tayloria	splachnoides
Pohlia	cruda	Racomitrium	macounii	Tetraphis	pellucida
Pohlia	drummondii	Racomitrium	microcarpum	Tetraplodon	mnioides
Pohlia	elongata ssp. elongata	Racomitrium	sudeticum	Tetrodontium	ovatum
Pohlia	elongata ssp. polymorpha	Rhabdoweisia	crispata	Thuidium	abietinum
Pohlia	filum	Rhabdoweisia	fugax	Thuidium	philibertii
Pohlia	longicolla	Rhizomnium	magnifoilium	Timmia	austriaca
Pohlia	ludwigii	Rhizomnium	pseudopunctatum	Timmia	bavarica
Pohlia	nutans	Rhizomnium	punctatum	Timmia	norvegica
Pohlia	obtusifolia	Rhodobryum	roseum	Tortella	fragilis
Pohlia	proligerata	Rhynchostegium	megapolitanum	Tortella	inclinata
Pohlia	vexans	Rhynchostegium	murale	Tortella	tortuosa
Pohlia	wahlenbergii	Rhytidadelphus	loreus	Tortula	mucronifolia
Polytrichum	alpinum	Rhytidadelphus	squarrosus ssp. calvescens	Tortula	muralis
Polytrichum	commune ssp. commune	Rhytidadelphus	triquetrus	Tortula	norvegica
Polytrichum	formosum ssp. formosum	Schistidium	apocarpum	Tortula	ruralis ssp. ruralis
Polytrichum	juniperinum	Sphagnum	capillifolium	Tortula	ruralis ssp. ruraliformis
Polytrichum	longisetum	Sphagnum	centrale	Tortula	subulata
Polytrichum	piliferum	Sphagnum	compactum	Trichodon	cylindricus
Polytrichum	sexangulare	Sphagnum	contortum	Weissia	wimmeriana
Pseudoleskea	incurvata	Sphagnum	fimbriatum		

Données faunistiques: Banque de données CSCF, état 25.07.2000, ordres sélectionnés
Périmètre: site UNESCO-projet Jungfrau-Aletsch-Bietschhorn

ORDRE	GENRE	ESPECE	ORDRE	GENRE	ESPECE	ORDRE	GENRE	ESPECE
Coleoptera	Anastrangalia	sanguinolenta	Lepidoptera	Carterocephalus	palaemon	Lepidoptera	Hipparchia	alcyone
Coleoptera	Anthaxia	quadripunctata	Lepidoptera	Chlorissa	viridata	Lepidoptera	Hipparchia	semele
Coleoptera	Anthaxia	sepulchralis	Lepidoptera	Coenonympha	gardetta	Lepidoptera	Inachis	io
Coleoptera	Anthaxia	helvetica	Lepidoptera	Colias	palaeno	Lepidoptera	Issoria	lathonia
Coleoptera	Chlorophorus	varius	Lepidoptera	Colias	phicomone	Lepidoptera	Lasiommata	maera
Coleoptera	Cicindela	gallica	Lepidoptera	Cupido	minimus	Lepidoptera	Lasiommata	megera
Coleoptera	Corymbia	hybrida	Lepidoptera	Diacrisia	sannio	Lepidoptera	Lasiommata	petropolitana
Coleoptera	Hydroporus	memnonius	Lepidoptera	Eilema	lutarella	Lepidoptera	Leptidea	sinapis
Coleoptera	Hydroporus	palustris	Lepidoptera	Entephria	infidaria	Lepidoptera	Lycaena	hippotoe
Coleoptera	Nebria	castanea	Lepidoptera	Ephestia	welseriella	Lepidoptera	Lycaena	tityrus
Coleoptera	Stenagostus	rufus	Lepidoptera	Epirrhoe	molluginata	Lepidoptera	Maculinea	arion
Coleoptera	Stenurella	bifasciata	Lepidoptera	Epirrhoe	tristata	Lepidoptera	Malacosoma	alpicolum
Coleoptera	Stenurella	melanura	Lepidoptera	Erebia	aethiops	Lepidoptera	Maniola	jurtina
Coleoptera	Stictotarsus	griseostriatus	Lepidoptera	Erebia	alberganus	Lepidoptera	Melanargia	galathea
Hymenoptera	Hylaeus	alpinus	Lepidoptera	Erebia	cassioides	Lepidoptera	Melitaea	athalia
Hymenoptera	Hylaeus	annularis	Lepidoptera	Erebia	epiphron	Lepidoptera	Melitaea	cinxia
Hymenoptera	Hylaeus	communis	Lepidoptera	Erebia	euryle	Lepidoptera	Melitaea	diamina
Hymenoptera	Hylaeus	gibbus	Lepidoptera	Erebia	gorge	Lepidoptera	Melitaea	varia
Hymenoptera	Hylaeus	nivalis	Lepidoptera	Erebia	ligea	Lepidoptera	Minoa	murinata
Hymenoptera	Sphecodes	puncticeps	Lepidoptera	Erebia	manto	Lepidoptera	Nymphalis	antiopa
Lepidoptera	Adscita	geryon	Lepidoptera	Erebia	melampus	Lepidoptera	Ochlodes	venatus
Lepidoptera	Aglais	urticae	Lepidoptera	Erebia	mnestra	Lepidoptera	Omia	cymbalariae
Lepidoptera	Anthocharis	cardamines	Lepidoptera	Erebia	montana	Lepidoptera	Papilio	machaon
Lepidoptera	Aphantopus	hyperantus	Lepidoptera	Erebia	oeme	Lepidoptera	Parasemia	plantaginis
Lepidoptera	Argynnis	aglaja	Lepidoptera	Erebia	pandrose	Lepidoptera	Parnassius	mnemosyne
Lepidoptera	Argynnis	niobe	Lepidoptera	Erebia	pharte	Lepidoptera	Parnassius	phoebus
Lepidoptera	Argynnis	paphia	Lepidoptera	Erebia	pluto	Lepidoptera	Parnassius	apollo
Lepidoptera	Aricia	artaxerxes	Lepidoptera	Erebia	pronoe	Lepidoptera	Pieris	brassicae
Lepidoptera	Aricia	eumedon	Lepidoptera	Erebia	tyndarus	Lepidoptera	Pieris	bryoniae
Lepidoptera	Aricia	nicias	Lepidoptera	Erynnis	tages	Lepidoptera	Pieris	napi
Lepidoptera	Boloria	euphrosyne	Lepidoptera	Euphydryas	aurinia	Lepidoptera	Pieris	rapae
Lepidoptera	Boloria	napaea	Lepidoptera	Euphydryas	cynthia	Lepidoptera	Plebeius	glandon
Lepidoptera	Boloria	pales	Lepidoptera	Eupithecia	pernotata	Lepidoptera	Plebeius	idas
Lepidoptera	Boloria	titania	Lepidoptera	Gonepteryx	rhamni	Lepidoptera	Plebeius	optilete
Lepidoptera	Callophrys	rubi	Lepidoptera	Hesperia	comma	Lepidoptera	Plebeius	orbitulus
Lepidoptera	Polygonia	c-album	Odonata	Somatochlora	alpestris	Stylommatophora	Eucobresia	diaphana
Lepidoptera	Polyommatus	escheri	Orthoptera	Aeropus	sibiricus	Stylommatophora	Eucobresia	glacialis

Lepidoptera	Polyommatus	amandus	Orthoptera	Arcyptera	fusca	Stylommatophora	Euconulus	fulvus
Lepidoptera	Polyommatus	coridon	Orthoptera	Bohemanella	frigida	Stylommatophora	Helicella	itala
Lepidoptera	Polyommatus	damon	Orthoptera	Chorthippus	biguttulus	Stylommatophora	Helix	pomatia
Lepidoptera	Polyommatus	dorylas	Orthoptera	Chorthippus	parallelus	Stylommatophora	Lehmannia	marginata
Lepidoptera	Polyommatus	eros	Orthoptera	Chorthippus	scalaris	Stylommatophora	Limax	cinereoniger
Lepidoptera	Polyommatus	escheri	Orthoptera	Decticus	verrucivorus	Stylommatophora	Malacolimax	tenellus
Lepidoptera	Polyommatus	icarus	Orthoptera	Metrioptera	brachyptera	Stylommatophora	Neostyriaca	corynodes
Lepidoptera	Polyommatus	semiargus	Orthoptera	Miramella	alpina	Stylommatophora	Oxychilus	glaber
Lepidoptera	Polyommatus	thersites	Orthoptera	Oedipoda	caerulescens	Stylommatophora	Perpolita	petronella
Lepidoptera	Pontia	callidice	Orthoptera	Oedipoda	germanica	Stylommatophora	Punctum	pygmaeum
Lepidoptera	Ptycholomoides	aeriferana	Orthoptera	Omocestus	viridulus	Stylommatophora	Pyramidula	pusilla
Lepidoptera	Pyrausta	coracinalis	Orthoptera	Podisma	pedestris	Stylommatophora	Trichia	sericea
Lepidoptera	Pyrgus	alveus	Orthoptera	Stethophyma	grossum	Stylommatophora	Vallonia	costata
Lepidoptera	Pyrgus	andromedae	Plecoptera	Amphinemura	sulcicollis	Stylommatophora	Vertigo	substriata
Lepidoptera	Pyrgus	cacaliae	Plecoptera	Chloroperla	tripunctata	Stylommatophora	Vitrea	contracta
Lepidoptera	Pyrgus	carlinae	Plecoptera	Isoperla	grammatica	Stylommatophora	Vitrea	subrimata
Lepidoptera	Pyrgus	malvae	Plecoptera	Isoperla	rivulorum	Veneroida	Pisidium	casertanum
Lepidoptera	Pyrgus	malvoides	Plecoptera	Leuctra	moselyi	Veneroida	Pisidium	personatum
Lepidoptera	Pyrgus	serratulae	Plecoptera	Perla	grandis			
Lepidoptera	Saturnia	pavonia	Plecoptera	Protonemura	praecox	Anura	Rana	temporaria
Lepidoptera	Saturnia	pyri	Stylommatophora	Abida	secale	Squamata	Anguis	fragilis
Lepidoptera	Scopula	temata	Stylommatophora	Aegopinella	minor	Squamata	Coronella	austriaca
Lepidoptera	Setina	aurita	Stylommatophora	Aegopinella	nitens	Squamata	Lacerta	vivipara
Lepidoptera	Setina	irrorella	Stylommatophora	Aegopinella	pura	Squamata	Podarcis	muralis
Lepidoptera	Sparganothis	pilleriana	Stylommatophora	Arianta	arbustorum	Squamata	Vipera	aspis
Lepidoptera	Spialia	sertorius	Stylommatophora	Arion	distinctus	Urodela	Salamandra	atra
Lepidoptera	Thymelicus	acteon	Stylommatophora	Arion	lusitanicus	Urodela	Triturus	alpestris
Lepidoptera	Thymelicus	lineolus	Stylommatophora	Arion	rufus			
Lepidoptera	Thymelicus	sylvestris	Stylommatophora	Arion	subfuscus	Artiodactyla	Capra	ibex
Lepidoptera	Vanessa	cardui	Stylommatophora	Balea	perversa	Artiodactyla	Capreolus	capreolus
Lepidoptera	Zygaena	exulans	Stylommatophora	Causa	holosericea	Artiodactyla	Cervus	elaphus
Lepidoptera	Zygaena	fausta	Stylommatophora	Cepaea	hortensis	Artiodactyla	Rupicapra	rupicapra
Lepidoptera	Zygaena	filipendulae	Stylommatophora	Chondrina	avenacea	Carnivora	Lynx	lynx
Lepidoptera	Zygaena	loniceræ	Stylommatophora	Clausilia	dubia	Carnivora	Martes	foina
Lepidoptera	Zygaena	loti	Stylommatophora	Cochlicopa	lubrica	Carnivora	Meles	meles
Odonata	Aeshna	caerulea	Stylommatophora	Columella	edentula	Carnivora	Mustela	erminea
Odonata	Aeshna	cyanea	Stylommatophora	Deroceras	agreste	Carnivora	Vulpes	vulpes
Odonata	Aeshna	juncea	Stylommatophora	Discus	runderatus	Insectivora	Neomys	fodiens





Chasse et protection des mammifères et oiseaux sauvages

922.0	Loi fédérale du 20 juin 1986 (LChP)
922.01	Ordonnance du 20 février 1988 (OChP)

**Loi fédérale
sur la chasse et la protection des mammifères
et oiseaux sauvages
(Loi sur la chasse, LChP)**

du 20 juin 1986

L'Assemblée fédérale de la Confédération suisse,

vu les articles 24^{sexies}, 4^e alinéa, 24^{septies}, 25 et 25^{bis} de la constitution fédérale¹;
vu le message du Conseil fédéral du 27 avril 1983²,

arrête:

Chapitre premier: But et champ d'application

Art. 1 But

¹ La loi vise à:

- a. La conservation de la diversité des espèces et celle des biotopes des mammifères et oiseaux indigènes et migrateurs vivant à l'état sauvage;
- b. La préservation des espèces animales menacées;
- c. La réduction à une proportion supportable des dégâts causés par la faune sauvage aux forêts et aux cultures;
- d. L'exploitation équilibrée par la chasse des populations de gibier.

² Elle fixe les principes selon lesquels les cantons doivent réglementer la chasse.

Art. 2 Champ d'application

La loi concerne les animaux suivants vivant en Suisse à l'état sauvage:

- a. Les oiseaux;
- b. Les carnivores;
- c. Les artiodactyles;
- d. Les lagomorphes;
- e. Le castor, la marmotte et l'écureuil.

Chapitre 2: Chasse

Art. 3 Principes

¹ Les cantons réglementent et organisent la chasse. Ce faisant, ils tiennent compte des conditions locales ainsi que des exigences de l'agriculture et de la protection de

RO 1988 506

¹ RS 101

² FF 1983 II 1229

la nature. Le traitement soutenu des forêts et la régénération naturelle par des essences en station doivent être assurés.

² Ils fixent les conditions de l'autorisation de chasser, déterminent le régime et le territoire de chasse, et pourvoient à une surveillance efficace.

³ Ils établissent, conformément aux prescriptions du Conseil fédéral, une statistique du nombre des animaux tirés et de la population des espèces les plus importantes.

⁴ Le Conseil fédéral détermine les moyens et engins de chasse dont l'usage est prohibé. Il fait établir une statistique fédérale de la chasse.

Art. 4 Autorisation de chasser

¹ Celui qui désire chasser a besoin d'une autorisation du canton.

² L'autorisation est accordée à celui qui prouve, lors d'un examen dont les modalités sont fixées par le canton, qu'il possède les connaissances nécessaires.

³ Les cantons peuvent octroyer à des personnes qui se préparent à passer l'examen de chasseur ainsi qu'à des hôtes une autorisation de chasser limitée à quelques jours.

Art. 5 Espèces pouvant être chassées et périodes de protection

¹ Les espèces suivantes peuvent être chassées, sauf pendant les périodes de protection qui sont fixées comme il suit:

- a. Le cerf élaphe
du 1^{er} février au 31 juillet
- b. Le sanglier
du 1^{er} février au 30 juin
- c. Le daim, le cerf Sika et le mouflon
du 1^{er} février au 31 juillet
- d. Le chevreuil
du 1^{er} février au 30 avril
- e. Le chamois
du 1^{er} janvier au 31 juillet
- f. Le lièvre commun, le lièvre variable et le lapin de garenne
du 1^{er} janvier au 30 septembre
- g. La marmotte
du 16 octobre au 31 août
- h. Le renard
du 1^{er} mars au 15 juin
- i. Le blaireau
du 16 janvier au 15 juin
- k. La martre et la fouine
du 16 février au 31 août
- l. Le coq du tétras lyre, le lagopède et la perdrix
du 1^{er} décembre au 15 octobre
- m. Le pigeon ramier, la tourterelle turque, le grand corbeau et la corneille mantelée
du 16 février au 31 juillet
- n. Le faisan
du 1^{er} février au 31 août

- o. Le grèbe huppé, la foulque macroule, le cormoran et les canards sauvages du 1^{er} février au 31 août
 - p. La bécasse des bois du 15 décembre au 15 septembre.
- ² Parmi les canards sauvages, les espèces suivantes sont protégées: les oies sauvages, la Tadome de Belon, la Tadome casarca, les harles et les cygnes, ainsi que la sarcelle marbrée, l'eider de Steller, le garrot arlequin, l'érismaure à tête blanche, le garrot d'Islande et la nette rousse.
- ³ Les espèces suivantes peuvent être chassées toute l'année:
- a. Le chien viverrin, le raton laveur et le chat haret;
 - b. La corneille noire, la pie, le geai des chênes et le pigeon domestique retourné à l'état sauvage.
- ⁴ Les cantons peuvent prolonger les périodes de protection ou réduire la liste des espèces pouvant être chassées. Ils sont tenus de le faire lorsque la protection d'espèces localement menacées l'exige.
- ⁵ Ils peuvent, avec l'assentiment préalable du Département fédéral de l'intérieur (Département), écourter temporairement les périodes de protection, dans le but de réduire des populations trop importantes ou de conserver la diversité des espèces.
- ⁶ Le Conseil fédéral peut, après avoir entendu les cantons, réduire la liste des animaux dont la chasse est autorisée dans l'ensemble de la Suisse lorsque cela s'impose pour protéger des espèces menacées, ou la compléter en indiquant les périodes de protection, dès lors que les populations des espèces protégées permettent qu'on les chasse à nouveau.

Art. 6 Lâcher d'animaux pouvant être chassés

- ¹ Les cantons peuvent lâcher des animaux pouvant être chassés à condition qu'existent des biotopes appropriés et la garantie d'une protection suffisante.
- ² Le lâcher d'animaux qui peuvent causer d'importants dégâts ou menacer la diversité des espèces indigènes est interdit. Le Conseil fédéral désigne ces animaux.

Chapitre 3: Protection

Art. 7 Protection des espèces

- ¹ Tous les animaux visés à l'article 2 qui n'appartiennent pas à une espèce pouvant être chassée, sont protégés (espèces protégées).
- ² Les cantons peuvent, avec l'assentiment préalable de l'Office fédéral des forêts et de la protection du paysage (Office fédéral), prévoir le tir d'animaux protégés si la sauvegarde des biotopes ou le maintien de la diversité des espèces l'exige. Le Conseil fédéral désigne les animaux visés par cette disposition.
- ³ La chasse des bouquetins peut être autorisée du 1^{er} septembre au 30 novembre, lorsqu'elle vise à une régulation des populations. A cette fin, les cantons soumettent chaque année à l'approbation du Département une planification des tirs. Le Conseil fédéral arrête les prescriptions nécessaires.

⁴ Les cantons assurent une protection suffisante des mammifères et des oiseaux sauvages contre les dérangements.

⁵ Ils règlent en particulier la protection des jeunes animaux et de leurs mères en période de chasse, ainsi que celle des oiseaux adultes pendant la couvaison.

⁶ Lors de l'élaboration et de la réalisation de projets qui peuvent compromettre la protection des mammifères et des oiseaux sauvages, la Confédération prend l'avis des cantons. Lorsque les projets affectent des zones protégées d'importance internationale et nationale, il y a lieu de demander le préavis de l'Office fédéral.

Art. 8 Tir d'animaux blessés et malades

Les gardes-chasse, les surveillants et les locataires d'une chasse sont autorisés à abattre des animaux blessés et malades également en dehors des périodes d'ouverture de la chasse. De tels tirs doivent être immédiatement annoncés à l'autorité cantonale de la chasse.

Art. 9 Autorisations de la Confédération

¹ Une autorisation de la Confédération est nécessaire pour:

- a. Importer, faire transiter ou exporter des animaux d'espèces protégées, de même que des parties ou produits tirés de ceux-ci;
- b. Lâcher des animaux d'espèces protégées;
- c. Importer, dans le but de les lâcher, des animaux pouvant être chassés;
- d. Utiliser, à titre exceptionnel, des moyens et engins de chasse dont l'usage est prohibé.

² Le Conseil fédéral règle les compétences et la procédure.

Art. 10 Détention d'animaux protégés

¹ Une autorisation cantonale est nécessaire pour détenir des animaux protégés.

² Le Conseil fédéral fixe les conditions auxquelles les animaux protégés peuvent être détenus.

Art. 11 Zones protégées

¹ Le Conseil fédéral, après avoir consulté les cantons, délimite des réserves de sauvagine et d'oiseaux migrateurs, d'importance internationale.

² D'entente avec les cantons, il délimite des districts francs fédéraux ainsi que des réserves de sauvagine et d'oiseaux migrateurs, d'importance nationale.

³ Les districts francs fédéraux ne peuvent être supprimés ou remplacés par un district franc équivalent qu'avec l'accord du Conseil fédéral.

⁴ Les cantons peuvent délimiter d'autres districts francs et réserves d'oiseaux.

⁵ La chasse est interdite dans les districts francs et les réserves d'oiseaux. Les organes cantonaux d'exécution peuvent cependant y autoriser le tir d'animaux non protégés lorsque l'exigent la sauvegarde des biotopes, la conservation de la diversité des

espèces, des raisons cynégétiques ou la prévention de dommages excessifs causés par le gibier.

⁶ Le Conseil fédéral édicte les dispositions concernant la protection dans les réserves de sauvagine et d'oiseaux migrateurs, d'importance internationale et nationale, ainsi que dans les districts francs fédéraux. La Confédération prend à sa charge 30 à 50 pour cent des frais de surveillance.

Chapitre 4: Dommages causés par la faune sauvage

Art. 12 Prévention des dommages causés par la faune sauvage

¹ Les cantons prennent des mesures pour prévenir les dommages dus à la faune sauvage.

² Ils peuvent ordonner ou autoriser en tout temps des mesures contre certains animaux protégés ou pouvant être chassés, lorsqu'ils causent des dégâts importants, exception faite des espèces protégées déterminées par le Conseil fédéral selon l'article 13, 4^e alinéa. Les cantons ne peuvent toutefois charger de l'exécution de ces mesures que des personnes titulaires d'une autorisation de chasser ou des organes de surveillance.

³ Ils déterminent les mesures qui peuvent légalement être prises à titre individuel en vue de protéger du gibier les animaux domestiques, les biens-fonds et les cultures. Le Conseil fédéral désigne les espèces protégées contre lesquelles il est permis de prendre de telles mesures.

⁴ Lorsque la population d'animaux d'une espèce protégée est trop nombreuse et qu'il en résulte d'importants dommages ou un grave danger, les cantons peuvent prendre des mesures pour la réduire, avec l'assentiment préalable du Département.

Art. 13 Indemnisation des dégâts causés par la faune sauvage

¹ Les dommages causés par le gibier à la forêt, aux cultures et aux animaux de rente seront indemnisés de façon appropriée. Sont exceptés les dégâts causés par des animaux contre lesquels il est possible de prendre des mesures individuelles selon l'article 12, 3^e alinéa.

² Les cantons règlent l'indemnisation. Les indemnités ne seront versées que pour autant qu'il ne s'agisse pas de dommages insignifiants et que des mesures de prévention raisonnables aient été prises. Les dépenses pour des mesures de prévention peuvent être prises en compte lors de l'indemnisation des dégâts causés par le gibier.

³ La Confédération prend à sa charge 30 à 50 pour cent des indemnités pour les dommages causés par le gibier dans les districts francs fédéraux.

⁴ La Confédération et les cantons participent à l'indemnisation des dommages causés par certains animaux protégés. Le Conseil fédéral, après avoir consulté les cantons, détermine ces espèces protégées et fixe les conditions d'indemnisation.

Chapitre 5: Information, formation et recherche

Art. 14

¹ Les cantons veillent à ce que la population soit suffisamment informée sur le mode de vie, les besoins et la protection de la faune sauvage.

² Ils règlent la formation et le perfectionnement des surveillants de la faune sauvage et des chasseurs. La Confédération organise des cours pour la formation complémentaire du personnel affecté à la surveillance des zones protégées de la Confédération.

³ La Confédération encourage l'étude des animaux sauvages, de leurs maladies et de leurs biotopes. A cet effet, l'Office fédéral peut déroger aux dispositions de la présente loi concernant les animaux protégés. Les dérogations qui ont trait aux animaux pouvant être chassés sont du ressort des cantons.

⁴ La Confédération gère le Centre suisse de documentation sur la recherche concernant la faune sauvage. Elle encourage l'information du public et peut allouer des subventions à des centres de recherche et à d'autres institutions de formation et de recherche d'importance nationale.

⁵ Le Conseil fédéral édicte des prescriptions sur le marquage des mammifères et des oiseaux sauvages.

Chapitre 6: Responsabilité et assurance

Art. 15 Responsabilité

¹ Celui qui pratique la chasse est responsable des dommages qu'il cause.

² Pour le reste, les dispositions du code des obligations³ sur les actes illicites sont applicables.

Art. 16 Assurances

¹ Tous les titulaires d'une autorisation de chasser sont tenus de conclure une assurance-responsabilité civile. Le Conseil fédéral fixe le montant minimum de la couverture.

² Dans les limites du montant de la couverture prévu par le contrat d'assurance, le lésé peut intenter une action directe contre l'assureur.

³ Les exceptions découlant du contrat d'assurance ou de la loi fédérale sur le contrat d'assurance⁴ ne sont pas opposables au lésé.

⁴ L'assureur dispose d'un droit de recours contre le preneur d'assurance ou l'assuré pour autant qu'il soit habilité, en vertu du contrat d'assurance ou de la loi fédérale sur le contrat d'assurance, à refuser le versement de prestations ou à en réduire le montant.

³ RS 220

⁴ RS 221.229.1

Chapitre 7: Dispositions pénales

Art. 17 Délits

¹ Sera puni de l'emprisonnement jusqu'à un an ou de l'amende celui qui intentionnellement et sans autorisation:

- a. Aura chassé ou tué du gibier et des animaux d'espèces protégées, ou capturé, ou gardé en captivité des animaux protégés, ou se les sera appropriés;
- b. Aura déniché des œufs ou de jeunes oiseaux d'espèces protégées ou dérangé les oiseaux pendant la couvaison;
- c. Aura importé, fait transiter, exporté, mis en vente ou aliéné des animaux protégés vivants ou morts, des parties ou produits de ces animaux, ainsi que des œufs;
- d. Aura acquis, reçu en don ou en gage, pris sous sa garde, dissimulé, écoulé ou aidé à écouler des animaux vivants ou morts ou des produits de ceux-ci, qu'il savait ou devait présumer avoir été obtenus par un acte délictueux;
- e. Aura pénétré sans motif suffisant dans une zone protégée, muni d'une arme de tir;
- f. Aura rabattu ou attiré des animaux hors de zones protégées;
- g. Aura laché des animaux;
- h. Aura enfumé, gazé, noyé ou empalé des renards, des blaireaux et des marmottes;
- i. Aura fabriqué, importé, fait transiter, exporté, utilisé, acheté ou mis en vente des moyens et engins de chasse prohibés.

² Si le délinquant a agi par négligence, il sera puni de l'amende.

Art. 18 Contraventions

¹ Sera puni des arrêts ou de l'amende jusqu'à 20 000 francs celui qui, intentionnellement et sans raison valable:

- a. Aura capturé, tenu en captivité ou se sera approprié des espèces pouvant être chassées, ou les aura importées dans le but de les lâcher;
- b. Aura pénétré sans motif suffisant sur le territoire de chasse, muni d'une arme de tir;
- c. Aura conservé, en dehors de la période de chasse, des armes ou des pièges sur les mayens et les alpages;
- d. Aura laissé chasser des chiens;
- e. N'aura pas observé les mesures visant à protéger les animaux contre les dérangements;
- f. Aura déniché des œufs ou de jeunes oiseaux d'espèces pouvant être chassées;
- g. Aura brûlé sur de grandes surfaces des talus, des lisières de champs ou des pâturages ou éliminé des haies;
- h. Aura entravé l'exercice de la chasse.

² La tentative et la complicité sont punissables.

³ Si le délinquant a agi par négligence dans les cas visés au 1^{er} alinéa, lettres a à g, il sera puni de l'amende.

⁴ Celui qui se sera livré à la chasse sans avoir sur lui les pièces de légitimation prescrites ou aura refusé de les montrer aux organes de surveillance compétents sera puni de l'amende.

⁵ Les cantons peuvent réprimer en tant que contravention d'autres infractions au droit cantonal.

Art. 19 Application aux personnes morales et aux sociétés commerciales
L'article 6 de la loi fédérale sur le droit pénal administratif⁵ est applicable.

Art. 20 Retrait et refus de l'autorisation de chasser

¹ Le retrait de l'autorisation de chasser est prononcé par le juge, pour une année au minimum et dix ans au maximum, lorsque le titulaire:

- a. Intentionnellement ou par négligence, a tué ou blessé grièvement une personne au cours de la chasse;
- b. A, intentionnellement, commis ou tenté de commettre un délit visé à l'article 17, qu'il en soit l'auteur, l'instigateur ou le complice.

² Le retrait de l'autorisation vaut pour toute la Suisse.

³ Les cantons peuvent prévoir d'autres motifs de retrait de l'autorisation ainsi que du refus de celle-ci. Les dispositions administratives édictées à ce sujet ne sont valables que pour le canton concerné.

Chapitre 8: Procédure pénale

Art. 21 Poursuite pénale

¹ La poursuite pénale et le jugement des infractions sont du ressort des cantons.

² L'Office vétérinaire fédéral poursuit et juge les infractions en rapport avec l'importation, le transit ou l'exportation. S'il y a simultanément infraction à la loi fédérale sur les douanes⁶ l'enquête est menée par l'Administration fédérale des douanes, qui décerne aussi le mandat de répression.

³ Si un acte constitue à la fois une infraction selon le 2^e alinéa et une infraction à la loi fédérale du 9 mars 1978⁷ sur la protection des animaux, à la loi fédérale sur les douanes, à la loi fédérale du 8 décembre 1905⁸ sur le commerce des denrées alimentaires et de divers objets usuels ou à la loi fédérale du 1^{er} juillet 1966⁹ sur les épizooties, qui doivent être poursuivies par les mêmes autorités administratives, la peine encourue est celle qui est prévue pour l'infraction la plus grave; cette peine peut être augmentée de façon appropriée.

⁵ RS 313.0

⁶ RS 631.0

⁷ RS 455

⁸ RS 817.0

⁹ RS 916.40

Art. 22 Communication obligatoire

Tout retrait de l'autorisation de chasser prononcé par le juge doit être communiqué à l'Office fédéral. Celui-ci informe les cantons.

Art. 23 Dommages-intérêts

Le locataire de la chasse, dans les régions où la chasse est affermée, le canton ou la commune, dans les autres régions, ont le droit d'exiger la réparation du dommage causé par un délit de chasse ou par une contravention. Pour le reste, les dispositions du code des obligations¹⁰ sur les actes illicites sont applicables.

Chapitre 9: Exécution**Art. 24** Confédération

Le Conseil fédéral édicte les dispositions d'exécution.

Art. 25 Cantons

¹ Les cantons exécutent la présente loi, sous la surveillance de la Confédération. Ils délivrent toutes autorisations qui ne ressortissent pas à une autorité fédérale en vertu de la loi.

² Les dispositions cantonales d'exécution concernant la prolongation de la période de protection, la réduction de la liste des espèces pouvant être chassées (art. 5, 4^e al.), la protection des animaux contre les dérangements (art. 7, 4^e al.), la protection des jeunes animaux, de leurs mères et des oiseaux adultes (art. 7, 5^e al.), ainsi que les mesures individuelles de protection (art. 12, 3^e al.) ne produisent effet qu'après avoir été approuvées par la Confédération¹¹.

³ Toutes les prescriptions légales des cantons relatives à la chasse seront communiquées à l'Office fédéral avant leur entrée en vigueur.

Art. 26 Droit de perquisition et confiscation

Les cantons règlent le droit de perquisitionner dans les locaux et installations et de confisquer les véhicules et objets, afin d'assurer l'exécution de la présente loi. Ils confèrent aux personnes chargées de l'exécution la qualité de fonctionnaires de la police judiciaire.

¹⁰ RS 220

¹¹ Modifié par le ch. III de la LF du 15 déc. 1989 relative à l'approbation d'actes législatifs des cantons par la Confédération, en vigueur depuis le 1^{er} fév. 1991 (RO 1991 362 369; FF 1988 II 1293).

Chapitre 10: Dispositions finales

Art. 27 Abrogation et modification de lois fédérales

1. La loi fédérale du 10 juin 1925¹² sur la chasse et la protection des oiseaux est abrogée.
2. La loi fédérale du 1^{er} juillet 1966¹³ sur la protection de la nature et du paysage est modifiée comme il suit:

Art. 23

...¹⁴

3. Le code des obligations¹⁵ est modifié comme il suit:

Art. 56, 3^e al.

Abrogé

Art. 28 Dispositions transitoires

- ¹ Les cantons règlent la validité des autorisations de chasser accordées avant l'introduction des examens de chasse.
- ² Sous réserve de l'article 5, alinéas 4 à 6, la perdrix ne pourra être chassée qu'après un délai de dix ans à dater de l'entrée en vigueur de la présente loi.

Art. 29 Référendum et entrée en vigueur

- ¹ La présente loi est sujette au référendum facultatif.
- ² Le Conseil fédéral fixe la date de l'entrée en vigueur.

Date de l'entrée en vigueur: 1^{er} avril 1988¹⁶

¹² [RS 9 535; RO 1954 573 ch. I 7, 1962 832, 1971 854, 1977 1907 art. 1^{er}, 2, 1981 497 art. 1^{er}; RS 613.1 art. 11 let. c]

¹³ RS 451

¹⁴ Texte inséré dans ladite loi.

¹⁵ RS 220

¹⁶ ACF du 29 fév. 1988 (RO 1988 516)

Ordonnance sur la chasse et la protection des mammifères et oiseaux sauvages

(Ordonnance sur la chasse, OChP)

du 29 février 1988 (Etat le 24 février 1998)

Le Conseil fédéral suisse,

vu l'article 24 de la loi du 20 juin 1986¹ sur la chasse (loi),

arrête:

Chapitre premier: Chasse

Art. 1 Engins de chasse prohibés

¹ Le commerce des engins de chasse suivants est prohibé; il est interdit de les fabriquer, de les importer, de les faire transiter ou de les exporter ainsi que de les utiliser:

- a. Pièges, à l'exception des chatières pour la capture d'animaux vivants ainsi que des pièges pour la lutte contre les petits rongeurs, le rat musqué et le ragondin;
- b. Armes à feu, à l'exception des armes de poing,
 1. Dont la longueur du canon est inférieure à 50 cm,
 2. Dont la crosse est repliable ou démontable d'un simple geste,
 3. Dont le système de percussion n'est pas solidement relié à la crosse,
 4. Dont le canon est dévissable en plusieurs parties.

² Dans le cas d'armes à feu qui ne sont pas clairement reconnaissables comme armes de chasse par le spécialiste, la loi fédérale du 30 juin 1972² sur le matériel de guerre est applicable.

Art. 2 Moyens et engins interdits dans l'exercice de la chasse

¹ L'utilisation des engins et méthodes suivants est interdite dans l'exercice de la chasse:

- a. Collets, lacets de fil de fer, filets, gluaux, ainsi que hameçons, pinces et pals pour la chasse au terrier;
- b. Appareils de reproduction de son, appareils radio-émetteurs, appareils électriques capables de tuer ou d'étourdir; sources lumineuses artificielles, miroirs ou autres objets éblouissants, appareils d'éclairage de cibles, dispositifs de visée avec convertisseur d'image électronique (appareil infrarouge, appareil d'intensification de la lumière résiduelle) et silencieux;

RO 1988 517

¹ RS 922.0

² RS 514.51

- c. Explosifs, poisons, soporifiques, appâts empoisonnés ou tranquillisants;
 - d. Utilisation de gaz ou de fumée, empalement;
 - e. Animaux vivants utilisés comme appeaux;
 - f. Armes semi-automatiques avec chargeur de plus de deux cartouches; armes pouvant tirer en rafales; armes à grenaille d'un calibre supérieur à 18,2 mm (calibre 12); arbalètes, arcs, frondes, lances, fusils et pistolets à air comprimé;
 - g. Tir à partir de bateaux à moteurs d'une puissance supérieure à 6 kW. Tir à partir de véhicules à moteur en marche, de téléphériques, de funiculaires, de télésièges et de téléskis, de chemins de fer et d'aéronefs;
 - h.³ Grenaille de plomb dans les zones d'eau peu profonde et les zones humides.
- ² Les armes de poing ne peuvent être utilisées que pour donner le coup de grâce.
- ³ Les cantons peuvent interdire l'utilisation d'autres méthodes et engins de chasse.

Art. 3 Autorisations exceptionnelles

¹ Les cantons peuvent autoriser des membres de la police de la chasse ou des chasseurs au bénéfice d'une formation spéciale à utiliser des moyens et engins de chasse prohibés lorsque cela s'avère nécessaire pour:

- a. Conserver des espèces animales ou des biotopes déterminés;
- b. Prévenir les dégâts causés par la faune sauvage;
- c. Lutter contre des épizooties;
- d. Retrouver des animaux blessés.

² Ils dressent une liste des personnes autorisées.

³ L'Office fédéral de l'environnement, des forêts et du paysage⁴ (Office fédéral) peut autoriser l'utilisation de moyens et engins de chasse prohibés en vue d'études scientifiques et d'actions de marquage.

Art. 3^{bis5} Limitation et extension de la liste des espèces pouvant être chassées et des périodes de protection

¹ Le fuligule nyroca est protégé.

² Pour prévenir les dégâts causés par la faune, les sangliers nés au cours de l'année ou l'année précédente peuvent être chassés hors des forêts durant la période de protection. Les cantons édictent les directives nécessaires.

³ Introduite par le ch. I de l'O du 15 déc. 1997, en vigueur depuis le 1^{er} avril 1998 (RO 1998 708).

⁴ Nouvelle dénomination selon l'art. 1^{er} de l'ACF du 23 avril 1980 concernant l'adaptation des dispositions du droit fédéral aux nouvelles dénominations des départements et des offices (non publié).

⁵ Introduit par le ch. I de l'O du 15 déc. 1997, en vigueur depuis le 1^{er} avril 1998 (RO 1998 708).

Chapitre 2: Protection

Art. 4 Régulation de populations d'espèces protégées

¹ Les cantons peuvent, avec l'autorisation de l'Office fédéral, prendre des mesures temporaires visant la régulation de populations d'animaux protégés, lorsque des animaux d'une espèce déterminée:

- a. Portent atteinte à leur habitat;
- b. Mettent en péril la diversité des espèces;
- c. Caused d'importants dommages aux forêts et aux cultures;
- d. Constituent une menace considérable pour l'être humain;
- e. Répandent des épizooties.

² Dans leur demande, les cantons indiquent à l'Office fédéral

- a. La grandeur des populations;
- b. Le danger qu'elles représentent;
- c. L'ampleur des dégâts causés;
- d. Le genre d'intervention prévue.

³ Ils communiquent chaque année à l'Office fédéral le lieu, le moment et le résultat des interventions.

⁴ Le Département fédéral de l'intérieur (Département) détermine dans une ordonnance le mode de régulation des populations de bouquetins. Il prend au préalable l'avis des cantons.

Art. 5 Naturalisation d'animaux protégés

¹ Il n'est permis de naturaliser des animaux protégés que lorsque ceux-ci ont été trouvés morts ou ont été tués ou capturés en vertu d'une autorisation cantonale.

² Celui qui souhaite naturaliser des animaux protégés doit se faire enregistrer dans son canton.

³ Celui qui souhaite naturaliser un animal des espèces suivantes doit le déclarer à l'administration de la chasse du canton de provenance de l'animal en question:

- a. Tous les mammifères protégés;
- b. Tous les grèbes et plongeurs;
- c. Le héron pourpré, le blongios nain, la cigogne blanche;
- d. Le cygne sauvage et le cygne de Bewick, toutes les oies sauvages, la sarcelle marbrée, l'eider de Steller, le garrot arlequin, l'érisimure à tête blanche, la nette rousse, tous les harles;
- e. Le grand tétaras, la gélinotte des bois, la perdrix bartavelle, la caille des blés;
- f. Tous les rapaces diurnes;
- g. Le râle des genêts, le courlis cendré, la bécassine des marais;
- h. Les rapaces nocturnes;
- i. L'engoulevent d'Europe, le martin-pêcheur, la huppe fasciée;
- k. Le jaseur boréal, le merle bleu, le tichodrome échelette, la pie-grièche grise, la pie-grièche à tête rousse.

⁴ La déclaration doit se faire dans les quatorze jours qui suivent l'arrivée de l'animal dans l'atelier de naturalisation.

⁵ Le commerce à des fins lucratives d'animaux protégés naturalisés et toute publicité les concernant sont interdits. Les cantons peuvent prévoir des exceptions pour d'anciens produits de naturalisation qui ont été restaurés.

Art. 6 Détenition d'animaux protégés et soins à leur prodiguer

¹ L'autorisation de détenir et de soigner des animaux protégés n'est accordée que lorsque:

- a. Cela ne met pas en péril la survie de l'espèce à l'état sauvage; et
- b. Qu'il est prouvé que l'acquisition et la détention des animaux ainsi que les soins prodigués répondent à la législation en matière de protection des animaux ainsi qu'en matière de chasse et de conservation des espèces.

² L'autorisation de prodiguer des soins n'est en outre accordée que lorsqu'il peut être prouvé que l'animal nécessite des soins. Sa durée sera limitée.

³ L'Office fédéral édicte des directives sur les soins à prodiguer aux rapaces diurnes et nocturnes.

Art. 7 Commerce d'animaux protégés

¹ Il est interdit de mettre en vente et d'aliéner des animaux vivants d'espèces protégées. Font exception les animaux qui sont nés en captivité et pour lesquels il existe une attestation d'élevage, ou qui portent une marque distinctive correspondante, ainsi que les bouquetins qui ont été capturés en vertu de l'article 4, 4^e alinéa.

² Les dispositions de l'ordonnance du 19 août 1981⁶ sur la conservation des espèces relatives à l'importation, au transit et à l'exportation restent réservées.

Art. 8 Lâcher d'animaux

¹ Le lâcher d'animaux qui ne font pas partie de l'ensemble des espèces indigènes ou qui causent d'importants dégâts est interdit. Ceci s'applique en particulier aux espèces suivantes:

Latin	Français
<i>Oryctolagus cuniculus</i>	lapin de garenne
<i>Sylvilagus spec.</i>	lapin américain
<i>Tamias sibiricus</i>	tamias rayé
<i>Ondatra zibethicus</i>	rat musqué
<i>Myocastor coypus</i>	ragondin
<i>Nyctereutes procyonoides</i>	chien viverrin
<i>Procyon lotor</i>	raton laveur
<i>Cervus dama</i>	daim
<i>Cervus nippon</i>	cerf Sika
<i>Odocoileus virginianus</i> cerf de Virginie	
<i>Ovis ammon musimon</i>	mouflon
<i>Alectoris chukar</i>	perdreix choukar

⁶ RS 453

Latin	Français
<i>Alectoris rufa</i>	perdrix rouge

² Les cantons prennent des mesures pour empêcher la propagation et la multiplication des animaux énumérés au 1^{er} alinéa et qui seraient retournés à l'état sauvage.

³ Le Département peut, avec l'approbation des cantons concernés, autoriser le lâcher d'animaux qui faisaient autrefois partie de l'ensemble des espèces indigènes mais qu'on ne rencontre plus en Suisse. Pour ce faire, il faut qu'il soit prouvé

- a. Qu'il existe des biotopes de grandeur suffisante spécifiques à l'espèce;
- b. Que des dispositions légales ont été prises en vue de la protection de l'espèce;
- c. Que cela ne portera pas préjudice à la sauvegarde de la diversité des espèces et aux particularités génétiques, ni à l'agriculture et à la sylviculture.

⁴ L'Office fédéral peut, avec l'approbation des cantons, autoriser le lâcher d'animaux appartenant à des espèces protégées qu'on rencontre déjà en Suisse et qui sont menacées d'extinction. L'autorisation n'est accordée que si les conditions du 3^e alinéa sont remplies.

⁵ Celui qui veut lâcher des animaux doit les marquer et les annoncer (art. 13, 4^e al.).

Chapitre 3: Dommages causés par la faune sauvage

Art. 9 Mesures individuelles de protection contre des animaux appartenant à des espèces protégées

¹ Des mesures individuelles de protection peuvent être prises contre les animaux appartenant aux espèces suivantes:

le moineau friquet et le moineau domestique, l'étourneau, la grive litorne et le merle noir.

² Les cantons désignent les moyens et engins autorisés et déterminent qui peut prendre des mesures individuelles de protection, dans quelle région et à quel moment.

Art. 10 Indemnisation et prévention des dégâts

¹ La Confédération verse aux cantons, selon leur capacité financière, des indemnités de 30 à 50 pour cent des frais d'indemnisation pour des dégâts causés par des lynx, des castors, des loutres, des aigles, des ours et des loups.⁷

² Les cantons déterminent le montant du dégât et sa cause.

³ La Confédération ne verse l'indemnité que si le canton prend à sa charge les frais restants.

⁷ Nouvelle teneur selon le ch. I de l'O du 26 juin 1996, en vigueur depuis le 1^{er} août 1996 (RO 1996 2153).

⁴ L'Office fédéral peut autoriser exceptionnellement le tir ou la capture de lynx, castors, loutres, aigles, ours et loups causant des dégâts insupportables.⁸

⁵ L'office fédéral établit des conceptions applicables aux espèces animales énumérées au 1^{er} alinéa. Celles-ci contiennent notamment des principes régissant la protection, le tir ou la capture des animaux, la prévention et la constatation des dégâts ainsi que le versement d'indemnités pour les mesures de prévention.⁹

Chapitre 4: Recherche

Art. 11 Recherche sur les mammifères et oiseaux sauvages

¹ La Confédération peut allouer une aide financière à des centres de recherche et à des institutions d'importance nationale pour l'activité qu'ils déploient dans l'intérêt public. Cette aide peut être liée à des conditions.

² Dans le cadre des crédits qui lui sont alloués, l'Office fédéral soutient la recherche en matière de biologie de la faune sauvage et d'ornithologie, orientée vers la pratique, en particulier les recherches sur la protection des espèces, les atteintes portées aux biotopes, les dégâts dus au gibier et les maladies des animaux sauvages.

³ Pour le soutien de recherches scientifiques, l'Office fédéral peut, avec l'accord des autorités cantonales de la chasse, faire appel à des organes de surveillance de la chasse ou à des titulaires d'une autorisation de chasser.

Art. 12 Centre suisse de documentation sur la recherche concernant la faune sauvage

Le Département fixe les tâches du Centre suisse de documentation sur la recherche concernant la faune sauvage.

Art. 13 Marquage de mammifères et oiseaux sauvages

¹ Les cantons peuvent autoriser des campagnes de marquage des mammifères et oiseaux pouvant être chassés, pour autant que celles-ci servent à des buts scientifiques, à la planification de la chasse ou à la conservation de la diversité des espèces.

² L'Office fédéral peut, après avoir pris l'avis des cantons, autoriser des campagnes de marquage de mammifères et oiseaux protégés, pour autant que celles-ci servent à des buts scientifiques ou à la conservation de la diversité des espèces.

³ L'Office fédéral désigne les organes qui coordonnent les campagnes de marquage. Ceux-ci décident du type de marquage, règlent l'information réciproque sur les animaux marqués et renseignent les services et les personnes concernés. Ils établissent chaque année un rapport à l'intention de l'Office fédéral.

⁸ Nouvelle teneur selon le ch. I de l'O du 26 juin 1996, en vigueur depuis le 1^{er} août 1996 (RO 1996 2153).

⁹ Introduit par le ch. I de l'O du 26 juin 1996, en vigueur depuis le 1^{er} août 1996 (RO 1996 2153).

⁴ Tous les animaux marqués et relâchés doivent être annoncés aux organes de coordination.

Chapitre 5: Responsabilité

Art. 14

Le montant minimal de la couverture de l'assurance responsabilité civile est de 2 millions de francs.

Chapitre 6: Exécution

Art. 15 Exécution de la loi par les cantons

Les cantons édictent des dispositions d'exécution dans un délai de cinq ans à dater de l'entrée en vigueur de la loi.

Art. 16 Statistique fédérale de la chasse

¹ Chaque année, les cantons informent jusqu'au 30 juin l'Office fédéral sur la population des espèces animales chassables et protégées les plus importantes, le nombre des animaux tués et périés ainsi que sur les animaux naturalisés qui leur ont été annoncés. Ils donnent en outre des indications sur le nombre des chasseurs, les engins et moyens de chasse prohibés qui ont été utilisés et les moyens affectés à la prévention et à l'indemnisation de dégâts dus au gibier.

² Dans des cas particuliers, lorsque la population d'une espèce augmente ou diminue fortement, l'Office fédéral peut exiger des cantons d'autres informations statistiques et édicter des directives sur le relevé des populations. Auparavant, il prend l'avis des cantons.

Art. 17 Retrait de l'autorisation de chasser

L'Office fédéral remet chaque année aux cantons une liste des personnes auxquelles l'autorisation de chasser a été retirée en vertu de l'article 20, 1^{er} alinéa, de la loi.

Art. 18 Office fédéral¹⁰

¹ La surveillance de l'exécution de la loi incombe à l'Office fédéral.

² Il prend les décisions citées aux articles 10, 1^{er} et 3^e alinéas, et 11, 1^{er} alinéa.¹¹

¹⁰ Nouvelle teneur selon le ch. I 28 de l'O du 26 juin 1996 sur l'attribution de nouvelles compétences de décision dans l'administration fédérale, en vigueur depuis le 1^{er} août 1996 (RO 1996 2243).

¹¹ Introduit par le ch. I 28 de l'O du 26 juin 1996 sur l'attribution de nouvelles compétences de décision dans l'administration fédérale, en vigueur depuis le 1^{er} août 1996 (RO 1996 2243).

Chapitre 7: Dispositions finales

Art. 19 Abrogation du droit en vigueur

L'ordonnance d'exécution de la loi fédérale du 7 juin 1971¹² sur la chasse et la protection des oiseaux est abrogée.

Art. 20 Modification du droit en vigueur

1. L'ordonnance du 19 août 1981¹³ sur la conservation des espèces est modifiée comme il suit:

Préambule, 3^e point

...

Art. 1^{er}, 1^{er} al., phrase introductive, let. c, et 2^e al.

...

Art. 5, let. d à f

...

Art. 7

...

Art. 7a¹⁴

...

2.¹⁵

3. L'ordonnance du 19 août 1981¹⁶ concernant les districts francs fédéraux est modifiée comme il suit:

Art. 1^{er}, 2^e al.

...

Art. 21 Législation transitoire

¹ Aussi longtemps qu'un canton n'a pas mis en vigueur les dispositions d'exécution de la loi,

¹² [RO 1971 850]

¹³ RS 453. Les modifications mentionnées ci-dessous sont insérées dans ladite ordonnance.

¹⁴ La let. d du 4^e al. a une nouvelle teneur.

¹⁵ Abrogé par l'art. 6 al. 2 de l'O du 1^{er} nov. 1989 sur la communication [RO 1989 2328].

¹⁶ [RO 1981 1452, 1986 1440. RS 922.31 art. 18]

- a. Les agents chargés de la surveillance du gibier, les gardes-chasse et les gardes-pêche;
- b. Le personnel forestier;
- c. Les agents de police des cantons et des communes;
- d. Les gardes-frontière pour autant que leur service n'a pas à en souffrir; sont tenus de surveiller l'exercice de la chasse.

² La chasse à la perdrix est interdite jusqu'au 1^{er} avril 2008.¹⁷

Art. 22 Entrée en vigueur

La présente ordonnance entre en vigueur le 1^{er} avril 1988.

¹⁷ Introduit par le ch. I de l'O du 15 déc. 1997, en vigueur depuis le 1^{er} avril 1998 (RO 1998 708).

**Ordonnance
concernant les districts francs fédéraux
(ODF)**

du 30 septembre 1991 (Etat le 28 mars 2000)

Le Conseil fédéral suisse,

vu l'article 11 de la loi fédérale du 20 juin 1986¹ sur la chasse et la protection des mammifères et oiseaux sauvages (loi sur la chasse);

vu l'article 26 de la loi fédérale du 1er juillet 1966² sur la protection de la nature et du paysage (LPN),

arrête:

Section 1: Districts francs fédéraux

Art. 1 But

Les districts francs fédéraux (districts francs) ont pour but la protection et la conservation des mammifères et oiseaux sauvages rares et menacés ainsi que la protection et la conservation de leurs biotopes. Ils ont en outre pour but la conservation de populations saines d'espèces pouvant être chassées, adaptées aux conditions locales.

Art. 2 Définition

¹ Sont considérés comme districts francs les objets énumérés dans l'annexe 1.

² L'inventaire fédéral des districts francs fédéraux (Inventaire) comprend pour chaque district franc:

- a. une représentation cartographique du périmètre et une description de la zone;
- b. le but visé par la protection;
- c. des mesures particulières pour la protection des espèces et des biotopes et la régulation des populations d'animaux pouvant être chassés ainsi que la dureté de validité de ces mesures;
- d. éventuellement un périmètre à l'extérieur du district franc, dans lequel les dégâts causés par la faune sauvage sont indemnisés.

³ L'Inventaire, qui fait partie intégrante de la présente ordonnance n'est pas publié (art. 4 de la loi du 21 mars 1986³ sur les publications officielles) dans le Recueil officiel des lois fédérales (RO), mais paraît sous forme de tiré à part (annexe 2).

RO 1991 2304

¹ RS 922.0

² RS 451

³ RS 170.512

Art. 3 Modifications minimales

Le Département fédéral de l'intérieur (département) est autorisé, d'entente avec les cantons, à modifier légèrement les limites du périmètre des zones protégées ainsi que les autres prescriptions de l'Inventaire énumérées à l'article 2, 2^e alinéa.

Art. 4 Mesures particulières en cas de suppression ou de modification de districts francs

Dans les zones nouvellement ouvertes à la chasse, les cantons veillent à ce que la chasse soit d'abord pratiquée avec modération, le plein déroulement de l'activité cynégétique ne devant intervenir qu'après une période de transition appropriée.

Section 2:
Protection de la diversité des espèces et des biotopes**Art. 5** Protection des espèces

¹ Les dispositions ci-après s'appliquent d'une manière générale aux districts francs:

- a. la chasse est interdite, sous réserve de l'article 2, 2^e alinéa, et de l'article 9;
- b. les animaux ne doivent pas être dérangés, traqués, ni attirés hors du district franc;
- c. les chiens doivent être tenus en laisse; les dispositions particulières prises en vertu de l'article 2, 2^e alinéa, et de l'article 9 sont réservées;
- d. il est interdit de porter, de conserver ou d'utiliser des armes et des pièges. Les cantons peuvent accorder des dérogations aux personnes habitant à l'intérieur du district franc et pour les zones partiellement protégées. Les personnes autorisées à chasser et celles qui sont astreintes au service militaire ont le droit de traverser le district franc munies d'armes non chargées en empruntant des chemins et des routes, pendant la chasse ou pour remplir leurs obligations militaires (service, tir et inspection obligatoire). L'utilisation d'armes et de pièges est autorisée pour le personnel de surveillance de la faune;
- e. il est interdit de camper librement. L'utilisation de places de camping officielles est réservée. Les cantons peuvent accorder des dérogations;
- f. l'autorité cantonale compétente peut, d'entente avec le propriétaire foncier, promulguer une interdiction de pénétrer dans le district franc avec des ailes delta et des parapentes;
- g. le ski pratiqué en dehors de pistes et d'itinéraires balisés est interdit;
- h. il est interdit de circuler sur des routes d'alpage et des routes forestières et d'utiliser des véhicules en dehors des routes, des chemins forestiers et de ceux de campagne, excepté à des fins agricoles et sylvicoles ainsi que pour la surveillance de la faune. Les cantons peuvent prévoir des exceptions;

- i. les exercices militaires avec de la munition pour tir réel ou à blanc sont interdits. L'utilisation de places de tir et d'installations militaires particulières, selon des dispositions contractuelles, est réservée. Le service de garde de la troupe avec arme chargée ainsi que le port d'armes lors des tâches de contrôle du corps de gardes-fortifications et du corps de gardes-frontière sont autorisés.

² L'organisation de réunions sportives et d'autres manifestations collectives n'est admise que si celle-ci ne peut compromettre le but visé par la protection. Les organisateurs ont besoin d'une autorisation cantonale.

³ D'autres mesures, d'une plus grande portée ou d'une autre teneur, visant la protection des espèces selon l'article 2, 2^e alinéa, de la présente ordonnance sont réservées.

Art. 6 Protection des biotopes

¹ Dans l'accomplissement de leurs tâches, la Confédération et les cantons veillent à ce que les buts visés par la protection des districts francs ne soient pas compromis par d'autres exploitations. S'il y a d'autres intérêts en présence, une pondération des intérêts permettra de trancher.

^{1bis} Lorsque des autorités fédérales autres que l'Office fédéral de l'environnement, des forêts et du paysage (office fédéral) sont compétentes pour l'exécution, la collaboration de ce dernier est régie par les art. 62a et 62b de la loi fédérale du 21 mars 1997 sur l'organisation du gouvernement et de l'administration^{4,5}.

² Les districts francs doivent être pris en considération lors de l'élaboration de plans directeurs et de plans d'affectation.

³ Dans les districts francs, une attention particulière sera accordée à la conservation des biotopes au sens de l'article 18, alinéa 1^{bis}, LPN, notamment comme milieux vitaux des mammifères et des oiseaux sauvages indigènes et migrants. Les cantons veillent notamment à ce que de tels biotopes:

- a. bénéficient d'une exploitation agricole et sylvicole adaptée;
- b. ne soient pas fragmentés;
- c. bénéficient d'une offre suffisante en matière de pâture.

⁴ D'autres mesures, d'une plus grande portée ou d'une autre teneur, visant la protection des biotopes selon l'article 2, 2^e alinéa, de la présente ordonnance ou prises conformément aux articles 18 et suivants LPN sont réservées.

⁵ L'encouragement des mesures de protection des biotopes est régi par les articles 18 et suivants LPN.

⁴ **RS 172.010**

⁵ Introduit par le ch. II 20 de l'Ordonnance du 2 fév. 2000 relative à la loi fédérale sur la coordination et la simplification des procédures de décision (RO 2000 703).

Art. 7 Signalisation et information

¹ Les cantons veillent à ce que les titulaires d'une autorisation de chasser et le public soient informés sur les districts francs.

² Ils s'occupent de la signalisation des districts francs sur le terrain.

³ Aux entrées principales des districts francs ainsi que, dans le cas de biotopes dont la protection est particulièrement importante, à l'intérieur de ces zones, il y a lieu de placer des panneaux comportant des indications sur la zone protégée, sur le but visé par la protection et sur les principales mesures de protection.

Section 3: Prévention des dommages causés par la faune sauvage**Art. 8**

¹ Les cantons veillent à ce que la faune sauvage n'occasionne pas des dégâts intolérables dans les districts francs. Le rajeunissement naturel des forêts doit être assuré.

² Les gardes-chasse des districts francs peuvent, à la requête du service cantonal compétent, prendre en tout temps des mesures contre certains animaux pouvant être chassés, lorsqu'ils causent des dégâts importants.

³ Dans les districts francs, l'affouragement constant de la faune et les saunières permanentes sont interdits. Le nourrissage dissuasif des sangliers est réservé.

⁴ Pour le reste, les dispositions cantonales concernant la prévention des dommages causés par la faune sauvage sont applicables.

Section 4: Mesures cynégétiques**Art. 9** Régulation des populations

¹ Les cantons veillent à ce que, dans les districts francs, les populations d'ongulés pouvant être chassés soient en tout temps adaptées aux conditions locales et aient une pyramide naturelle des classes d'âge et de sexe. Ce faisant, ils tiennent compte des intérêts liés à l'agriculture, à la protection de la nature et du paysage et à la conservation des forêts.

² A cette fin, on délimite:

- a. des zones dans lesquelles des mesures de régulation ne peuvent être prises qu'exceptionnellement (zones intégralement protégées);
- b. des zones dans lesquelles les populations de chevreuils, de chamois, de cerfs élaphe et de sangliers peuvent être soumises à une régulation ou réduites régulièrement (zones partiellement protégées).

³ Avant de prévoir des mesures de régulation dans des zones à protection intégrale, il y a lieu de prendre l'avis de l'office fédéral.

⁴ Pour les zones soumises à une protection partielle, les cantons établissent des plans de tir pour les diverses espèces de gibier et les communiquent à l'office fédéral. Si des districts francs de différents cantons ont des frontières communes, ces plans doivent être coordonnés.

⁵ L'utilisation de chiens pour la régulation des populations est interdite, excepté celle de chiens de rouge exercés, pour la recherche d'animaux blessés. Les cantons peuvent autoriser des dérogations.

⁶ Pour l'exécution des plans de tir, les cantons peuvent, en plus du personnel affecté à la surveillance des districts francs, faire appel à des titulaires d'une autorisation de chasser.

Art. 10 Tirs sélectifs

¹ Le personnel affecté à la surveillance des districts francs est tenu d'abattre les animaux malades, affaiblis ou blessés.

² Il annonce immédiatement ces tirs au service cantonal compétent.

Section 5: Gardes-chasse

Art. 11 Statut et nomination

¹ Les cantons désignent un ou plusieurs gardes-chasse pour chaque district franc. Ils leur confèrent les droits de la police judiciaire selon l'article 26 de la loi sur la chasse.

² Les gardes-chasse des districts francs sont des fonctionnaires cantonaux.

³ Ils sont subordonnés au service cantonal compétent.

⁴ Ils sont nommés par le canton. Les dossiers de nomination doivent être soumis à l'office fédéral.

⁵ Lorsque les districts francs sont proches de frontières nationales, les gardes frontières remplissent également des tâches relevant de la police de la chasse.

Art. 12 Tâches

¹ Le service cantonal compétent charge les gardes-chasse de l'accomplissement des tâches suivantes:

- a. police de la chasse, en vertu de la loi sur la chasse;
- b. recensement et surveillance des populations d'animaux sauvages dans les districts francs;
- c. participation à la planification de biotopes particuliers, aux soins à leur donner ainsi qu'à leur entretien;
- d. marquage et signalisation des districts francs sur le terrain;
- e. information et surveillance des visiteurs des districts francs;

- f. participation à la planification de mesures de prévention des dommages causés par la faune sauvage et à la régulation des populations d'ongulés ainsi, qu'à l'exécution de ces mesures;
- g. organisation de la recherche et recherche effective d'animaux blessés dans les districts francs;
- h. entretien de contacts, échange d'informations et collaboration avec les représentants des communes ainsi que des milieux de l'agriculture et de la sylviculture, de la protection de la nature et du paysage et de la chasse;
- i. représentation des intérêts liés à la protection des espèces lors de l'élaboration, à l'échelon communal et régional, de plans directeurs et de plans d'affectation qui concernent un district franc;
- k. prise de contact avec les services régionaux de coordination et les commandements de places de tir pour l'occupation des places d'armes et de tir, dans la mesure où des districts francs sont concernés, et conseils aux commandants d'unités sur le terrain;
- l. soutien et collaboration lors de recherches scientifiques effectuées de concert avec le service cantonal compétent.

² Le service cantonal compétent peut, de son propre chef ou à la demande de l'office fédéral, confier d'autres tâches aux gardes-chasse.

³ Les gardes-chasse tiennent un journal des travaux exécutés.

⁴ Un rapport sur l'accomplissement de ces tâches est établi chaque année à l'intention de l'office fédéral.

Art. 13 Formation

¹ Les cantons assurent la formation de base des gardes-chasse.

² L'office fédéral organise des cours de perfectionnement sur les problèmes relatifs aux districts francs.

Section 6: Indemnités

Art. 14 Surveillance et formation

¹ La Confédération verse aux cantons, selon leur capacité financière, des indemnités globales représentant 30 à 50 pour cent des frais de surveillance dans les districts francs.

² L'indemnité est calculée en fonction de la superficie des districts francs et d'une durée de surveillance de neuf mois par an. Peuvent être indemnisés en général:

- a. pour tous les districts francs d'une superficie allant jusqu'à 20 km²: des charges salariales annuelles d'un montant de 45 000 francs;

- b. pour les districts francs de 20 à 100 km²: des charges salariales annuelles supplémentaires pouvant aller jusqu'à 45 000 francs, proportionnellement à la superficie dépassant 20 km²;
- c. des frais administratifs représentant 10 pour cent des frais indemnifiables selon les lettres a et b.

³ Dans les limites des crédits alloués, la Confédération peut en outre soutenir les mesures suivantes par des subventions représentant 30 à 50 pour cent des frais, selon la capacité financière des cantons:

- a. formation de base et équipement du personnel chargé de la garde, ainsi que renforcement temporaire de celui-ci ou engagement de personnel auxiliaire;
- b. infrastructure pour la surveillance;
- c. signalisation des districts francs sur le terrain.

Art. 15 Dégâts causés par la faune sauvage

¹ La Confédération verse aux cantons, selon leur capacité financière, des indemnités représentant 30 à 50 pour cent des frais d'indemnisation des dégâts causés par la faune sauvage dans un district franc ou à l'intérieur d'un périmètre délimité conformément à l'article 2, 2^e alinéa, lettre d.

² La Confédération peut prendre à sa charge 30 à 50 pour cent des dépenses occasionnées par les mesures de prévention des dégâts causés par la faune sauvage.

³ Les dépenses occasionnées par les mesures de prévention doivent être prises en compte lors de l'indemnisation.

⁴ Il ne sera pas versé d'indemnités si les mesures prévues aux articles 8 ou 9 n'ont pas été prises.

Art. 16 Disposition commune

La Confédération ne verse plus d'indemnité lorsque le but visé par la protection est trop fortement compromis par d'autres formes d'exploitation.

Art. 17 Compétence

L'office fédéral prend les décisions concernant l'indemnisation.

Section 7: Dispositions finales

Art. 18 Abrogation du droit en vigueur

L'ordonnance du 19 août 1981⁶ concernant les districts francs fédéraux est abrogée.

⁶ [RO 1981 1452, 1986 1440, 1988 517 art. 20 ch. 3]

Art. 19 Entrée en vigueur

La présente ordonnance entre en vigueur le 1^{er} janvier 1992.

Districts francs fédéraux

1. Augstmatthorn, canton de Berne
2. Combe-Grède, canton de Berne
3. Kiental, canton de Berne
4. Schwarzhorn, canton de Berne
5. Tannhorn, canton de Lucerne
6. Urirotstock, canton d'Uri
7. Fellital, canton d'Uri
8. Mythen, canton de Schwyz
9. Silbern-Jägern-Bödmerenwald, canton de Schwyz
10. Hahnen, canton d'Unterwald-le-Haut
11. Hutstock, cantons d'Unterwald-le-Haut/Unterwald-le-Bas
12. Kärpf, canton de Glaris
13. Schilt, canton de Glaris
14. Rauti-Tros, canton de Glaris
15. Graue Hörner, canton de Saint-Gall
16. Säntis, cantons Appenzell Rh.-Int./Appenzell Rh.-Ext.
17. Bernina-Albris, canton des Grisons
18. Beverin, canton des Grisons
19. Campasc, canton des Grisons
20. Piz Ela, canton des Grisons
21. Trescolmen, canton des Grisons
22. Pez Vial, canton des Grisons
23. Campo Tencia, canton du Tessin
24. Greina, canton du Tessin
25. Dent de Lys, canton de Fribourg
26. Hochmatt-Motélon, canton de Fribourg
27. Creux-du-Van, canton de Neuchâtel
28. Grand Muveran, canton de Vaud
29. Les Bimis-Ciernes Picat, canton de Vaud
30. Le Noirmont, canton de Vaud

-
31. Pierreuse-Gummfluh, canton de Vaud
 32. Forêt d'Aletsch, canton du Valais
 33. Alpjuhorn, canton du Valais
 34. Wilerhorn, canton du Valais
 35. Bietschhorn, canton du Valais
 36. Mauvoisin, canton du Valais
 37. Val Ferret/Combe de l'A, canton du Valais
 38. Haut de Cry/Derborence, canton du Valais
 39. Loèche-les-Bains, canton du Valais
 40. Vallée de Tourtemagne, canton du Valais
 41. Dixence, canton du Valais

Annexe 2
(art. 2, 2^e et 3^e al.)

Districts francs fédéraux
Inventaire fédéral des districts francs fédéraux⁷

⁷ N'étant pas publiés au RO, cet inventaire et ses modifications ne figurent pas dans le présent recueil. Ils peuvent être commandés à l'EDMZ, 3003 Berne (voir RO 1994 1902).

**Ordonnance
sur la régulation des populations de bouquetins
(ORB)**

du 30 avril 1990 (Etat le 1^{er} octobre 1996)

Le Département fédéral de l'intérieur,

vu l'article 7, 3^e alinéa, de la loi du 20 juin 1986¹⁾ sur la chasse (LChP);

vu l'article 4, 4^e alinéa, de l'ordonnance du 29 février 1988²⁾ sur la chasse (OChP),

arrête:

Section 1: Recensement des populations

Article premier Désignation des différentes colonies de bouquetins

¹ Les cantons désignent tous les cinq ans sur des cartes à l'échelle 1:25 000 ou 1:50000 l'habitat (demeures d'été et d'hiver) de chaque population de bouquetins (unité de reproduction).

² Les populations ainsi délimitées sont appelées colonies.

Art. 2 Indications relatives aux différentes colonies (formulaire I)

¹ Les cantons relèvent chaque année la grandeur de la population, la structure des sexes et des âges, l'accroissement, les pertes et l'évolution de la population.

² Les données à communiquer concernent la population d'été, faons compris. Celle-ci est déterminée par recensement direct en été ou calculée sur la base de la population d'hiver (formulaire I).

³ La proportion de mâles et de femelles est déterminée sur la base des animaux qui ont plus de trois ans.

⁴ Une distinction est faite entre les classes d'âge et de sexe suivantes:

- a. Faons;
- b. Jeunes animaux des deux sexes (de un et deux ans);
- c. Chèvres de trois ans et plus;
- d. Boucs de trois à cinq ans;
- e. Boucs de six à dix ans;
- f. Boucs de onze ans et plus.

Art. 3 Colonies vivant sur le territoire de deux ou de plus de deux cantons

¹ Les données relatives aux colonies vivant sur le territoire de deux cantons ou plus sont relevées de manière coordonnée par les cantons concernés.

RO 1990 1678

¹⁾ RS 922.0

²⁾ RS 922.01

² Elles sont communiquées par l'un des cantons d'entente avec les autres cantons concernés.

Art. 4 Communication des données relatives aux différentes colonies

¹ Les données relatives aux colonies doivent être communiquées avant la fin de l'année à l'Office fédéral de l'environnement, des forêts et du paysage (Direction fédérale des forêts).

² La Direction fédérale des forêts élabore les formulaires nécessaires à cet effet et les met à la disposition des cantons.

Section 2: Mesures de régulation

Art. 5 Justification des mesures de régulation

¹ Les cantons doivent fournir au Département fédéral de l'intérieur (département), pour chaque colonie, des données concernant les effets de la population de bouquetins sur la forêt, les zones agricoles et d'autres espèces animales (concurrence) ainsi que des indications sur l'état général et l'état de santé de la population de bouquetins.

² Le bien-fondé des mesures de régulation prévues (tirs et captures) ainsi que les buts de ces mesures (stabilisation ou réduction de la population) doivent être démontrés.

Art. 6 Planification des tirs

¹ Une planification des tirs n'est généralement requise que pour les colonies dont l'effectif est supérieur à 50 animaux.

² Les tirs doivent être planifiés de manière que les structures naturelles des classes d'âge et de sexe soient garanties à long terme (formulaire II).

³ Les chèvres suitées en lactation sont à protéger.

⁴ Les articles 8 et 12, 2^e alinéa, de la LChP sont réservés.

Art. 7 Planification des tirs pour les colonies vivant sur le territoire de deux ou plus de deux cantons

¹ Pour les colonies vivant sur le territoire de deux cantons et plus, les cantons concernés doivent planifier les tirs ensemble et selon les principes énoncés à l'article 6.

² Ils fixent ensemble et conformément à la planification les quotas de tirs respectifs.

³ S'ils ne parviennent pas à une entente, c'est la Direction fédérale des forêts qui fixe les quotas correspondants.

⁴ Il est souhaitable d'appliquer cette procédure par analogie aux colonies dont l'habitat est situé en partie hors des frontières du pays.

Art. 8 Approbation des plans de tirs

¹ Les cantons présentent à la Direction fédérale des forêts, avant la fin de l'année, les planifications complètes des tirs pour chaque colonie.

- ² L'Office fédéral de l'environnement, des forêts et du paysage approuve les plans de tirs. Il peut émettre des conditions lorsque:¹⁾
- La planification des tirs n'a pas été effectuée conformément à l'article 6;
 - Le contrôle de la planification des tirs fait apparaître des lacunes dans l'exécution du plan de tirs de l'année précédente;
 - Les dégâts causés par les bouquetins contrarient des projets forestiers subventionnés par la Confédération et qui ont pour but de protéger les routes et les agglomérations contre les glissements de terrain, les crues ou les avalanches.
- ³ Les plans de tirs approuvés sont valables pour l'année suivante.
- ⁴ Dans des cas particuliers, tels que maladies ou pertes importantes au cours de l'hiver, les cantons peuvent s'écarter des plans de tirs.

Art. 9 Contrôle des tirs

- ¹ Tous les animaux abattus conformément aux plans de tirs doivent être contrôlés par des organes cantonaux de surveillance de la faune.
- ² Pour chaque animal, il y a lieu de relever des indications sur le sexe, l'âge, le poids, le lieu et la date du tir.
- ³ Les cantons peuvent relever d'autres données.
- ⁴ Les indications visées aux 1^{er} et 2^e alinéas, regroupées par colonie, doivent être transmises jusqu'à la fin de l'année à la Direction fédérale des forêts (formulaire III).

Art. 10 Annonces et approbations

L'article 3 s'applique par analogie aux annonces et aux approbations visées aux articles 8 et 9.

Art. 11 Autorisation de procéder à des tirs

- ¹ Les cantons règlent et organisent cette chasse. Ils instruisent les chasseurs.
- ² Ils sont habilités à percevoir des droits.
- ³ Les cantons peuvent aussi prévoir des captures en lieu et place de tirs.
- ⁴ En vertu de l'article 18, 5^e alinéa, de la LChP, les cantons ont le droit de réprimer les erreurs de tirs relatives aux classes d'âge et de sexe (art. 2, 4^e al.).

Art. 12 Tirs dans des districts francs fédéraux

- ¹ Des tirs ou des captures peuvent aussi être entrepris dans les districts francs fédéraux.
- ² Le garde-chasse chargé de la surveillance doit superviser cette chasse.

¹⁾ Nouvelle teneur selon le ch. I 29 de l'O du 26 juin 1996 sur l'attribution de nouvelles compétences de décision dans l'administration fédérale, en vigueur depuis le 1^{er} août 1996 (RO 1996 2243).

Section 3: Entrée en vigueur**Art. 13**

La présente ordonnance entre en vigueur le 1^{er} janvier 1991.

**Ordonnance
sur la compensation des pertes subies dans l'utilisation
de la force hydraulique
(OCFH)**

du 25 octobre 1995

Le Conseil fédéral suisse,

vu l'article 22, 3^e à 5^e alinéas, de la loi fédérale du 22 décembre 1916¹⁾ sur l'utilisation des forces hydrauliques (LFH),

arrête:

Section première: But

Article premier

La présente ordonnance règle le versement d'indemnités destinées à compenser des pertes substantielles subies par une collectivité dans l'utilisation des forces hydrauliques à la suite de la conservation et de la mise sous protection d'un site d'importance nationale.

Section 2: Conditions présidant à l'octroi d'indemnités

Art. 2 Collectivité ayant droit

A droit à une indemnité compensatoire la collectivité qui subit des pertes en rapport avec les redevances hydrauliques annuelles.

Art. 3 Site digne d'être protégé

¹ Est réputé digne d'être protégé un site qui a une importance nationale au sens de la loi fédérale du 1^{er} juillet 1966²⁾ sur la protection de la nature et du paysage (LPN).

² Il n'est pas nécessaire que le site soit déjà répertorié dans un inventaire fédéral.

Art. 4 Possibilité technique et économique d'utiliser la force hydraulique

¹ La collectivité ayant droit doit rendre vraisemblable qu'il est possible d'utiliser la force hydraulique sur les plans technique, économique et juridique.

RS 721.821

¹⁾ RS 721.80

²⁾ RS 451

² Le débit résiduel est déterminé conformément à l'article 31, 1^{er} alinéa, de la loi fédérale du 24 janvier 1991¹⁾ sur la protection des eaux.

³ La faisabilité de l'utilisation est appréciée en fonction des conditions régnant au moment où la demande est déposée.

⁴ La protection de biotopes et de paysages d'importance nationale selon la LPN n'exclut pas les indemnités compensatoires, dans la mesure où cette protection n'est pas entrée en vigueur plus de cinq ans avant le dépôt de la demande.

Art. 5 Mise sous protection

¹ La collectivité ayant droit veille à ce qu'un paysage digne de protection bénéficie réellement de celle-ci.

² La mise sous protection doit être illimitée dans le temps et prendre l'une des formes contraignantes pour la propriété foncière prévues par le droit sur la protection de la nature et du paysage ou sur l'aménagement du territoire; elle interdira toutes les interventions qui peuvent nuire à la valeur du site.

Section 3: Détermination et fixation des indemnités compensatoires

Art. 6 Détermination de la perte

¹ Sont pris en compte pour déterminer la perte:

- a. la redevance hydraulique annuelle perdue;
- b. un forfait pour la non-perception des autres prestations, s'élevant à 50 pour cent de la redevance hydraulique annuelle perdue;
- c. la probabilité de réaliser l'ouvrage du point de vue économique.

² L'annexe fait foi pour déterminer la perte.

Art. 7 Détermination des indemnités compensatoires

¹ Le montant des indemnités compensatoires dépend de la capacité financière de la collectivité ayant droit.

² Pour les cantons, il se situe entre 20 et 60 pour cent de la perte déterminée. La fixation des indemnités compensatoires entre ces taux a lieu sur la base de l'ordonnance du 21 décembre 1973²⁾ réglant l'échelonnement des subventions fédérales d'après la capacité financière des cantons.

³ Pour les districts et les communes, les indemnités compensatoires sont déterminées d'après le taux cantonal. Elles seront augmentées ou diminuées de 10 pour cent au maximum pour tenir compte des différences de capacité financière à l'intérieur du canton.

¹⁾ RS 814.20

²⁾ RS 613.12

⁴ Les subventions pour des paysages dignes de protection selon la LPN sont équitablement prises en considération.

⁵ Si plusieurs collectivités subissent des pertes, le montant des indemnités compensatoires sera calculé d'après leur part de redevance hydraulique annuelle.

Art. 8 Importance de la perte

La perte subie n'est pas compensée si les indemnités calculées selon les articles 6 et 7 n'atteignent pas au moins 20 pour cent de la redevance hydraulique annuelle perdue, 30 000 francs par année et 0,1 pour mille des recettes totales du budget de la collectivité ayant droit. En cas d'application du modèle comptable pour les cantons et les communes, les recettes totales du compte courant font foi.

Art. 9 Fixation des indemnités compensatoires

¹ Le montant des indemnités est fixé définitivement selon la situation au moment de la présentation de la demande.

² Seules les modifications du taux maximal prévu par le droit fédéral pour la redevance hydraulique annuelle donnent lieu à une adaptation correspondante des indemnités compensatoires. Réserve est faite de l'article 18.

Section 4: Compétence et procédure

Art. 10 Demande

¹ La collectivité ayant droit remet sa demande d'indemnités compensatoires à l'Office fédéral de l'économie des eaux (ci-après l'office).

² Si le requérant n'est pas un canton, la demande doit être présentée à ce dernier qui la transmet à l'office, accompagnée d'un préavis.

³ La demande comportera en particulier:

- a. une étude de projet présentant les données techniques principales, y compris un plan de situation et un profil en long;
- b. des documents exposant la situation hydrologique (bassin versant, débits d'écoulement mensuels, débit résiduel, possibilités d'accumulation);
- c. des informations sur la production d'énergie, ainsi que, pour les aménagements de pompage-turbinage, sur leur consommation d'énergie;
- d. le coût des investissements et les charges annuelles;
- e. des indications sur les possibilités légales d'utiliser l'ouvrage; en cas d'aménagement d'une puissance supérieure à 3 MW, la compatibilité de cette utilisation avec les prescriptions de la protection de l'environnement sera attestée par une étude préliminaire au sens des articles 3 et 8 de l'ordonnance du 19 octobre 1988¹⁾ relative à l'étude de l'impact sur l'environnement;

¹⁾ RS 814.011

- f. des données sur la planification existant pour la région concernée;
- g. une documentation sur l'état et l'affectation du paysage au moment où la demande est présentée, et la justification de son importance nationale;
- h. des informations sur la mise sous protection décidée ou prévue;
- i. un dossier présentant le budget et la capacité financière de la collectivité requérante.

⁴ L'office peut exiger que ces informations et documents soient complétés lorsque cela est indispensable à l'examen du droit à l'indemnité.

Art. 11 Décision

¹ L'office se prononce sur la demande.

² Il consulte les services fédéraux intéressés.

³ Lorsqu'il n'est pas établi avec certitude qu'un site est d'importance nationale, la commission fédérale pour la protection de la nature et du paysage procède à une expertise.

Art. 12 Octroi des indemnités compensatoires

¹ Les indemnités compensatoires sont octroyées au moyen d'un contrat de droit public, conformément aux dispositions de la loi du 5 octobre 1990¹⁾ sur les subventions.

² Dans le contrat, la collectivité ayant droit s'engage à garantir pendant 40 ans la protection selon l'article 5 et à appliquer les dispositions relatives à cette protection.

³ Le contrat stipule que les engagements des parties sont valables sous réserve de l'article 18.

Art. 13 Exécution

¹ L'office met à exécution la présente ordonnance.

² Les cantons communiquent à l'office les actes législatifs cantonaux et communaux ainsi que les plans et les décisions des cantons et des communes qui ont pour objet les sites dignes d'être protégés. Il y a lieu de notifier également les faits qui peuvent nuire au site. L'office en informe l'Office fédéral de l'environnement, des forêts et du paysage (OFEFP).

³ Afin de faire respecter les obligations contractuelles relatives à la protection, l'office et l'OFEFP peuvent, en cas de nécessité, déposer une plainte.

¹⁾ RS 616.1

Art. 14 Protection juridique

¹ En sa qualité de commission arbitrale, la commission de recours en matière d'économie des eaux statue sur les différends relevant des contrats selon l'article 12.

² Sont en outre applicables les dispositions générales relatives à l'organisation judiciaire.

Section 5: Versement des indemnités compensatoires**Art. 15** Versement des indemnités compensatoires

¹ Le droit à une indemnisation s'étend sur 40 ans; il prend effet avec la mise sous protection au sens de l'article 5, mais au plus tôt au moment du dépôt de la demande.

² Les indemnités compensatoires sont versées annuellement, la première fois après la conclusion du contrat conclu aux termes de l'article 12.

Art. 16 Remboursement

Si la mise sous protection selon l'article 5 n'est pas dûment exécutée, le versement des indemnités compensatoires peut être suspendu et le remboursement partiel ou intégral des indemnités versées peut être ordonné. La mise en œuvre de la protection par voie juridique demeure réservée.

Art. 17 Fin de l'obligation de protection

¹ Le contrat selon l'article 12 peut être abrogé par consentement mutuel entre les parties. Dans ce cas, le droit à l'indemnité s'éteint au moment de l'abrogation.

² L'office consulte d'abord l'OFEFP.

Art. 18 Révision

Si les dispositions de la présente ordonnance relatives aux conditions ou à la détermination des indemnités doivent être modifiées du fait d'une révision des bases légales, les indemnités compensatoires préalablement fixées seront adaptées. Si dans un délai d'un an à compter d'une réduction, la collectivité ayant droit ne déclare pas renoncer aux indemnités, l'obligation de protection selon l'article 12 est maintenue telle quelle.

Section 6: Dispositions finales**Art. 19** Disposition transitoire

La protection de biotopes et de paysages d'importance nationale selon la LPN qui a pris effet entre le 1^{er} janvier 1987 et l'entrée en vigueur de la présente

ordonnance n'exclut pas le versement d'indemnités compensatoires, pour autant que la demande soit présentée dans les deux ans après l'entrée en vigueur de l'ordonnance.

Art. 20 Entrée en vigueur

La présente ordonnance entre en vigueur le 15 novembre 1995.

25 octobre 1995

Au nom du Conseil fédéral suisse:

Le président de la Confédération, Villiger

Le chancelier de la Confédération, Couchepin

N37958

Calcul de la perte subie dans l'utilisation de la force hydraulique (art. 6, 1^{er} al.)

Le montant de la perte se calcule au moyen de la formule:

$$p. = 1,5 * r.h. * p.r.e. \quad [1]$$

Légende:

- p. = Perte subie (francs).
1,5 = Constante visant à compenser tous les avantages dont bénéficie une collectivité, au-delà de la redevance hydraulique, en accordant la concession d'utilisation des forces hydrauliques.
r.h. = Redevance hydraulique perdue (francs).
p.r.e. = Probabilité de réaliser un ouvrage du point de vue économique. C'est le rapport entre la valeur de l'énergie productible et le prix de revient.
-

Calcul de la redevance hydraulique perdue (art. 6, 1^{er} al., let. a)

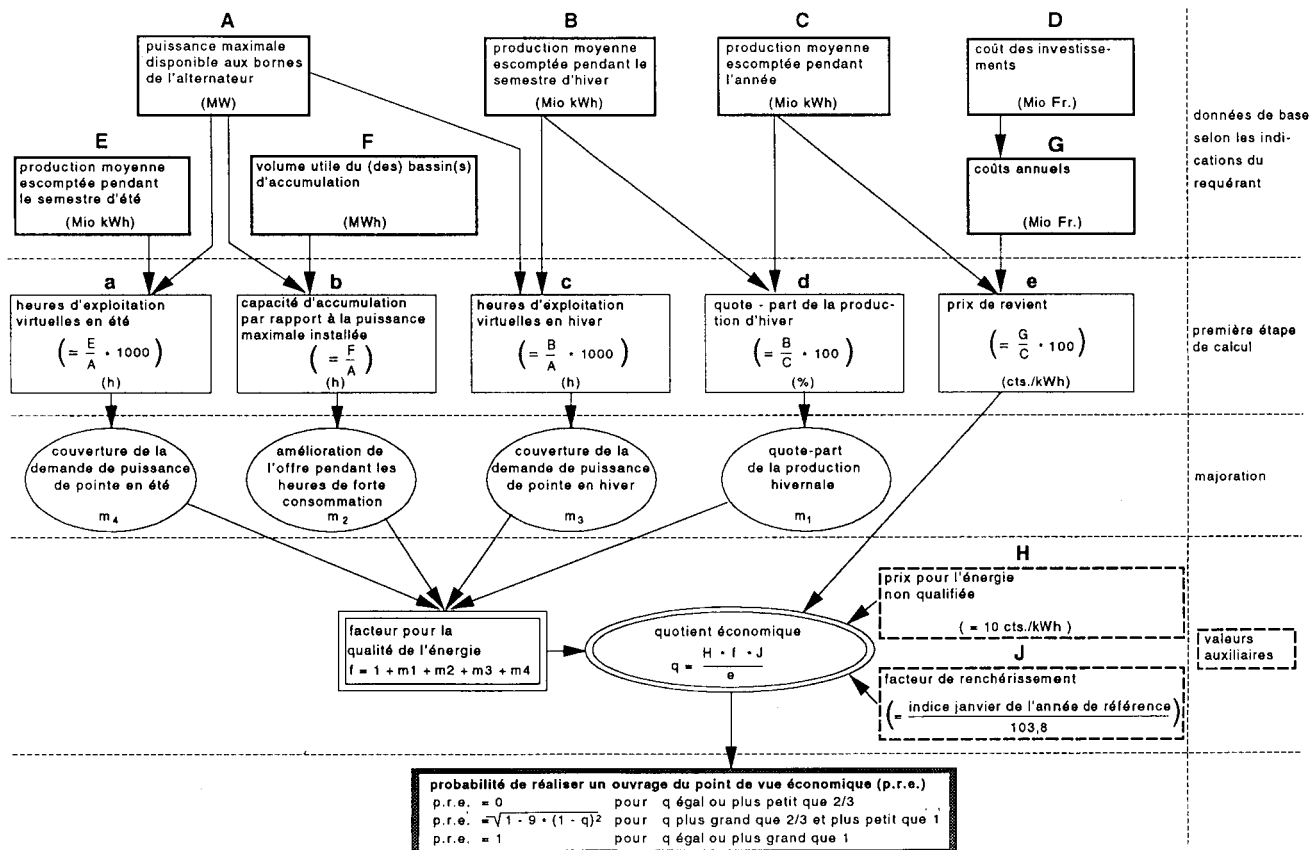
La redevance hydraulique se calcule au moyen de la formule:

$$r.h. = p.b.m. * t.m. \quad [2]$$

Légende:

- r.h. = Redevance hydraulique (francs).
p.b.m. = Puissance brute moyenne (kilowatt) selon indication du requérant.
t.m. = Taux de la redevance hydraulique par kilowatt de puissance brute (francs).
-

Calcul de la probabilité de réaliser un ouvrage du point de vue économique (vue d'ensemble)



Calcul de la probabilité de réaliser l'ouvrage du point de vue économique (art. 6, 1^{er} al., let. c)

Les formules suivantes font foi pour le calcul:

$$\text{p.r.e.} = \sqrt{1-9 * (1-q)^2} \quad [3]$$

$$q = \frac{p * m * i}{e}$$

$$J = \frac{\text{indice du mois de janvier de l'année de référence}}{103.8}$$

$$f = 1 + m1 + m2 + m3 + m4$$

$$e = \frac{G * 100}{C}$$

Restrictions:

si q plus petit ou égal à 2/3	p.r.e. = 0
si q égal ou plus grand à 1	p.r.e. = 1,0

Légende:

Indications du requérant:

- C = Production annuelle moyenne escomptée (en millions de kWh);
 G = Coût annuel pour exploitation, entretien, amortisation, intérêts, impôt, redevances hydrauliques, administration et éventuellement énergie de pompage (en millions de francs).

Valeurs auxiliaires:

- H = Prix de l'énergie «non qualifiée»
 (fixé à 10 cts./kWh pour l'année de référence [janvier 1995]).
 J = Indice du renchérissement
 (la valeur de base est donnée par l'indice des prix à la production de l'énergie électrique pour l'artisanat, l'industrie et les services, indexé à 103.8 en janvier 1995).

Valeurs de calcul:

- e = Prix de revient de l'énergie produite par kWh (centimes par kilowattheure)
 f = Facteur de qualité de l'énergie
 m1 = Majoration pour la quote-part de la production hivernale
 m2 = Majoration pour l'amélioration de l'offre pendant les heures de forte consommation
 m3 = Majoration pour la couverture de la puissance de pointe en hiver
 m4 = Majoration pour la couverture de la puissance de pointe en été
 q = Quotient économique
 p.r.e. = Probabilité de réaliser l'ouvrage, du point de vue économique.

Calcul des majorations

Majoration	Formule	Valeur auxiliaire	Indication du requérant	Restrictions
m1: majoration pour la quote-part de la production hivernale	$m1 = \frac{1,454 * d}{100} - 0,364$ [4]	d: quote-part de la production hivernale (pour cent) $d = \frac{B * 100}{C}$	B: production moyenne escomptée pendant le semestre d'hiver (mio de kilowattheures) C: production moyenne escomptée pendant toute l'année (mio de kilowattheures)	m1 = 0 si d plus petit ou égal à 25% m1 = 0,8 si d égal ou plus grand que 80%
m2: majoration pour l'amélioration de l'offre pendant les heures de forte consommation	$m2 = \frac{b-3}{160}$ [5]	b: capacité d'accumulation en rapport avec la puissance maximale installée $b = \frac{F}{A}$	F: volume utilisable du (des) bassin(s) d'accumulation (megawattheures) A: puissance maximale installée aux bornes de l'alternateur (megawatt)	m2 = 0 si b plus petit ou égal à 3 heures m2 = 0,3 si b égal ou plus grand que 51 heures
m3: majoration pour la couverture de la demande de puissance de pointe en hiver	si c plus petit ou égal à 800 heures: $m3 = \frac{1}{2} * \sin \frac{(c-200) * 3}{20}$ [6]	c: heures d'exploitation virtuelles en hiver	B: production moyenne escomptée pendant le semestre d'hiver (mio de kilowattheures)	m3 = 0 si c plus petit ou égal à 200 heures
Q3 est utilisé quand Q2 est plus grand que O, c-à-d. si l'aménagement dispose d'un réservoir à courte durée d'accumulation	si c plus grand que 800 heures: $m3 = \frac{1}{2} * \sin \frac{(1500-c) * 9}{70}$ [7]	$c = \frac{B * 1000}{A}$	A: puissance maximale installée aux bornes de l'alternateur (megawatt)	m3 = 0 si c égal ou plus grand que 1500 heures
m4: majoration pour la couverture de la demande de puissance de pointe en été	$m4 = \frac{2400-a}{4500}$ [8]	a: heures d'exploitation virtuelles en été $a = \frac{E * 1000}{A}$	E: production moyenne escomptée pendant le semestre d'été (mio de kilowattheures) A: puissance maximale installée aux bornes de l'alternateur (megawatt)	m4 = 0,4 si a plus petit ou égal à 600 heures m4 = 0 si a égal ou plus grand que 2400 heures
Q4 est utilisé quand Q2 est plus grand que O, c-à-d. si l'aménagement dispose d'un réservoir à courte durée d'accumulation				

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

JUNGFRAU–ALETSCH–BIETSCHHORN (SWITZERLAND)

1. DOCUMENTATION

- i) **IUCN/WCMC Data Sheet:** (12 references)
- ii) **Additional Literature Consulted:** Chevallet, M.P. and K. Dullnig. 1991. *Les Espaces Protégés de L'Arc Alpin*. International Centre for Alpine Environments; Stone, P. 1992. **The State of The World's Mountains**. Zed Books; Reynolds K. ed. 1990. **The Mountains of Europe**. Oxford University Press; Price, M. 1995. **Mountain Research in Europe**. MAB Series, Vol. 14. Parthenon; Lieberman, M.. 1991. **The Alps**. Steward, Tabori and Chang; Esping, L.E. 1998. *Potential Natural World Heritage Sites in Europe*. Parks for Life Report; Hsu, K.J. 1995. **The Geology of Switzerland**. Princeton University Press; Messerli, B. & J. Ives. 1997. **Mountains of the World**. Parthenon; CIPRA. 1998. **Rapport sur l'état des Alpes**.
- iii) **Consultations:** Meetings with Canton of Valais JAB Committee including mayors of communes, tourism representatives, NGOs and Minister of the Valais Cantonal Government; and Canton of Bern JAB Committee including commune mayors, tourism representatives, NGOs and Minister of Bern Cantonal Government; President – Patrons Committee.
- iv) **Field Visit:** J. Thorsell and M. Price. March 2001

2. SUMMARY OF NATURAL VALUES

The Jungfrau-Aletsch-Bietschorn (JAB) region is located in the south central Swiss Alps midway between the cities of Brig and Interlaken. The site covers 54,000ha, 77% in the Canton of Valais and 23% in the Canton of Berne. Elevation ranges from 900m on the southern slopes to 4,274m on the summit of the Finsteraarhorn. Nine peaks in the site are higher than 4,000m.

The geology of the site derives from the "Helvetic nappe" (a large body of rock that was thrust over younger rock in Europe during the Miocene period). The folding and overthrusting of rock layers during the formation of the Alps, 20 – 40 million years ago, have produced very complex rock formations that have since been exposed by glacial activity. The summits of the Mönch and the Jungfrau, for example, consist of core crystalline rock that was overthrust on top of younger sedimentary limestone. In contrast, the Eiger, the peak located adjacent to the Jungfrau and the Mönch, is almost totally limestone. The physiography of the area is characterised by steep north-facing slopes and relatively gentle southern ones. The alpine crest acts as the watershed divide between the Rhine and Rhône rivers which respectively flow into the North Sea and the Mediterranean.

Classic examples of glacial phenomena occur in the site, such as U-shaped valleys, valley glaciers, cirques, horn peaks, and moraines. Of particular note is the Aletsch Glacier, the largest (128km²), the longest (23km) and deepest (900m) in Europe. The Fiesch glacier is the third largest and second in length in Europe. The retreat of both has been carefully measured since 1892. A related feature is the Trummelbach canyon and waterfall where glacial runoff has formed a spectacular gorge.

Climate is strongly influenced by the dominant winds and orientation of the ranges. On the Bernese side, the climate is sub-oceanic, with higher annual precipitation (1,420mm at Grindelwald). The Valais side is sub-continental with annual precipitation of 758mm at Brig.

Vegetation and fauna are representative of the Alps and vary by slope, aspect and elevation. There is a marked difference in vegetation between the northern and southern slopes. On the north side, forests at lower elevations consist of broad-leaved species such as beech, ash, alder, elm and birch. The south side is too dry for beech, which is replaced by Scots pine. On the northern side, the subalpine zone is dominated by Norway spruce with

mountain ash, silver birch, and stone pine and, on the southern side, by more continental species, such as European larch on young soils. An especially interesting area of stone pine forest is found adjacent to the snout of the Aletsch glacier, where plant succession from the receding glacier has been studied for over 100 years. Above the treeline are extensive areas of rhododendron scrub, alpine grassland, and tundra vegetation and, on the xeric southern slopes, steppe grassland.

Fauna in the JAB region is typical of the Alps, with a wide variety of species including ibex, lynx, and red deer (all reintroduced), roe deer, chamois and marmot as well as several reptiles and amphibians (e.g. the Alpine salamander). A representative range of Alpine birds also occur, including Golden Eagle, Kestrel, Chough, Ptarmigan, Black Grouse, Snow Finch, Wallcreeper, Lammergeier, Pygmy Owl and various woodpecker species.

The Bernese and Valais Alps have been an international centre for alpine tourism and mountaineering since the 18th century. In contrast to its surroundings, the nominated area is accessible by road and cable lifts only up to its perimeter. The exception is the Jungfrau railway which was completed in 1912 and brings over 600,000 visitors annually to a confined viewpoint 4km inside the northern boundary of the site. A very small proportion of these enter the site by ski or foot, often using one or more of the 23 alpine huts in the area. There are no permanent human residents in the site except for maintenance staff at the Atmospheric Research Station located near the terminus of the Jungfrau railway. Some seasonally-occupied farms exist along the southern perimeter and in the Stechelberg valley in the north-west border of the site. Small numbers of sheep and cattle graze these alpine pastures in summer. Over 95% of the area exists in a natural state with no facilities except foot/ski trails and mountaineering huts.

3. COMPARISONS WITH OTHER AREAS

There are 46 areas inscribed on the World Heritage List in the various mountain ranges of the world. These include Huascarán National Park (Peru) which is generally accepted to encompass the most outstanding group of peaks in the Andes, and Sagarmatha National Park (Nepal) which represents "the best" of the Himalayan range. Similarly, the most outstanding portions of many other mountain ranges have been given World Heritage status (for example there is one site each in the Caucasus, Altai, Urals, Pyrenées, New Zealand Alps, St Elias Mountains and the Pacific Coast range). Three natural World Heritage sites are found in the Rocky Mountains of North America, a region larger than Europe which extends over 40 degrees of latitude.

Within the Alps, a region spanning 1,100km and seven countries, no natural World Heritage site has yet been inscribed. The Network of Alpine Protected Areas identifies over 300 protected areas within the Alpine Arc. Most of these are small nature reserves and regional parks (IUCN category V), which may have cultural landscape values but would not appear as likely candidates under World Heritage natural criteria. In the 1997 UN List of Protected Areas (IUCN/WCMC), there are seven areas listed in the Alps under IUCN categories I and II. The JAB region stands out from all of these and other mountains in the High Alps in having the following four qualities:

- The scenic and aesthetic appeal of the JAB region is one of the most dramatic of the Alps, as evidenced by the long history of international visitation to the area. The impressive northern wall of the site with the panorama of the Eiger, Mönch and Jungfrau mountains provides a 25km long signature classic view of the north face of the High Alps. There are a number of other impressive peaks such as the Finsteraarhorn, Aletschhorn, Breithorn and Bietschorn, as well as the extensive views of the Aletsch glacier basin from the Eggishorn ridge. The only other areas in the Alps that rivals the JAB region for sheer scenic splendour are in the Pennine Alps around the Matterhorn/Monte Rosa and Mont Blanc. Both these areas have been much altered by human activity and are not under protective status. High natural scenic values exist throughout the Alps but are most dramatically expressed in the JAB region.
- Glaciation within the JAB region is the most extensive in the Alps. The Aletsch is the largest glacier in Europe in terms of area (128km²), length (23km), and depth (900m). For comparison, the longest glaciers on Mont-Blanc are less than 10km in length. The study of the Aletsch glacier began early in the 20th century and precise mass balance and runoff studies are on-going. Comparative studies on the fast-reacting small glaciers on the northern exposure have provided further indications of climatic change. Along with the extensive glacial cover of the area, an exceptionally wide suite of glacial features also occurs.
- The extensive glaciation and rugged topography found in the JAB region as well as protection measures which date back to 1933 have resulted in it being one of the most (if not the most) undisturbed natural areas

in the Alps. The intact status of such a relatively large area within a long-occupied and intensively-used economic region is another distinctive feature of the site.

- For its record of productive scientific research on geology, geomorphology, climatic change, biology and atmospheric physics, the JAB region is unsurpassed in the Alps and, in certain fields, at the global level. Observations on some of the glaciers go back to the 12th century and have allowed reconstructions of historical fluctuations, particularly of the highly sensitive glaciers on the northern slopes of the site. The scientific importance of the area is also indicated by the selection of the Grindelwald and Aletsch areas as two of four study sites in the Swiss Alps for MAB programme studies in the period 1977 – 1989. As noted in a review of Mountain Research in Europe (Price, 1995), this programme was most productive and generated a substantial quantity of data with practical planning applications. The research station at the Jungfraujoch is one of a network of global sites studying astronomy, high-altitude atmospheric phenomena, radiation and air quality. The Centre for Nature Protection at Riederalp also has facilitated natural history research in the region. While other areas in the Alps and Pyrenées have been important areas for research, scientific activity in the JAB region has been particularly impressive, with a particular emphasis on monitoring and understanding glaciological, geomorphological, and ecological processes (criteria i and ii).

Although the site has not been nominated for its biological values (criterion iv) it does contain a wide range of species typical of the Alps. However, floral diversity is higher in the calcareous massifs of the western and Southern Alps where Mediterranean affinities are stronger. It is important to note, however, that the nominated area is much more than just glaciers and rocks. Almost 20% of the area is in the forest zone and these lower altitudinal belts contribute to the overall natural features of the site.

Global comparisons are difficult and would be most relevant with other sites in temperate glaciated high mountain systems. The closest comparison would be with the Western Caucasus World Heritage site which, although much larger, contains peaks of lesser elevation (3,360m at the highest) and a much lesser extent of glaciation (18sq.km). A comparison of the JAB region with the Khumbu-Everest region in the Himalaya helps illustrate the uniqueness of this much smaller region of the High Alps. The relative altitudinal difference from the last village at the boundary of the JAB region (Stechelberg) to the top of the Jungfrau is 3,000m over a distance of 5km. In the Everest region, the elevation difference between the last village Dingboche (4,358m) to Ama Dablam (6,828m) is about 2,500m. Dingboche's relative relief with Mt. Everest is 4,500m but this is over a distance of 14km. The relative elevation differences and gradients in the JAB region thus are quite substantial even compared with the highest range on Earth. Similarly, the 23km length of the Aletsch glacier is longer than the ice streams flowing from the Everest/Lhotse massif with its 17km Khumbu glacier, 16km Rongpu glacier and 8km long Lhotse glacier. Another comparison can be made with the Canadian Rockies World Heritage site where the relative relief of Mt. Robson to its base, 6km distant, is also about 3,000m. While there are other longer glaciers in temperate mountain regions, e.g., Karakorum, Pamirs, Rocky Mountains, the Aletsch rates high even on a world scale.

4. INTEGRITY

Although portions of the site have been under conservation management since 1933, the JAB region, as now defined, is a collection of different designations combined to form a single contiguous unit. Much work has been undertaken to develop a management structure since the World Heritage nomination document was submitted in July, 2000. This work is on-going but as of the field inspection in March, the early concerns of IUCN on management issues have been addressed as follows:

4.1. Legal Status

The legal basis for the JAB region is a heterogeneous mix of designations from all three levels of government. The communes, which own most of the land in the site, have various contracts and ordinances that provide strong guidelines on construction of roads and buildings and modification to the landscape. The two Cantons also have various ordinances that apply to portions of the site. At the national level, the entire site falls within the Federal Inventory of Sites of National Importance which requires that the Cantons and Communes give special attention to any development within the area. Additionally, the conservation NGO ProNatura is responsible for two portions of the site under lease agreements with the communes.

The end result of these various overlapping legal mechanisms is that the site has a range of measures that have kept it as an intact natural area to date. Recognising, however, that the various designations are complex and

could benefit from a more coordinated approach, a process is now underway to prepare an integrated management plan. This will review the most effective options for protection legislation and suggest how the different jurisdictional responsibilities could best be harmonised. This process is expected to take 2-3 years and may also benefit from a review of protected area policy in Switzerland being conducted by the Swiss Academy of Natural Sciences. In the meantime, IUCN concludes that the existing legal basis is adequate to ensure that the site will not be affected by any activity inconsistent with its potential World Heritage status.

4.2. Management

Although the site is covered as part of regional plans by both Cantons, it does not have an integrated management plan but a working committee is now developing one. The committee has developed a "Mission Statement" that sets out principles and guidelines for the management of the site and which will be elaborated in the management plan. The preparation of the plan will take 2-3 years due to the intensive consultation process.

The current administrative structure which oversees and coordinates all the stakeholders in the area is given below (see Figure 1). This structure includes a Committee made up of from representatives from NGOs, business, science, media, the tourism sector and regional planning authorities. All have contributed to the budget for current activities. There is also a "Network of Communes" committee which includes the presidents of all 14 communes.

4.3. Boundaries

The current delineation of the extent of the site was arrived at after intensive consultations, including formal voting procedures, with the 14 local communities and other stakeholders. While encompassing the main features of this portion of the high Alps, several adjoining areas of high associated natural values were not included. These occur along the northeast, eastern and western boundary as well as adjacent to Riederalp. IUCN is aware that discussions over possible extensions to the site are being held and that these will take some time to mature. IUCN concludes that the current boundaries adequately cover the highlights of the area. However, further discussions during the management planning process will likely lead to some refinements.

4.4. Other Threats

The JAB region is little impacted by human use inside its boundaries except for some declining grazing and forestry activity along the southwest and northwest margins. Adjacent to parts of the site are tourist developments that, if expanded, could affect its aesthetic values. The nomination notes that an official buffer zone is not feasible or necessary as much of the site is bordered by steep topography, glaciers, or seasonally-used pastoral landscapes. While these reasons are evident, IUCN would suggest that the "pressure points" associated with downhill skiing facilities near or adjacent to parts of the site should be given particular attention in the management plan.

At a global level, climate change is certainly affecting the site as evidenced in the steady retreat of glaciers over the past century. As in all glaciated areas, this will have inevitable effects on glacial volumes and scenic attractions. This should be recognised as an ongoing geomorphological process (criterion i) of which the site provides an outstanding example.

5. ADDITIONAL COMMENTS

5.1. The preparation of this nomination is a model case study in the "bottom-up" approach. Due to the structure of the Swiss system in which most responsibility over land use is in the hands of local authorities (communes), decision-making begins at that level and then proceeds up through the Cantonal and then Federal levels. Support for the nomination at the local level was first registered in community votes in favour of proceeding with the nomination, followed by approvals by the Cantons before reaching the Federal authorities. The major benefit of such an approach is that local support for the site is assured.

5.2. Throughout the Alps there is a strong historical and cultural presence. The JAB region, while predominantly natural, is surrounded by outstanding historical monuments and a harmonious cultural landscape. Indeed, where the site is not bordered by uninhabited precipitous topography, it abuts a landscape with a harmonious blend of pastoral uses, historical routes and small villages. The immediate regional land uses are carefully regulated and serve a *de facto* buffer function to the site.

5.3. The JAB region was one of two sites proposed as possible World Heritage natural nominations in the Alps at the June 2000 regional thematic expert meeting on potential natural sites in the Alps, held in Austria (the second being the Mont Blanc). This meeting noted the potential of cultural landscapes and generated a number of suggestions including the possibility of a serial site in the Alps. These discussions are evolving, but it is IUCN's view that the JAB nomination is clearly justified on its own merits as having the most outstanding combination of universally outstanding natural features in the region.

6. APPLICATION OF CRITERIA/STATEMENT OF SIGNIFICANCE

The JAB has been nominated under natural criteria (i), (ii) and (iii). The rationale for inscription of each is as follows:

Criterion (i): Earth's history and geological features

The JAB region provides an outstanding example of the formation of the High Alps which resulted from uplift and compression during the Tertiary geological period 20-40 million years ago. Within an altitude range from 900m to 4,274m, the region displays 400 million year old crystalline rocks thrust over the younger autochthonous (rocks formed *in situ*) calcareous sediments due to the northward drift of the African tectonic plate. Added to the dramatic record of the processes of mountain building is the great variety of geomorphic and glaciological features found in the site. Classic examples of U-shaped glacial valleys, cirques, horn peaks, valley glaciers and moraines are found in abundance. The JAB region is the most glaciated area in the Alps and incorporates the Aletsch glacier, the largest and longest in western Eurasia. It is thus of significant scientific interest in the context of glacial history and ongoing processes, particularly related to climate change. IUCN considers that the site meets criterion (i).

Criterion (ii): Ecological processes

Within its altitudinal range and its dry southern/wet northern exposures, the JAB region provides a wide range of alpine and sub-alpine habitats. On the two main substrates of crystalline and carbonate rocks, a variety of ecosystems have evolved in the absence of significant human intervention. Superb examples of ecological succession exist, including the distinctive upper and lower treeline of the Aletsch forest. The global phenomenon of climatic change is particularly well-illustrated in the region, as reflected in the varying rates of retreat of the different glaciers, in turn providing new substrates for ongoing ecological succession. IUCN considers that the site meets criterion (ii).

Criterion (iii): Superlative natural phenomena or natural beauty and aesthetic importance

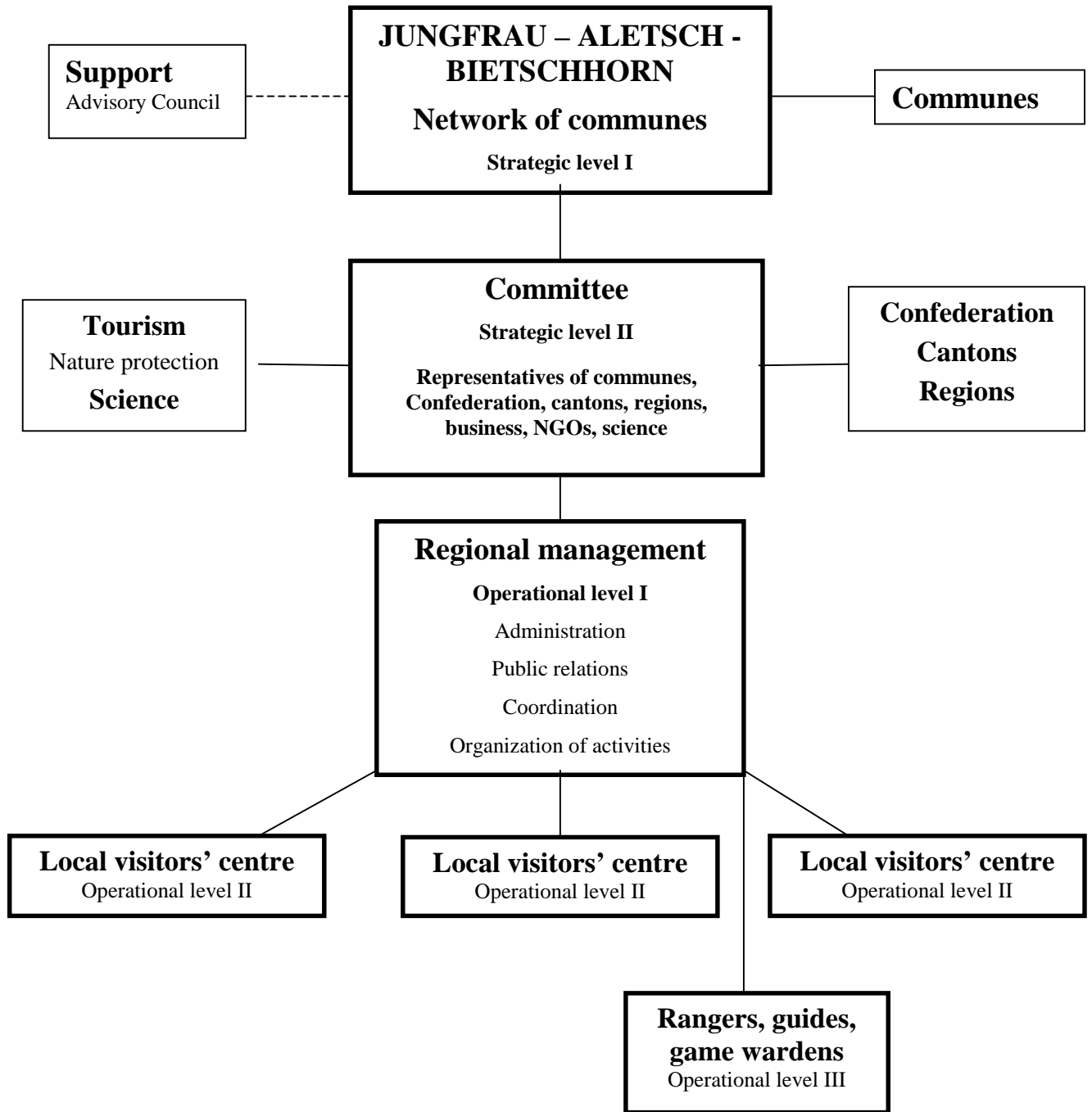
The impressive landscape of the JAB region has played an important role in European literature, art, mountaineering and alpine tourism. The aesthetics of the area have attracted an international clientele and it is globally recognised as one of the most spectacular mountain regions to visit. The impressive north wall of the High Alps, centred around the Eiger/Mönch/Jungfrau and extending 20km in length, is a superlative scenic feature. On the southern side of the alpine divide, tectonic forces and glacial erosion have resulted in a collection of spectacular peaks and a valley system which supports the two longest glaciers in western Eurasia. IUCN considers that the site meets criterion (iii).

7. RECOMMENDATION

The Bureau recommended to the Committee that the Jungfrau-Aletsch-Bietschorn be inscribed on the World Heritage List under natural criteria i, ii, and iii.

IUCN recommends that the Committee also encourage the Swiss authorities in their preparation of a management plan which, when completed, may also lead to modifications and extension to the boundaries. A mission to report on the status of the plan and to review any boundary changes should be undertaken in two years time.

FIGURE 1: STRUCTURE OF THE COMMUNITY OF INTEREST



From "Jungfrau - Aletsch - Bietschhorn UNESCO World Natural Heritage (candidate) Mission Statement (Draft, 07.06.01)" [The statement forms the basis and guidelines for the future management plan.]

CANDIDATURE AU PATRIMOINE MONDIAL - ÉVALUATION TECHNIQUE UICN

JUNGFRAU-ALETSCH-BIETSCHORN (SUISSE)

1. DOCUMENTATION

- i) **Fiches techniques UICN/WCMC:** (12 références)
- ii) **Littérature consultée:** Chevallet, M.P. and K. Dullnig. 1991. **Les Espaces Protégés de L'Arc Alpin**. International Centre for Alpine Environments; Stone, P. 1992. **The State of The World's Mountains**. Zed Books; Reynolds K. ed. 1990. **The Mountains of Europe**. Oxford University Press; Price, M. 1995. **Mountain Research in Europe**. MAB Series, Vol. 14. Parthenon; Lieberman, M.. 1991. **The Alps**. Steward, Tabori and Chang; Esping, L.E. 1998. Potential Natural World Heritage Sites in Europe. Parks for Life Report; Hsu, K.J. 1995. **The Geology of Switzerland**. Princeton University Press; Messerli, B. & J. Ives. 1997. **Mountains of the World**. Parthenon; CIPRA. 1998. **Rapport sur l'état des Alpes**.
- iii) **Consultations:** Réunions avec le Comité JAB du Canton du Valais qui comprend les maires des communes, les représentants du tourisme, des ONG et le ministre du gouvernement cantonal du Valais; ainsi qu'avec le Comité JAB du Canton de Berne qui comprend les maires des communes, les représentants du tourisme, des ONG et le ministre du gouvernement du Canton de Berne; le Président – Comité de patronage.
- iv) **Visite du site:** J. Thorsell et M. Price. Mars 2001

2. RÉSUMÉ DES CARACTÉRISTIQUES NATURELLES

Le site Jungfrau-Aletsch-Bietschorn (JAB) se trouve dans les Alpes centro-méridionales, à mi-chemin entre les villes de Brig et d'Interlaken. Le site couvre une superficie de 54 000 ha dont 77% se trouvent dans le Canton du Valais et 23% dans le Canton de Berne. L'altitude varie de 900 mètres sur le versant sud à 4274 mètres au sommet du Finsteraarhorn. Neuf sommets dépassent 4000 mètres.

Le site doit ses caractéristiques géologiques à la nappe helvétique (immense masse rocheuse qui, en Europe, a recouvert des roches plus jeunes durant la période du Miocène). Le plissement et le recouvrement de couches rocheuse durant la formation des Alpes, il y a entre 20 et 40 millions d'années, ont produit des formations rocheuses très complexes qui depuis ont été mises à nu par l'activité glaciaire. Les sommets du Mönch et de la Jungfrau, par exemple, se composent de roches cristallines recouvertes de sédiments calcaires plus récents. L'Eiger, en revanche, pic adjacent à la Jungfrau et au Mönch, est quasi entièrement formé de calcaires. La physiographie de la région est caractérisée par un versant nord abrupt et un versant sud descendant en pente relativement douce. La crête alpine sert de ligne de partage des eaux entre le Rhin et le Rhône qui coulent, respectivement, vers la mer du Nord et vers la Méditerranée.

On trouve dans le site, des exemples classiques de phénomènes glaciaires tels que des vallées en U, des glaciers de vallée, des cirques, des pics en forme de corne et des moraines. Il convient de signaler, en particulier, que le glacier d'Aletsch, est le plus étendu (128 km²), le plus long (23 km) et le plus profond (900 m) d'Europe. Le glacier de Fiesch est le troisième glacier d'Europe par l'étendue et le deuxième par la longueur. Le phénomène de décrue des deux glaciers est mesuré depuis 1892. Le canyon et la cascade de Trummelbach constituent une caractéristique périglaciaire: la gorge spectaculaire a été sculptée par l'écoulement des glaciers.

Le climat est fortement influencé par les vents dominants et l'orientation du massif. Du côté bernois, le climat est sub-océanique avec des précipitations annuelles plus élevées (1420 mm à Grindelwald). Sur le versant valaisan, le climat est subcontinental avec des précipitations annuelles de 758 mm à Brig.

La végétation et la faune sont représentatives des Alpes mais varient selon les pentes, l'aspect et l'élévation. La différence est marquée entre la végétation du versant nord et celle du versant sud. Sur le versant nord, les forêts de basse altitude se composent d'essences à feuilles caduques telles que le hêtre, le frêne, l'aune, l'orme et le

bouleau. Le versant sud est trop sec pour le hêtre, remplacé par le pin sylvestre. Sur le versant nord, l'étage subalpin est dominé par le pin de Norvège accompagné de sorbiers des oiseaux, de bouleaux argentés et de pins piniers et, du côté sud, par des espèces plus continentales telles que le mélèze d'Europe sur les sols jeunes. Il y a une zone particulièrement intéressante de pins piniers à proximité du front du glacier d'Aletsch où la succession végétale sur la décrue du glacier est étudiée depuis plus de 100 ans. Au-dessus de la ligne des arbres, on trouve des zones importantes de buissons de rhododendrons, de prairies alpines et de végétation de toundra et, sur les pentes méridionales sèches, de la prairie de steppe.

La faune de la région JAB est typique des Alpes et présente une grande variété d'espèces telles que le bouquetin, le lynx et le cerf commun (tous réintroduits), le chevreuil, le chamois et la marmotte, ainsi que de nombreux reptiles et amphibiens (par exemple la salamandre des Alpes). On trouve aussi une gamme représentative d'oiseaux alpins tels que l'aigle royal, le faucon crécerelle, le crabe à bec rouge, le lagopède des Alpes, le tétras-lyre, la niverolle alpine, le tichodrome échelette, le gypaète barbu, la chevêchette d'Europe et différentes espèces de pics.

Les Alpes bernoises et valaisannes sont un centre international de tourisme alpin et d'alpinisme depuis le 18^e siècle. À la différence des environs, le site proposé n'est accessible par la route et le téléphérique que jusqu'à son périmètre. L'exception est le chemin de fer de la Jungfrauoch, terminé en 1912, qui amène plus de 600 000 visiteurs par an jusqu'à un point de vue situé à quatre kilomètres à l'intérieur de la limite nord du site. Une très petite proportion de ces visiteurs pénètre dans le site pour y skier ou y marcher et utilise l'un ou l'autre des 23 refuges alpins de la région. Il n'y a pas de résidents permanents dans le site, à l'exception du personnel d'entretien de la station de recherche atmosphérique qui se trouve près du terminus de la Jungfrauoch. Quelques fermes sont occupées en saison le long du périmètre sud et dans la vallée de Stechelberg, à la limite nord-ouest du site. De petits troupeaux de moutons et de bovins paissent dans les pâturages alpins en été. Plus de 95% de la région est à l'état naturel et l'on n'y trouve aucun aménagement à l'exception de sentiers pédestres, de pistes de ski et de refuges de montagne.

3. COMPARAISON AVEC D'AUTRES SITES

Sur la Liste du patrimoine mondial sont inscrits 46 sites qui se trouvent dans les différentes chaînes de montagne du monde. Parmi eux, on peut citer le Parc national de Huascarán (Pérou) qui comprend le groupe de sommets le plus remarquable des Andes et le Parc national de Sagarmatha (Népal) qui représente ce qu'il y a de mieux dans la chaîne himalayenne. De même, les secteurs les plus exceptionnels de nombreuses chaînes de montagne ont reçu le statut de bien du patrimoine mondial (on en trouve dans le Caucase, dans les monts de l'Altaï, dans l'Oural, dans les Pyrénées, dans les Alpes de Nouvelle-Zélande, les montagnes de St-Elias et la Cordillère côtière du Pacifique). On trouve trois biens naturels du patrimoine mondial dans les montagnes rocheuses d'Amérique du Nord, une région plus grande que l'Europe, qui s'étend sur 40 degrés de latitude.

Dans les Alpes, une région couvrant 1100 kilomètres et sept pays, il n'y a encore aucun bien du patrimoine mondial. Le réseau d'aires protégées alpines compte plus de 300 aires protégées dans l'arc alpin. La plupart sont de petites réserves naturelles et des parcs régionaux (Catégorie V, UICN), qui ont sans doute un intérêt de paysage culturel mais ne semblent pas être des candidats valables remplissant les critères naturels du patrimoine mondial. La Liste des Nations Unies des aires protégées de 1997 (UICN/WCMC), énumère sept sites inscrits dans les Alpes dans les catégories I et II de l'UICN. Le site JAB se distingue de tous ces sites ainsi que des autres montagnes des hautes Alpes par les quatre qualités suivantes:

- L'intérêt paysager et esthétique du site JAB est parmi les plus élevés dans les Alpes comme en témoigne l'afflux historique, dans la région, de visiteurs du monde entier. La barrière septentrionale impressionnante du site, avec l'Eiger, le Mönch et la Jungfrau offre un point de vue classique, de 25 km de long, sur la face nord des hautes Alpes. On y trouve plusieurs autres pics impressionnants tels que le Finsteraarhorn, l'Aletschhorn, le Breithorn et le Bietschorn, ainsi qu'un panorama étendu sur le bassin du glacier d'Aletsch depuis la crête de l'Eggishorn. La seule autre région des Alpes qui rivalise avec celle-ci, pour la splendeur du panorama, est celle des Alpes Pennines autour du Cervin/Mont Rose et du Mont Blanc. Ces deux régions ont été profondément façonnées par l'activité humaine et ne bénéficient pas d'un statut de protection. Il y a des sites de grand intérêt paysager naturel dans toute la chaîne des Alpes mais ils trouvent leur expression la plus spectaculaire dans la région JAB.
- C'est dans cette région des Alpes que la glaciation est la plus étendue. Le glacier d'Aletsch est le plus grand glacier d'Europe du point de vue de sa superficie (128 km²), de sa longueur (23 km) et de sa profondeur (900 m). En comparaison, les plus longs glaciers du Mont-Blanc mesurent moins de 10 km de long. L'étude

du glacier d'Aletsch a commencé au début du 20^e siècle et les études du bilan de masse et de l'écoulement se poursuivent. Des études comparatives sur les petits glaciers à réaction rapide exposés au nord ont apporté de nouvelles informations sur les changements climatiques. Outre l'étendue couverte par les glaciers, on note une gamme exceptionnellement diverse de caractéristiques glaciaires.

- Grâce à l'étendue de la glaciation, à la topographie déchiquetée de la région JAB et aux mesures de protection qui datent de 1933, cette région est une des plus (si ce n'est la plus) préservées des Alpes. Pour un site relativement grand, dans une région économique occupée depuis fort longtemps et utilisée de manière intensive, c'est une autre particularité.
- Pour la quantité de travaux de recherche scientifique en géologie, géomorphologie, changements climatiques, biologie et physique atmosphérique, la région JAB n'a pas son pareil à travers toutes les Alpes et, à certains égards, au niveau mondial. L'observation de certains glaciers date du 12^e siècle et a permis de reconstituer des fluctuations historiques, notamment celles de glaciers extrêmement sensibles qui se trouvent sur la face nord du site. L'importance scientifique de la région est également évidente dans le choix des régions de Grindelwald et d'Aletsch parmi les quatre sites d'étude, dans les Alpes suisses, pour le Programme MAB, dans la période de 1977 à 1989. Comme on peut le lire dans l'étude Mountain Research in Europe (Price, 1995), ce programme a été très fructueux et a fourni une quantité importante de données d'application pratique. La station de recherche de la Jungfraujoch est un des réseaux de sites mondiaux où l'on étudie l'astronomie, les phénomènes atmosphériques de haute altitude, le rayonnement et la qualité de l'air. Le Centre de protection de la nature de Riederalp a également facilité la recherche en histoire naturelle sur la région. D'autres régions des Alpes et des Pyrénées sont des domaines importants de recherche, mais l'activité scientifique, dans la région JAB, est particulièrement impressionnante, l'accent étant notamment mis sur la surveillance et la compréhension des processus glaciologiques, géomorphologiques et écologiques (critères i et ii).

Bien que le site n'ait pas été proposé pour son intérêt biologique (critère iv), il contient une gamme importante d'espèces typiques des Alpes. Toutefois, la diversité de la flore est plus élevée dans les massifs calcaires des Alpes de l'Ouest et du Sud où les affinités méditerranéennes sont plus fortes. Il importe de noter, cependant, que le site proposé ne se compose pas uniquement de glaciers et de rochers. Les forêts couvrent près de 20% de la région et ces ceintures de plus basse altitude apportent un autre élément naturel à l'intérêt naturel global du site.

Il est difficile d'établir des comparaisons à l'échelle mondiale et celles-ci se justifieraient surtout avec des sites situés dans les systèmes orographiques de haute altitude de la zone tempérée glacée. La comparaison la plus proche peut être faite avec le Bien du patrimoine mondial du Caucase de l'Ouest qui, bien qu'il soit beaucoup plus grand, n'a pas de sommet aussi haut (le point culminant se situe à 3360 mètres) et ses glaciers sont beaucoup moins étendus (18 km²). En comparant la région JAB avec la région du Khumbu-Everest dans l'Himalaya, on peut mieux comprendre le caractère unique de cette région, beaucoup plus petite, des hautes Alpes. La différence relative d'altitude entre le dernier village à la limite de la région JAB (Stechelberg) et le sommet de la Jungfrau est de 3000 mètres sur une distance de 5 km. Dans la région de l'Everest, la différence d'altitude entre le dernier village, Dingboche (4358 m) et Ama Dablam (6828 m) est d'environ 2500 m. La distance entre Dingboche et le mont Everest est de 4500 m mais sur 14 km. Les différences relatives d'altitude et les gradients dans la région JAB sont donc considérables, même en comparaison avec la chaîne la plus élevée du monde. De même, le glacier d'Aletsch avec ses 23 km de long est plus long que les glaciers qui descendent du massif Everest/Lhotse (le glacier du Khumbu 17 km, le glacier Rongpu 16 km et le glacier Lhotse 8 km). On peut également établir une comparaison avec le Bien du patrimoine mondial des Rocheuses canadiennes où l'altitude relative du sommet du Mont Robson à son pied, sur une distance de 6 km, est également d'environ 3000 m et il y a d'autres longs glaciers dans les régions tempérées de montagne, par exemple le Karakorum, le Pamir et les montagnes rocheuses mais le glacier d'Aletsch occupe une position prééminente, même à l'échelle mondiale.

4. INTÉGRITÉ

Bien que certains secteurs du site fassent l'objet d'une gestion pour la conservation depuis 1933, la région JAB, telle qu'elle est définie actuellement est un assemblage de différentes désignations associées pour former une seule unité contiguë. Des travaux importants ont été entrepris pour mettre sur pied une structure de gestion depuis que le document de proposition d'inscription au patrimoine mondial a été soumis en juillet 2000. Les travaux se poursuivent mais, depuis l'inspection sur le terrain en mars, les préoccupations mentionnées par l'UICN concernant les questions de gestion ont été traitées comme suit:

4.1. Statut juridique

Le statut juridique de la région JAB est un mélange hétérogène de désignations par les trois niveaux de gouvernement. Les communes, qui possèdent la majeure partie des terres du site, ont signé différents contrats et promulgué des ordonnances qui imposent des règles sévères à la construction de routes et de bâtiments et aux modifications apportées au paysage. Les deux cantons ont également adopté différentes ordonnances qui s'appliquent à certaines portions du site. Au niveau national, le site dans son ensemble dépend de l'Inventaire fédéral des sites d'importance nationale qui demande aux cantons et aux communes d'accorder une attention spéciale à toute forme de développement dans la région. En outre, l'ONG de conservation ProNatura est responsable de deux secteurs du site en vertu de concessions délivrées par les communes.

Le résultat du chevauchement de ces différents mécanismes juridiques est que le site dispose d'une gamme de mesures qui ont permis de le conserver à l'état naturel jusqu'à ce jour. Cependant, les différentes désignations étant complexes et sachant qu'une approche plus coordonnée pourrait être bénéfique, un processus est en cours pour préparer un plan de gestion intégré qui indiquera les mesures les plus efficaces et proposera une harmonisation des différentes responsabilités juridictionnelles. Le processus devrait prendre deux à trois ans et pourrait également bénéficier d'une révision de la politique relative aux aires protégées de Suisse qui est actuellement menée par l'Académie suisse des sciences naturelles. Entre-temps, l'UICN estime que la base juridique en place suffit pour garantir la protection du site contre toute activité incompatible avec le statut de bien du patrimoine mondial.

4.2. Gestion

Bien que le site soit inclus dans les plans régionaux des deux cantons, il ne dispose pas de plan de gestion intégrée mais un comité de travail est en train d'en préparer un. Le comité a élaboré un Énoncé de mission contenant les principes et lignes directrices pour la gestion qui seront approfondis dans le plan de gestion. La mise au point du plan prendra deux à trois ans en raison du processus de consultation intensif qui est engagé.

La structure administrative actuelle, qui supervise et coordonne tous les acteurs dans la région, est présentée ci-dessous (Figure 1). Cette structure comprend un comité composé de représentants d'ONG, des secteurs privé et scientifique, de la presse et du tourisme, ainsi que des autorités de gestion régionales. Tous ont contribué au budget des activités en cours. Il y a aussi un comité constituant un « Réseau de communes », formé par les présidents des 14 communes.

4.3. Délimitation

La délimitation actuelle du site est le fruit de consultations intenses, y compris d'un vote officiel des 14 communes et autres acteurs. Plusieurs zones qui avaient un intérêt naturel élevé n'ont pas été incluses alors qu'elles présentaient les principales caractéristiques de cette partie des hautes Alpes. Ces zones se trouvent le long des limites nord-est, est et ouest et à proximité de Riederalp. L'UICN est consciente que des discussions concernant des extensions possibles du site sont en cours et qu'il faudra beaucoup de temps pour qu'elles mûrissent. L'UICN conclut que les limites actuelles sont adéquates pour contenir les principaux centres d'intérêt de la région. Cependant, les discussions qui auront lieu durant le processus de préparation du plan de gestion amèneront sans doute quelques modifications.

4.4. Autres menaces

La région JAB subit peu d'incidences des activités humaines à l'intérieur de ses limites à l'exception d'un pâturage en déclin et d'activités forestières le long des marges sud-ouest et nord-ouest. Certains secteurs limitrophes du site sont consacrés au tourisme et si ce dernier devait prendre de l'expansion, les qualités esthétiques du site pourraient être affectées. Le document de la proposition indique qu'il n'est pas possible d'instaurer une zone tampon officielle ni nécessaire de le faire car une bonne partie du site est bordée par un relief abrupt, des glaciers ou des paysages pastoraux utilisés selon un rythme saisonnier. Tout cela semble évident mais l'UICN suggère d'accorder une attention particulière, dans le plan de gestion, au « point critique » associé aux aménagements pour le ski alpin à proximité du site ou même dans des lieux contigus.

Au niveau mondial, il est clair que les changements climatiques affectent le site comme on peut le voir par la décline constante des glaciers depuis le siècle passé. Comme dans toutes les régions couvertes de glaciers, le réchauffement du climat aura des incidences inévitables sur le volume et l'attrait des glaciers. Ce point devrait

être reconnu comme un processus géomorphologique en cours (critère i) dont le site présente un exemple exceptionnel.

5. AUTRES COMMENTAIRES

5.1. La préparation de cette proposition est un modèle d'approche «de la base au sommet». En raison de la structure même du système helvétique dans le cadre de laquelle une bonne partie de la responsabilité relative à l'utilisation des terres appartient aux communautés locales (communes), le processus décisionnel commence à ce niveau et progresse à travers toute la hiérarchie jusqu'au niveau fédéral en passant par le niveau cantonal. La proposition a fait l'objet d'un appui au niveau local qui s'est traduit par un vote en faveur de la soumission de la proposition à l'UNESCO, puis par l'approbation des cantons avant d'atteindre le niveau fédéral. Le principal avantage d'une telle approche est que le site bénéficie, sans contexte, d'un appui au niveau local.

5.2. À travers toutes les Alpes, on peut constater les traces d'une présence historique et culturelle fort ancienne. La région JAB, tout en étant avant tout naturelle est entourée de monuments historiques exceptionnels et d'un paysage culturel harmonieux. En fait, là où le site n'est pas limité par un relief abrupte inhabité, il touche à un paysage harmonieux de pâturages, de routes historiques et de petits villages. Les activités d'utilisation des sols, au niveau régional, sont soigneusement réglementées et jouent de facto un rôle tampon pour le site.

5.3. La région JAB est un des deux sites qui ont été proposés comme candidats possibles au patrimoine mondial naturel pour la région des Alpes lors de la réunion thématique d'experts régionaux, en juin 2000 en Autriche, consacrée aux sites naturels potentiels dans les Alpes (le deuxième était le Mont Blanc). Cette réunion a mentionné le potentiel des paysages culturels et fait un certain nombre de propositions, y compris pour un site sériel dans les Alpes. Les discussions sont en cours mais, de l'avis de l'UICN, la proposition JAB se justifie pleinement à elle seule, car elle possède l'assortiment le plus exceptionnel de caractéristiques naturelles d'importance universelle dans la région.

6. APPLICATION DES CRITÈRES/ DÉCLARATION D'IMPORTANCE

Le site JAB est proposé au titre des critères naturels (i), (ii) et (iii). La justification est la suivante :

Critère (i): histoire de la terre et processus géologiques

La région JAB est un exemple exceptionnel de la formation des hautes Alpes qui résulte de phénomènes de relèvement et de compression, durant la période géologique du tertiaire, il y a 20 à 40 millions d'années. Dans une fourchette altitudinale de 900 mètres à 4274 mètres, la région présente des roches cristallines vieilles de 400 millions d'années, recouvrant des sédiments calcaires autochtones (roches formées in situ) plus jeunes, résultant de la dérive de la plaque tectonique africaine vers le nord. Outre cet exemple spectaculaire d'orographie, on note une grande diversité des caractéristiques géomorphologiques et glaciaires dans le site où il y a des exemples classiques de vallées glaciaires en U, de cirques, de pics en forme de corne, de glaciers de vallée et de moraines. La région JAB est la zone la plus glacée des Alpes: elle comprend le glacier d'Aletsch qui est le plus vaste et le plus long glacier d'Eurasie de l'Ouest. Elle présente donc un intérêt scientifique important dans le contexte de l'histoire glaciaire et des processus en cours, notamment en relation avec les changements climatiques. L'UICN considère que le site remplit le critère (i).

Critère (ii): processus écologiques

Dans la fourchette altitudinale et en raison de son exposition sèche au sud et humide au nord, la région JAB présente une vaste gamme d'habitats alpins et subalpins. Sur les deux principaux substrats de roches cristallines et carbonatées, des écosystèmes variés ont évolué en l'absence d'intervention de l'homme. On y trouve des exemples superbes de successions écologiques, y compris la ligne des arbres haute et basse particulière de la forêt d'Aletsch. Le phénomène mondial de changement climatique est particulièrement bien illustré dans la région comme on le voit dans les taux variables de décrue des différents glaciers qui fournissent eux-mêmes de nouveaux substrats pour la succession écologique en cours. L'UICN considère que le site remplit le critère (ii).

Critère (iii): phénomènes naturels éminemment remarquables ou de beauté exceptionnelle

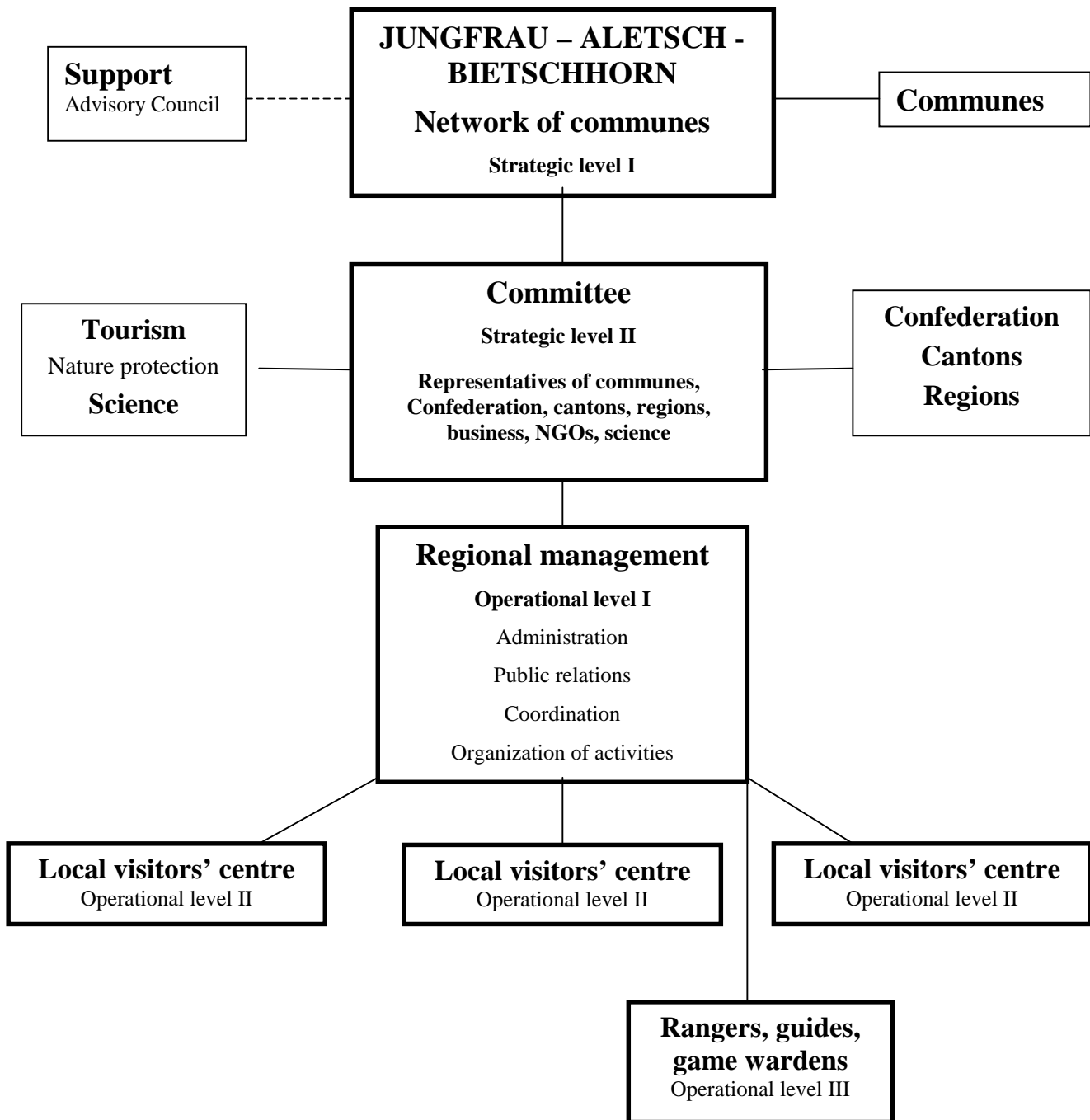
Le paysage impressionnant de la région JAB a joué un rôle important dans la littérature, l'art, l'alpinisme et le tourisme alpin de l'Europe. Les qualités esthétiques de la région attirent une clientèle internationale et la région est reconnue comme une des zones de montagnes les plus spectaculaires. La barrière septentrionale impressionnante des hautes Alpes axée sur l'Eiger, le Mönch et la Jungfrau, et qui s'étend sur environ 20 kilomètres, est une caractéristique paysagère exceptionnelle. Sur le versant sud de la ligne de partage des eaux alpines, les forces tectoniques et l'érosion glaciaire ont sculpté un ensemble de cimes spectaculaires et un réseau de vallées contenant les deux plus longs glaciers d'Eurasie de l'Ouest. L'UICN considère que le site remplit le critère (iii).

7. RECOMMANDATION

Le Bureau a recommandé au Comité **d'inscrire** la Jungfrau-Aletsch-Bietschorn sur la Liste du patrimoine mondial sur la base des critères naturels i, ii et iii.

L'UICN a aussi recommandé que le Comité encourage les autorités helvétiques dans leurs préparatifs d'un plan de gestion qui, lorsqu'il sera terminé, pourrait entraîner des modifications et une extension des limites du site. Un rapport de mission sur l'état de ce plan et la révision de tout changement des limites devrait être entrepris dans deux ans.

FIGURE 1: STRUCTURE DE LA COMMUNAUTÉ INTERÉSSÉE



From "Jungfrau - Aletsch - Bietschhorn UNESCO World Natural Heritage (candidate) Mission Statement (Draft, 07.06.01)" [The statement forms the basis and guidelines for the future management plan.]

NOMINATION OF THE EXTENSION OF THE JUNGFRAU-ALETSCH-BIETSCHHORN WORLD HERITAGE SITE

DECEMBER 2005



UNESCO WELTERBE
Jungfrau-Aletsch-Bietschhorn

UNESCO World Natural Heritage Site since 2001

Nomination prepared by the Swiss Agency for the
Environment, Forests and Landscape (SAEFL), Berne,
Switzerland

December 2005

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Executive Summary

State Party

Switzerland

State, Province or Region

Cantons of Berne and Valais

Name of Property

Jungfrau-Aletsch-Bietschhorn

Geographical coordinates to the nearest second

N 46° 30' 00"/ E 8° 02' 00" center of Konkordiaplatz

Textual description of the boundary of the nominated property

It is intended to extend westwards and eastwards the territory of the Jungfrau-Aletsch-Bietschhorn (JAB) World Heritage Site created in 2001. This expansion decision results from an inspection of the perimeter of the site incidental to the preparation of the management plan that the IUCN had suggested on the occasion of the inclusion of the presently covered area in the list of World Heritage Sites in 2001.

In the west the proposed new perimeter embraces, in addition to the entire Blüemlisalp and Dolderhorn group, the Kanderfirn with its glacial foreland, located in the Gastern Valley, and the Petersgrat. The inclusion of the Wilerhorn and the left slope of the Lötschen Valley better delimits the entire Bietschhorn group from the point of view of natural domains. In the east a substantial change will take place in that the whole catchment area of the Aare Glacier, the Wetterhorn group and the Rosenlauri Glacier as well as the culmination of the Engelhorn group are included.

The proposed perimeter runs in the west from Stechelberg in the rear Lauterbrunnen Valley along the Sefinenlütschine to the Sefinenfurgge and consequently encompasses the foreland of the Gamchi Glacier, then proceeds to the Dündenhorn, embraces Oeschinen Lake, runs along Oeschi Brook towards Kandersteg (westernmost point), bends around the Doldenhorn at the bottom of its slopes up to the approaches of the Kanderfirn in the Gastern Valley and on along a ravine up to the boundary between Bern and Valais which it then follows up to the Sackhorn.

From there it runs through the Lötschen Valley gently downhill to the Fafleralp, now encompasses the whole Bietschhorn massif along the Lonza and rejoins the existing World Heritage site perimeter at the municipal boundary between Hohtenn and Niedergesteln. The existing boundary then runs along the south face of the Lötschberg (southernmost point) around the Bietschhorn massif to the east side of the Gredetsch Valley, where the Belalp is excluded, along the Aletschbord up to the Gebidum Reservoir and further along the Riederalp-Bettmerhorn to the Eggishorn. It then passes to the south of the Kleinwannenhorn, includes the foreland of the Fiescher Glacier and then strikes uphill to the chain of summits and along it to the Oberaarrothorn.

There the eastern enlargement of the perimeter begins with a boundary along the Aare crest. The Oberaar Reservoir is excluded. Likewise the Grimsel Reservoir (easternmost point). The slopes of Bächlistock and Hiendertelltihorn with an eastern exposure are included up to the Steinlauhorn. From the Bächlistock the boundary runs along the Hienderstock-Ewigschneehorn to the Bärglistock.

As a result the entire catchment basin of the Aare Glacier is included. The boundary runs north from the Bärglistock over the Dossen and to the Engelhorn (northernmost point), then descends encompassing the foreland of the Rosenloui Glacier, will embrace the Wetterhorn-Wellhorn group including the Rosenloui and the Upper Grindelwald glaciers. From the Rosenloui the boundary for the most part follows the edge of the cultivated land over the Grosse Scheidegg to the Lower Grindelwald Glacier, where it rejoins the presently existing boundary of the World Heritage site. Its boundary likewise follows the edge of the cultivated area under the north face of the Eiger to the Eiger Glacier Station and further over the Wengernalp and along the Hasen Brook down to the floor of the Lauterbrunnen Valley and then along the bottom of the slopes at the eastern side of the valley to Stechelberg.

A4 size map of the nominated property, showing boundaries

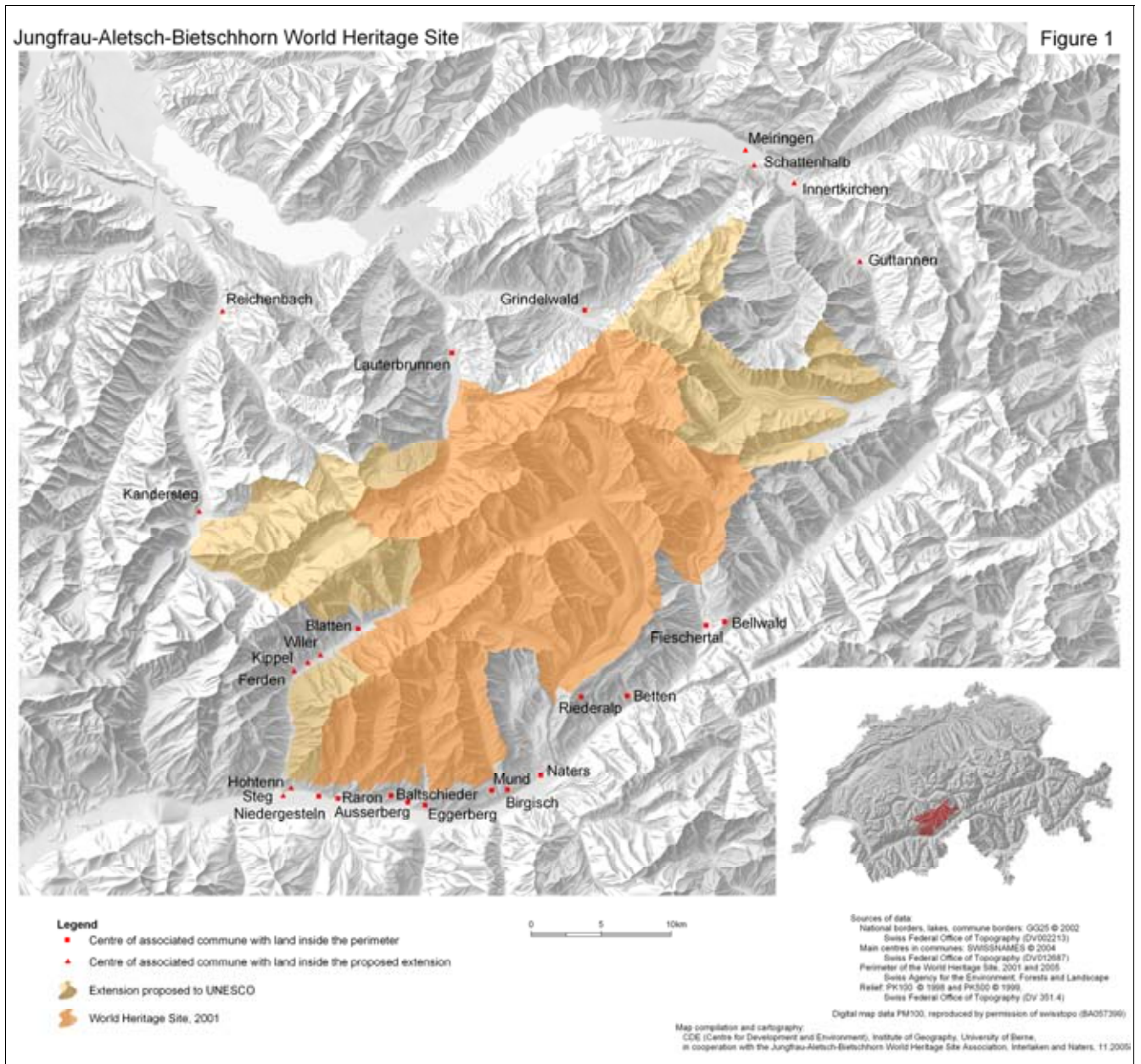


Fig. 1: Map of the since 2001 existing Jungfrau-Aletsch-Bietschhorn World Heritage Site (orange), the expansion resulting from the 2006 nomination (light orange).

Justification

Statement of Outstanding Universal Value

The following description of the existing World Heritage Site (home page of the World Heritage Center) remains applicable without alteration to the extended territory:

This is the most glaciated part of the Alps, containing western Eurasias's largest glacier and a range of classic glacial features such as U-shaped valleys, cirques, horn peaks and moraines. It provides an outstanding geological record of the uplift and compression that formed the High Alps. The diversity of flora and wildlife is represented in a range of Alpine and sub-Alpine habitats and plant colonization in the wake of retreating glaciers provides an outstanding example of plant succession. The impressive vista of the North Wall of the High Alps, centered on the Eiger, Mönch and Jungfrau peaks, has played an important role in European art and literature.

The extension means that further areas, which for the observer are inseparable from this unique mountain landscape, are integrated with the World Heritage property, which extends now to the entire northern face of the Aare massif, from the Jungfrau to the Engelhorns. Similarly, the Grimsel region in the south-east. In the west, with the Doldenhorn and Blüemlisalp massif, the World Heritage property now includes the highest limestone peak in the Alps, and to these are joined the Eiger, Wetterhorn, Wellhorn and Engelhorns in the north-east.

Criteria under which property is nominated (itemize criteria)

The three criteria, which were already complied with by the existing World Heritage Site in 2001, are applicable without restriction to the extended area and are therefore submitted anew in a slightly modified form.

Criterion (vii)

The impressive landscape of the Jungfrau-Aletsch-Bietschhorn site has played an important role in European literature, art, mountaineering and alpine tourism. The aesthetics of the area have attracted an international clientele and it is globally recognized as one of the most spectacular mountain regions to visit.

Criterion (viii)

The Jungfrau-Aletsch-Bietschhorn site is the most glaciated area in the Alps and incorporates the Great Aletsch glacier, the largest and longest in western Eurasia. It is thus of significant scientific interest in the context of glacial history and ongoing processes, particularly related to climate change.

Criterion (ix)

The Jungfrau-Aletsch-Bietschhorn site provides a wide range of alpine and sub-alpine habitats. Superb examples of ecological succession exist, including the distinctive upper and lower tree-line of the Aletsch forest. The global phenomenon of climatic change is particularly well illustrated in the site, as reflected in the varying rates of retreat of the different glaciers, in turn providing new substrates for ongoing ecological succession.

Name and contact information of official local institution/agency

Organization:

Association UNESCO-World Heritage Jungfrau-Aletsch-Bietschhorn

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Web address: www.welterbe.ch

1 Identification of the Property

1.a Country (and State Party if different)

Switzerland

1.b State, Province or Region

Cantons of Berne and Valais

1.c Name of Property

Jungfrau-Aletsch-Bietschhorn

1.d Geographical coordinates to the nearest second

N 46° 30' 00" / E 8° 02' 00" center of Konkordiaplatz

1.e Maps and plans, showing the boundaries of the nominated property

The nominated Jungfrau-Altesch-Bietschhorn (JAB) property includes the largest central massif in Switzerland (Aare Massif), with its unique glacial landscape. The delimitations of the area follows with its extension, wherever possible, a natural route (see Suppl. 1, Topographical Map). The perimeter has been conceived to provide a buffer zone, which was integrated into the area where possible

Possible threats to the World Heritage property arise from tourism development within the property. The area borders in part directly onto existing winter sport areas. Here tourist facilities have already been built (Region Kleine Scheidegg-Station Eiger Glacier-Belalp). In other border areas, touristic use is not foreseen or possible due to the topographic conditions, natural hazards (avalanches, rockfalls, ice conditions), or legal protection (Federal inventory of landscapes worthy of protection, BLN, Annex 1).

1.f Area of nominated property [ha]

Area of the inscribed World Heritage Site	53'900 ha
Nominated extension	28'500 ha
Total	82'400 ha

Annex: 1

Supplement: 1

2 Description

2.a Description of Property

2.a.1 Climate

The climate within the nominated area is characterized by a marked north-south contrast. The northern front chain of the Bernese Alps, which makes up part of the main Alpine watershed, functions as a north-south wet weather barrier. In the north a moist-cool, sub-oceanic climate prevails, while the Valais, as a result of its intra-Alpine location between the large mountain chains of the Valais and the Bernese Alps, forms a dry island with a subcontinental climate. In regard to seasons there is a great difference between the northern and the intra-Alpine locations. In the north summer precipitation (April to September) exceeds winter precipitation in volume. In the intra-Alpine area on the contrary precipitation is greater in winter than in summer.

The following data and figure give an accurate picture of the precipitation and temperature conditions. (The choice of locations results from the placement of existing weather stations.)

Table 1: Distribution of precipitation at various points in and near the nominated property.

Station	Altitude (m a.s.l.)	Annual totals of precipitation (mm)
Interlaken	568	1176
Lauterbrunnen	818	1193
Grindelwald	1050	1420
Kleine Scheidegg	2061	1598
Eiger Glacier Station	2320	1910
Mönchsgrat	3810	3020
Aletschwald	2075	1226
Ried (Lötschen Valley)	1480	1100
Brig	671	758

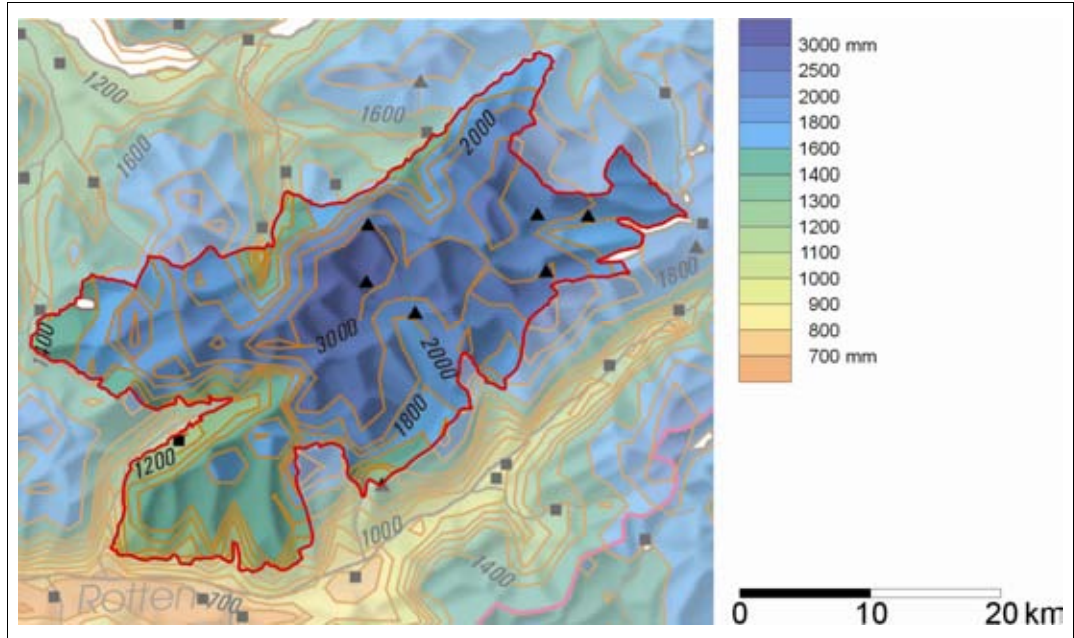


Fig. 2: Annual totals of precipitation (average over 20 years, 1971–1990) (R. Schwarb et al. 2001, mod. Weingartner, 2005).

Table 2: Temperatures at various measurement points in and near the nominated property.

Station	Altitude (m a.s.l.)	Mean yearly temperature (°C)
Interlaken	568	8,1
Grindelwald	1050	5,0
Jungfrauoch	3579	-8,5
Brig	671	9,1

The extension of the perimeter implicates:

The expansion of the perimeter does not lead to the inclusion of any areas with new special macroclimatic characteristics.

2.a.2 Geology

The chain of peaks of the Bernese High Alps (Wetterhorn-Schreckhorn-Eiger-Mönch-Jungfrau-Gletscherhorn-Breithorn-Blüemlisalp) is one of the most celebrated mountain vistas in the world. This mountain chain is – as is, by the way, the whole nominated area – an outstanding testimony of Alpine orogeny.

The nominated area is located from a macrotectonic point of view mainly in the crystalline of the Aare massif and partly in the area of the Helvetic nappes. Helvetic is the name given in the Alps to the northernmost sedimentation area of the predecessor to the Mediterranean Sea, the Sea of Tethys, and also to the sediments deposited therein and the nappes that were later formed from them during the Alpine orogeny (Annex 3).

The Aare massif consists in principle of two main structural elements, namely of an old, so-called crystalline complex of metamorphic rocks and intercalary beds of younger granite bodies. The rocks of the old crystalline were created during the Caledonian orogeny during the Silurian/Ordovizium, 420–450 million years ago, from even older rocks. The granite on the other hand intruded into the metamorphic rocks during the Hercynian orogeny in the Carboniferous 300–350 million years ago.



Fig. 3: The chain of peaks of the Bernese High Alps with Eiger, Mönch und Jungfrau (Photo: T. Labhart).

During the Alpine orogeny in the Tertiary 20–40 million years ago the Aare massif was compressed, splintered and slightly metamorphosed. However, unlike the surrounding rock complexes, it was not included in the nappe structure with the ensuing considerable lateral dislocation.

In terms of surface area, metamorphic rocks of the old crystalline predominate. They are principally rather monotonous gneisses and mica schists with thick intervening beds of amphibolite. They underlie all four thousand-meter peaks of the nominated area: Jungfrau, Mönch, Aletschhorn, Fiescherhorn, Grünhorn and – at 4274 m above sea level the tallest peak of the area – the Finsteraarhorn. The two last named mountains consist of green, compact, weathering-resistant amphibolite, a rock that presumably arose from oceanic basalt created a thousand million years ago.

Owing to the Alpine compression, the yet continuing uplift and the marked erosion resulting from it, the Aare massif shows today the attractive relief of a young, tall mountain chain. Contemporaneous extra-Alpine mountain massifs like the Black Forest and the Vosges have long since been ground down to a relatively modest size.

Between the Hercynian and the Alpine orogeny and during the whole Mesozoic for about 200 million years, the Aare massif was covered by a tropical sea. Its calcareous sedimentation, the Helvetic sediment pile, overlay the crystalline as a horizontal layer of kilometres in thickness. This simple geometry was completely transformed by the following Alpine orogeny. Many sediment packets were evidently inclined, folded and dislocated (Annex 4, 5, and also Suppl. 4). Helvetic sediments are to be found on the northern, western and south-western edge(s) of the nominated area and are placed in front of, on top of, or as intercalary strata within the Aare massif crystalline. Between the Engelhorn and the Jungfrau are the massive northern precipices of the Aare massif, in the northwest the mountain massif of the Gspaltenhorn and the Blüemlisalp and Doldenhorn group. They are all well stratified and often folded sedimentary rocks. Limestones of all kinds predominate; in addition there is marl, shale, sandstone and dolomite. During the Alpine folding most of the sedimentary covered mountain was scraped off and transported north as Helvetic nappes. With it the highest and northernmost shards of the old crystalline were swept along; the remains of its erosion stand today at the summits of the Jungfrau and the Mönch overlying strata of limestone. This inversion of the geological order – gneiss over limestone – greatly puzzled the pioneer generation of geologists in the 19th century.



Fig. 4: The Aletschhorn seen from the Sparrhorn, summit of gneiss on a base of central Aare granite (Photo: T. Labhart).

The Geological Units of the Property

Crystalline Rocks of the Aare massif

The Old Crystalline

“Old crystalline” is the name given in the Aare massif (and the other central massifs) to the entirety of the metamorphic rocks that are older than the Hercynian granites (“pre-Aare granitic gneiss complex”). The criteria are the ubiquitous primary intrusion contacts with the granite. This complex covers more than 50% of the surface of the territory. It was split up secondarily by the intrusion of the granite into elongated strands with a SW-NE orientation (Annex 3). The old crystalline is a fascinating rock complex of varied petrologic content and structure and whose origin is as yet poorly understood. Except for the Lauterbrunnen-Innertkirchen crystalline in the north (see below), and the Erstfelden gneiss that reaches from the east through the Gauli area up to the Schreckhorn, it is impossible to classify the area. Although no datings have been

performed on any old crystalline rocks from within the nominated territory, there are many indications that the metamorphism is Caledonian. Dating of Erstfelden gneiss in the Susten area and of Innertkirchen crystalline gave ages of about 440–450 m.y.a. Likewise regarding the age of the original materials (“protoliths”) there are few clues. As to the amphibolites and the rocks associated with them there are indications that they may be oceanic mantle and crust rocks (basalts and peridotites) with an age of 800 to 1000 m.y. If that is the case, then they witnessed part of the early plate-tectonic prehistory of Europe. Among the rocks dominate gneiss, schist and serpentinite/amphibolite.

Owing to the decrease in quartz and feldspar and the increase in mica, gneiss often makes a smooth transition into thin-layered schist. The schist surfaces mostly dip steeply toward the southeast. Such rocks are extremely widespread on the southern edge of the

Aare massif along the Rhone Valley ("southern schist and gneiss area"); in this region a kind of gneiss with lens-shaped feldspar, so-called "eye-gneiss" is especially widespread. It may be extremely old metamorphosed granite. Many schist areas were created from older gneiss by tectonic processes during the Hercynian and/or the Alpine orogenies. The schist zone of the Lötschen Valley with its folds of carboniferous strata (coal at Ferden and volcanic rocks) presumably originated in the Hercynian age. On the other hand the schist zones along the folded Mesozoic sediments in the southwest are clearly Alpine (e.g. Schiltfugge, Baltschieder Valley). Gneiss and schist make up the four-thousand meter peaks Schreckhorn, Lauteraarhorn and Grosser Fiescherhorn.

Amphibolites contain mainly green hornblende (amphibole) and white feldspar. They are widespread on the south slope of the Lötschen Valley. There is another concentration in the Grünhörner-Finsteraarhorn area, where amphibolites make up the highest peaks of the Bernese Alps. Typically they are accompanied by serpentinite. Within the amphibolite zone they are very frequent on the south side of the Lötschen Valley at altitudes between 2100 and 2300 m above sea-level, where they appear as lenses varying in size from a few cubic meters to 100 m³. Serpentinite – a metamorphic peridotite formed from the oceanic mantle – is composed mainly of the soft, flaky minerals talcum, serpentinite (antigorite) and chlorite in varying proportions.

The Innertkirchen-Lauterbrunnen crystalline makes up for more than 50 km the northern edge of the Aare massif between the Lauterbrunnen Valley and Titlis. Its rocks are conspicuously heterogeneous: within a granitic mass there are many incrustations ("clods") of older rock like gneiss, marble, amphibolite, etc. This is a migmatite, a rock whose granite component was created on the spot by partial melting of old crystalline gneiss. According to tests performed on samples from the Innertkirchen area this process took place about 440 m.y. ago. The rearmost portion of the Lauterbrunnen Valley, the base as well as the overthrust peak of the Jungfrau, the Gleckstein area and the surroundings of the Dossen hut and the Dossenhorn are composed of this interesting rock. In the foreland of the Tschingel Glacier in the Lauterbrunnen Valley and the Krinnen Glacier above the Gleckstein hut, magnificent outcrops polished by glaciation can be seen.

Aare Granites and Eastern Granites

As can be seen from the geological map (Annex 3), central Aare granite in the Aare massif constitutes a central zone parallel to the massif. The granites attain their greatest thickness in the Grimsel profile with a breadth of 10 km. Here a differentiation can likewise be noted among various types of granite: apart from the usual light-coloured Aare granite in the strict meaning of the term (which has uniform characteristics between Bietschhorn and the Oberalpstock in Canton Uri) there is a slightly darker, mica-speckled Grimsel granodiorite (Grimselnollen-Passhöhe-Zinggenstock) and the very light southern Aare granite of Grimsel Pass Heights and the Sidelhorns. In the north we see an addition of Mittagflue granite, which is separated from the main bulk partly by a shard of old crystalline. Central Aare granite in the narrower sense is a light, grainy, massive (in certain areas slightly schistic) rock with the classical granite minerals: quartz, feldspars (white potassium feldspar and greenish plagioclase) and green mica (biotite). It remains light in colour even when weathered and is consequently easily distinguishable from the red-brown or dark weathered rocks of the old crystalline.

Radiometric dating has shown that the various granites result from intrusions that occurred in quick succession between 300 and 295 m.y.a., in the following sequence: Grimsel granodiorite – central Aare granite (in the broad sense) – Mittagflue granite.

Toward the west the Aare granite complex breaks up into several parallel massifs separated by segments of the old crystalline. The southern Aare granite stretches from Sidelhorn through the Aare ridge and the Galmihorn und Wasenhorn massif to the lower Fiescher Glacier. Here and in the area south of Kleiner Wannenhorn it attains a maximum thickness of some 5 km, then tapers out quickly before dipping at Märjelen Lake under the old crystalline. The geometry of such granite bodies can be highlighted by means of a profile series of two northern strands located west of the Aletsch Glacier (Annex 5). The northern strand begins at the foot of the western ridge of the Fiescher-Gabelhorn close to the Concordia hut. It passes under the Dreieckhorn and forms – covered by a peak consisting of old crystalline gneiss – the base of the Aletschhorn. In the southeastern prolongation it constitutes a chain of quite impressive mountains on the south side of the Lötschen Valley, whose names, from east to west, are Weisshorn, Schinhorn, Nesthorn, Breithorn, Breitlauhorn, Stockhorn and finally the Bietschhorn, which represents the culmination and high point from the standpoint of landscape and morphology. In the

southwest, in the upper Joli Valley, it dips under the gneiss of the Hohgleifen-Wannihorn chain; the tunnel at the base of in the Lötschberg cuts into it.

The southern strand forms the Olmenhorn, the Zenbächenhorn, the Fusshorns, parts of the Belalp and the Grisighorn. Its eastern continuation is to be found dipping down at the east side of the Aletsch Glacier. In the southwest the strand of granite dips on the western side of the Gredetsch Valley. There it underlies older granite, namely the Baltschieder granite, which continues toward the west and has also been found in the Neat tunnel. Similar granite and granodiorites accompany this strand both in the north and the south (Annex 5).

What appear on the map as elongated strands are therefore flat vertical plates of several km in thickness that continue into the depths and also dip lengthwise under the old crystalline. The granite magma flowed from the depths into fractures as they were forming in the old crystalline; it halted several km under the surface and there crystallised into coarse-grained granite. The old crystalline rock that originally lay above it has been eroded away at many places. At a few spots (as for example at the Aletschhorn) the erosion left behind caps of gneiss resting on granite bases. An observer looking south from the Bietschhorn receives the impression that the granite overlies the gneiss; however this is an illusion created by the topography. The proof that the granite is younger than the old crystalline lies in the fact that at some spots (for example on the north ridge of the Bietschhorn or in the Joli Valley) lumps of gneiss are incrustated in the granite.

The intrusion of the Aare granites was accompanied on the surface by volcanic activity. Its traces are preserved only at a handful of places at the edge of the area, as for example at Oberaar Lake and at the western end of the Lötschen Valley. They are frequently accompanied by sediments ("volcano-sedimentary formations") or by coal deposits (Ferden Carboniferous).

Gastern granite is about 300 m.y.o., about as old as Aare granite. The compact rock was only barely metamorphosed into shale by the Alpine orogeny. It contains hexagonal brown mica inclusions and forms outcrops on the floor of the upper Gastern Valley and on the base of the Hockenhorn-Sackhorn-Petersgrat chain, covering an area of about 30 km². The lower portion of the granite body is penetrated by both the old and the new Lötschberg tunnels. The Gastern granite was denuded early on, in the Permian. At places it displays spectacular desert-type erosion features overlain by Triassic sediments.

The Helvetic Sedimentary Unit

The Autochthon

Autochthonous sediments can be found almost everywhere on the edge of the Aare massif. Their varied bedding – at different places either vertical, folded or even overlain by old crystalline – is the result of events that occurred during the Alpine orogeny. The overlay of the autochthon over the old crystalline can be clearly seen at Stechelberg and in the Gastern Valley. From here on this contact surface climbs toward the south reflecting the domed shape of the massif. The most conspicuous rocks are the white sandstone and the yellow dolomite bed of the trias, overlain by the brown Dogger limestone, at many places rich in fossils, and the thick Malm limestone, the so-called high mountain limestone. On the Lötschen Pass and under the peaks named Hockenhorn, Sackhorn and Elwertätsch the trias lies almost horizontally on the Gastern granite, which shows signs of Permian weathering.

In the SW one can see autochthon that was folded into the Aare massif along Alpine compression zones (Baltschieder, Gästhorn, Bietsch Valley). In the Raron-Hohtenn-Gampel area the autochthon overlies the southern edge of the massif as steeply inclined slabs. On the N edge of the Aare massif the autochthonous sediments are overlain by the aforesaid crystalline packets that were swept along by the overthrust of the Helvetic nappes. They constitute a series of peaks: Hockenhorn, Mutthorn, Tschingelhorn, Breithorn to Gletscherhorn, and the caps of the Jungfrau, Mönch, Mettenberg and Gstellihorn peaks. These formation relationships are shown in Annex 4. This profile series provides graphic evidence that in the south the submerged autochthon degenerates into narrow beds pinned between crystalline blocks. The strand that leads westward from the Jungfrau has become known in the literature as the Jungfrauwedge. It runs through the north face of the peaks from the Gletscherhorn to the Berithorn, further west it crops out in the background of the southern lateral valleys of the Lötschen Valley (Jegi, Inners and Uisters Valley, in the Telli) and is also pierced by the Neat-Lötschberg base tunnel. At the Eiger and the Wetterhorn, as well as at the Wellhorns und Engelhorns, the autochthonous sediments – especially the high mountain limestone – were turned into a vertical position by the crystalline front. This produced the impressive cliffs that form the southern boundary of Grindelwald Valley and the Rosenlauri.

The Doldenhorn nappe

The Doldenhorn nappe is a para-autochthonous overthrust fold that was propelled only a few km to the NW (Annex 6). In the late Alpine the massif bulged upward together with the crystalline and became the highest limestone massif in the Alps. The geological structure – large overthrust folds dipping toward the NW – here determines the shape of the mountains with a clarity seldom seen elsewhere. Slabs dipping to the NW (Blüemlisalp, Doldenhorn), in the SE steep terraced slopes (steep inclination of the Doldenhorn-Blüemlisalp-Gspaltenhorn chain down to the Kanderfirn). Moreover the Dolderhorn nappe is a good example of the link between rock and morphology. The Dogger, being the oldest stratum, makes up the center of the folds. It can be seen on the southern precipices, and at its most dramatic on the southern walls of the Doldenhorn-Blüemlisalp massif. The enormous, blue-grey high mountain limestone of the Malm constitutes virtually all the highest peaks: Gspaltenhorn, Morgenhorn, Wyssi Frau, Blüemlisalphorn, Oeschinenhorn, Fründenhorn and Doldenhorn, further to the west Altels and Rinderhorn. In the soft, marly limestones of the lower Cretaceous there are many transition points embedded in the approaches to the high peaks (e.g. Bütlassesattel and Rothornsattel). An additional vista of impressive peaks, although not as tall, is made up of the hard, slab-like limestones and flint limestones of the Cretaceous: Bütlasse, Wildi Frau, Blüemlisalp-Rothorn, Ufem Stock and Spitzstein. The Cretaceous strata of the Doldenhorn nappe dip in the form of a cascade toward the NW. However this spectacular fold structure can only be seen in transversal valleys like the lower Gastern Valley or above Oeschinen Lake.

An area of mountain passes – Sefinenfurgge, Hohtürli, further west also Gemmi – finally marks the seam at which the Doldenhorn nappe begins to be overlain by higher nappes (that is, nappes from further south). These are the thin Gellihorn and the thick Wildhorn nappes. Toward the east the Doldenhorn nappe tapers out in the area of the Lauterbrunnen Valley. Its much reduced prolongation is located in thin, para-autochthonous flakes in the Grindelwald-Grosse Scheidegg-Rosenloui area. Therein lie the marbles of Grindelwald and Rosenloui.

The Wildhorn Nappe

As a result of aforesaid tapering out of the Doldenhorn nappe, the Wildhorn nappe abuts the autochthon and the para-autochthonous flakes on the line joining Lauterbrunnen–Grindelwald–Rosenloui. To the NW of here it constitutes the entire segment of mountains up to and beyond Brienz Lake. This Wildhorn nappe is a rootless mass of strata that was swept over the Aare massif and the autochthon/para-autochthon and split into two parts: the Dogger-Malm portion that straggled in the rear, and a Cretaceous portion that was propelled to the NW. As a result of this analogy with conditions in central Switzerland, the Wildhorn nappe of the eastern Bernese highlands was recently divided into two parts, an Axen nappe (Dogger-Malm portion) and a Drusberg nappe (Cretaceous portion). Even though the Wildhorn nappe barely touches the nominated area at the Wengeralp, its rocks constitute the entire northern foreland that must be crossed in any approach from the north: they are the railway lines Interlaken–Lauterbrunnen–Stechelberg, Interlaken–Grindelwald–Kleiner Scheidegg and Interlaken–Brienz–Meiringen, and the hike or post bus ride Grindelwald–Grosser Scheidegg–Rosenloui–Meiringen.

The Dogger, represented by dark, frangible clay schist and brown schisty limestone, dominates the area of Lauberhorn, Kleiner Scheidegg, Grindelwald, First, Faulhorn, Grosser Scheidegg and northern Rosenloui. Grey, bulky Malm limestones can be found for example in the Schynigen plate. The succession of Cretaceous strata dominate the Harder–Brienzergrat–Brienzerrothorn chain north of Brienz Lake.

Glaciations and Formation of Relief

In the Quaternary a worldwide cooling led to extensive glaciation of the Alps. At the time of the greatest glaciation the ice cap reached a height of 2800 m above sea level over the Obergoms (SE part of the nominated area). The maximum height attained by the ice can be seen by the edge of glacial erosion in the Aare granite of the Grimsel. Here it is also evident to what extent the ice age glaciers have marked the Alpine landscape: Kettles and the *roche moutonnée* landscape. The ice's power to erode to great depth can be seen in the example of the Gastern Valley. Its gorge had been greatly deepened by glacial action and then filled with debris. In 1908 this precarious structure collapsed, causing a disaster during the building of the Lötschberg tunnel. Another deep kettle has been detected under the ice at Konkordiaplatz. Until now its origin has remained unexplained (pure erosion, tectonic cause or – most likely – a combination of the two). Striking examples of fluvatile gorges (canyons formed by surface or subsurface drainage of meltwater from glaciers) are Trümmel Brook, the Rosenlauri Gorge, the gorge of the Oberaletsch Glacier and the overwhelming Massa gorge (that lies outside the area). Large areas of the lower-lying regions are covered with ice-age moraine detritus.



Fig. 5:
Trümmel brook in the Lauterbrunnen valley, an example of a fluvatile gorge
(Photo: L. Fischer).

During the Holocene the glaciers would sometimes advance and sometimes retreat. On the terrain, from a distance, the moraines show on the whole the maximum level attained in 1850 – known as the little ice age – with great clarity. This maximum can likewise be determined from the vegetation (succession stages). Furthermore, within the 1850 level mark no mature soils are ever found. Since the maximum attained during the Little Ice Age the glaciers have been melting fast, with a brief interruption around 1920. In the most recent past their shrinkage has been dramatically accelerated, probably as a result of the anthropogenic portion of the greenhouse effect. This shrinkage can be seen most clearly by the lateral moraines of the 19th century located high above the Aletsch and Unteraare glaciers.

The retreat of the glaciers into the interior of the Alps about 10'000 years ago caused landslides and other natural events. The mountain slopes not only lost their support, but – as a result of permafrost melting – also their internal coherence. Landslides mark the Kandersteg Kettle, where material fell from the Fisistock – leaving the unmistakable traces of the scar where the landslide originated and the path of its descent (800 million m³) – from the Birre (approx. 400 Million m³) and from the Doldenhorn, leading to the impounding of the stream and the formation of Oeschinen Lake.



Fig. 6 : The edge of the glacier-polished surface in the Brunhorn-Brandlamhorn chain north of Grimsel Lake (south-eastern part of the extension area). The upper edge of the snow coincides with the highest level of the glacier during the ice age (Photo: T. Labhart).

Past, Present and Future

For at least five hundred million years of Earth's history the nominated area has been the stage of all conceivable geological and geographical scenarios: tropical sea, desert climate and arctic glaciation, plate shifts and collisions leading to three successive cycles of uplift and erosion of mountain chains at intervals of 150–200 million years, accompanied by magmatism, vulcanism on both continent and sea floor and metamorphosis in the bowels of the earth. Within a small space a summary of Central Europe's geological history can be found.

The development is by no means concluded. While we are most struck by signs of erosion, of disintegration: weathering, rockfall, landslides, floods, measurements show that the Alps continue to rise at a speed of 0,5 to 0,7 mm per year. These values exceed the rate of erosion, which implies that the mountains are actually growing. Seismic activity in the Rawil and the Siders-Visp-Brig areas – the strongest in Switzerland – likewise indicates that the orogenic processes have by no means ended.

The extension of the perimeter implicates:

The extension increases the crystalline area (Grimsel, Gastern Valley and Bietschhorn regions). Other important, new elements become involved, in particular from the Helvetic sedimentation region, which in the current World Heritage property perimeter are only slightly represented, if at all. These include autochthonous sediments, mainly in the Wetterhorn-Engelhörner region, the paraautochthonous Doldenhorn nappes, and, although only to a limited extent, elements of the allochthonous Wildhorn nappes.



Fig. 7: Upright Mesozoikum in Gross Wellhorn (part of the north-eastern extension area Wetterhorn-Engelhörner), view from east (Photo: T. Labhart).

2.a.3 Geomorphology/Geography

Geomorphology and Glaciers

The large-scale geomorphological structure reflects geological (especially tectonic and petrographic) relationships. The region shows a steep north flank and a gentler south flank, with the boundary between them formed by the main chain of the northern Alps, which is at the same time a principal water divide of Europe. The northern side drains into the Aare and ultimately via the Rhine into the North Sea; the southern side, via the Rhône into the Mediterranean. Valleys align with geological zones of weakness and have been repeatedly remodelled by glacier action.

The chief valleys on the northern side, the Lauterbrunnental and the valley of the Lower Grindelwald Glacier, are aligned south to north. Parallel to the west-to-east trend of the Alps runs the Lötschental-Lötschenlücke-Grosser Aletschfirn-Grünhornlücke furrow with its continuation toward Grimsel (upper Aletsch) in a schisty zone of Altkristallin susceptible to erosion. The Gasterntal, on the boundary between the Gasterntal granite and the Doldenhorn nappe, also parallels the Alpine trend. The glacier-filled valleys of the Great Aletsch and Fiesch glaciers run perpendicular to the trend. A series of north-south valleys lies along the Bietschhorn chain. All these originate in kettle depressions at high elevations, still covered by glaciers today. The upper parts are marked largely by glacial remodelling, while fluvial processes are dominant in the lower parts, generally from the shoulder of the trough downward. This applies to both the northern and southern sides. An extreme example in this respect is the Trümmelbach in the Lauterbrunnental, whose tributaries drain the western flank of the Eiger and the entire northern flank of the Mönch and Jungfrau before it reaches the valley floor as a torrent with its course partly inside the mountain. The side valley mouths hang high above the present-day main valleys. The principal valleys, the Lauterbrunnental and the Rhône valley (*Rhonetal*), have also been remodelled by glacier action; the Lauterbrunnental in particular is a textbook example of a U-shaped valley.

The valleys also control the pattern of the culminations: the Jungfrau in the northern chain, the Aletschhorn in the southern, the Fiescherhörner and Finsteraarhorn, which encircle the catchment area of the Fiesch Glacier and at the same time, together with the Lauteraarhorn-Schreckhorn chain and the Eiger, delimit the catchment area of the Lower Grindelwald Glacier. The Finsteraarhorn-Lauteraarhorn-Schreckhorn chain, however, also bounds the catchment areas of the Aare glacier system and, with the Wetterhorn, that of the Upper Grindelwald Glacier. The Blüemlisalp group between the Gasterntal and the Oeschinensee and the Petersgrat between the Gasterntal and the Lötschental also form part of this boundary.

The following nine freestanding peaks within the whole of the nominated area rise to elevations greater than 4000 m:

Finsteraarhorn	4274 m	Gross Fiescherhorn	4049 m
Aletschhorn	4193 m	Gross Grünhorn	4044 m
Jungfrau	4158 m	Lauteraarhorn	4042 m
Mönch	4107 m	Hinter Fiescherhorn	4025 m
Schreckhorn	4078 m		

The table below describes the distribution of area by elevation. The cumulative frequency curve in Fig. 8 shows the largest increment of area between 2200 and 3200 m above sea level. These elevations occur most frequently in the nominated area.

Table 3: Cumulative elevation distribution for the World Heritage property, the percentage portion of the total area and cumulative area for each altitude band.

Elevation (m above sea level)	Area (ha)	Area (%)
800–1000	122,25	0,1
1000–1200	437,13	0,6
1200–1400	1'023,56	1,8
1400–1600	2'195,13	4,5
1600–1800	3'460,13	8,7
1800–2000	4'645,00	14,3
2000–2200	6'074,69	21,7
2200–2400	7'629,50	31,0
2400–2600	9'724,31	42,8
2600–2800	11'288,13	56,5
2800–3000	11'224,19	70,1
3000–3200	10'101,31	82,4
3200–3400	7'080,88	91,0
3400–3600	4'656,38	96,7
3600–3800	2'064,13	99,2
3800–4000	554,75	99,9
4000–4200	74,25	0,1
4200–4400	1,63	0,0
Total	82'357,35	100,0

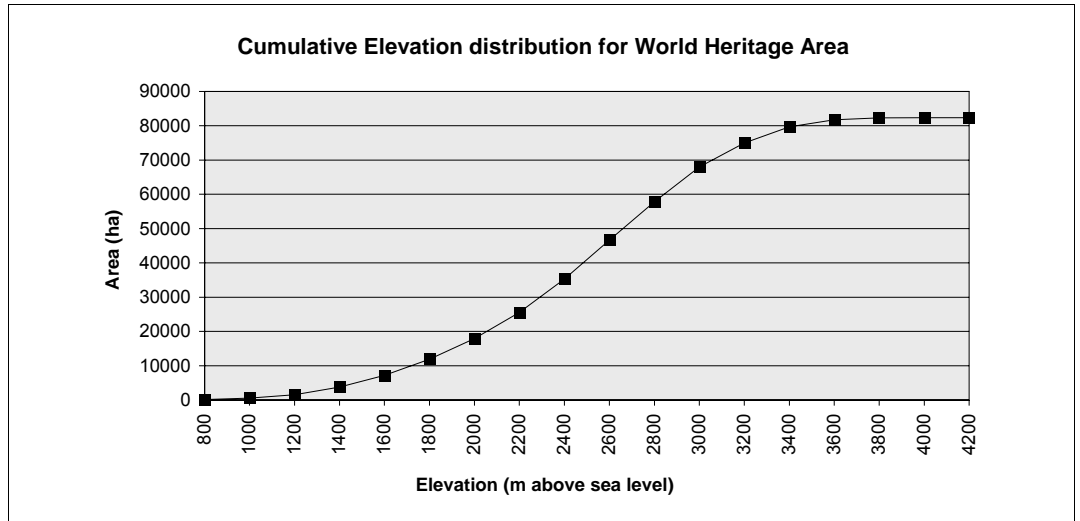


Fig. 8: Cumulative elevation distribution for the World Heritage property, the percentage portion of the total area and cumulative area for each altitude band.

The table and the figure show that about half the nominated area is higher than 2600 m above sea level. Much of this is glacier-covered, because the 2:1 equilibrium line separating the accumulation and ablation regions lies at some 2700 m on the northern and 2900 m on the southern side.

The area covered by glaciers inside the perimeter is 350 km², representing the largest contiguous area of ice in the Alps (Annex 7). The site contains five of the seven longest glaciers in the Swiss Alps, including the Aletsch Glacier, the largest in Eurasia in terms of area, length and volume. At the Konkordiaplatz, where the bed of the Great Aletsch Glacier is hugely overdeepened, an ice thickness of about 900 m was measured in 1990 and 1991. The polar icecaps are the only other places where such an enormous thickness of ice can be found.

In the context of recent history, the area covered by glaciers today is a meager remnant of what could have been seen around 1850. Even now, when the glaciers are receding, many glacial and glaciofluvial phenomena are present. These include among others the full range of glaciers (valley, mountain and plateau glaciers, the Petersgrat being an instance of the last); patches of ice and firn; various structures of the glaciers themselves, such as ogives, crevasses, glacier tables, trimlines, roches moutonnées and striae; several kinds of moraines (surface, lateral, basal and terminal); and a variety of glacier forelands (steep ones, gently sloping ones with marked glaciofluvial regions that are nearly synonymous with alluvial sites, etc.). Permafrost is widely found, chiefly at high and very high elevations. The low elevation of some glacier tongues is also noteworthy; the Aletsch and Lower Grindelwald glaciers extend farther down to low elevation than any others in the Alps.



Fig. 9: The Lower Aar Glacier (eastern part of the extension area), view from the east, with Finsteraarhorn and Lauteraarhorn in the back (Photo: H. Zumbühl).

Nearly all the glaciers in the nominated area have been inventoried, measured and classified. Data series reflecting changes in length exist for some of them. Systematic measurement programmes date from 1881 (Lower Grindelwald Glacier, initially not measured every year) and 1892 (Great Aletsch and Fiesch Glaciers).

Table 4: The glaciers in the nominated property, ranked in accordance with “2000 Length” in The Swiss Glaciers 2001 (Labhart, 2005).

Name	“2000 length” (km)	Area (km ²)
Aletsch Glacier	23,3	96,1
Fiesch Glacier	15,1	34,2
Lower Aare Glacier	12,4	29,5
Upper Aletsch Glacier	8,9	22,8
Lower Grindelwald Glacier	8,3	20,8
Langgletscher	6,7	10,1
Alpetligletscher/Kanderfirn	6,7	13,9
Upper Grindelwald Glacier	6,5	9,5
Rosenloui Glacier	5,1	6,1
Middle Aletsch Glacier	5,1	8,3
Upper Aare Glacier	4,7	5,8
Tschingelfirn	3,7	6,2
Gamchi Glacier	2,8	1,8
Blüemlisalp Glacier	2,6	3,0
Eiger Glacier	2,5	2,1
Total		270,0
Area of other glaciers		
This list omits many very small glaciers, mostly unnamed, including the Grueben and Bächlital glaciers.		80,0
Total area covered by glaciers according to Holzhauser, 2005		350,0

The extension of the perimeter implicates:

Especially noteworthy additions are the roche moutonnée landscape in the Grimsel region; the Oeschinensee, a mountain lake with its outlet underground; and the Rosenlouischlucht, a second example (with the Trümmelbach) of a fluvial gorge. The elevation distribution shifts downward slightly, with 70,2% of the area lying at less than 3000 m above sea level versus 64,7% inside the existing perimeter. The extension essentially adds no new geomorphological elements.

The extension does increase the glacier-covered area inside the perimeter from 249 to 350 km². The Upper Aare, Finsteraar, Lauteraar and Rosenloui glaciers, the Tellingletscher, the Kanderfirn and the Innerer and Äusserer Talgletscher round out the array of glaciers in this central massif. The variety of glacier types is augmented by the plateau glacier on the Petersgrat.

Land Cover and Land Use

The table below, derived from Federal Statistical Agency figures, describes various land use and land cover types in terms of area. Areas bare of vegetation together with unproductive vegetation make up some 88% of the total area. Another 6% falls into the classes of forest with closed and open crown, forest with undergrowth and thickets, while alpine meadows account for 4,7%. The remainder, in the residential and transportation classes, is marginal.

Table 5: Areas assigned to land use and land cover classes in the nominated area and percentage distribution in the existing World Heritage property.

Class	Area in nominated property		Area in existing World Heritage property
	km ²	%	%
Forest/thicket	50,61	6,1	6,0
Meadows	1,52	0,2	0,2
Alpine meadows	38,43	4,7	5,2
Water	4,36	0,5	0,3
Unproductive vegetation	65,87	8,0	8,1
Barren land	662,24	80,4	80,0
Residential/transportation	0,56	< 0,1	< 0,1
Total	823,59	100,0	

(Source: Bundesamt für Statistik, 2001b)

The extension of the perimeter implicates:

The percent distribution of land use and land cover classes does not change significantly from the existing World Heritage property.

2.a.4 Biology: Habitats/Vegetation/Flora/Fauna

The nominated area is marked by heavy glacier cover and mountainous topography. More than 80% of the area is barren under the classification system used. Unproductive vegetation, alpine meadows and forest/thickets are other characteristic forms found in the site. In spite of its barrenness, the region displays a wide variety of valuable habitats for species typical, in particular, of the Alps and High Alps. The marginal transition zones between wilderness and cultivated land are predominated by extensive use in agriculture and forestry.

Habitats

Morphodynamic processes continually create new habitats and alter or destroy them. Successional areas, present in large numbers because of the dynamic environmental conditions, form the typical habitats of this region.

Habitats here are also affected by the factors of substrate (rock), temperature and precipitation. As the elevation rises, the temperature falls and the precipitation increases, although there are climatic differences from region to region, especially between the northern and southern sides (corresponding to the Berne and Valais sides) of the main chain. The Valais side, as has been noted, is generally dryer and more continental, lying in the rain shadow of the Pennine and Bernese Alps. The Berne side is more maritime, and the Lötschental occupies an intermediate position.

High-elevation habitats are associated with glaciers, firn and snowfields, moraines, glacier forelands, rock, and scree and rubble fields. Various alpine grassland, meadow, heath and forest as well as aquatic habitats such as mountain and spring brooks are typical. The valley floors at the perimeter of the nominated area also feature habitats typical of cultivated land, especially mowed fields and meadows. The number and variety of habitats, there were differed in 4 types (pioneer sites, meadows and grazing areas, transitional areas, forests), per unit area shows a clear increase with decreasing altitude (Annex 8).

Vegetation and Flora

The nominated property covers a wide range of elevations from montane to nival zones and at the same time extends from the Northern into the Central Alps, so that many kinds of rock are encountered. The site is therefore extraordinarily rich in terms of its botany. It contains more than 500 vascular plant species above the treeline and, within the entire perimeter, more than 1800 species. What is more, it displays a great variety of mosses (716 species) and lichens (Suppl. 2, "List of Vascular Plants and Mosses in the Nominated Property").

An analyse of this data has shown that one to several endangered species occur on about 100 unites of square kilometres within the perimeter (Annex 9).

Because of the underlying geology, acidic soils (rankars and podzols), with flora typical of the primary rock, are more widespread than basic soils (rendzinas), which prevail chiefly in the region of the parautochthonous and autochthonous calcareous strata on both sides of the Northern Alpine main chain, supporting a calciphile flora. Mixtures of calciphile and calcifuge species are found where limestone scree and primary rock occur. The same holds where glaciers such as the Great Aletsch Glacier have transported calcareous rock from their catchment areas into regions where only primary rock is present.

The lowest point in the nominated area lies at 809 m above sea level in the Hinteres Lauterbrunnental on the northern side. This falls in the montane or deciduous forest zone. The subalpine or coniferous forest zone is next higher, beginning around 1300 m and extending to the treeline, the lower boundary of the alpine zone, at about 2000 m. The nival zone then runs from the snowline at 2700 m up to the highest peaks. The corresponding elevations on the Valais side are some 200 m higher.

**Forests of the
Montane Zone**

The montane or deciduous forest zone on the northern side is dominated by beech (*Fagus silvatica*). This species is, however, supplanted by other deciduous trees in the Hinteres Lauterbrunnental, for example sycamore (*Acer pseudoplatanus*), grey alder (*Alnus incana*), common ash (*Fraxinus excelsior*), wych elm (*Ulmus glabra*) and – less frequently, in pioneer stands – European white birch (*Betula pendula*). At locations that benefit from heating, bloodtwig dogwood (*Cornus sanguinea*), hawthorn (*Crataegus monogyna*), European euonymus (*Euonymus europaeus*) and Norway maple (*Acer platanoides*) occur. The deciduous forest quickly becomes interspersed with Norway spruce (*Picea abies*) as the elevation rises. The southern side is too dry for beech. It is replaced by Scotch pine (*Pinus silvestris*) to the extent that trees can grow at all, since a flora typical of various areas in central Valais has developed in the montane zone, especially on the South Ramp of the Lötschberg. A distinctive xeric flora, the Valais rock steppe (*Walliser Felsensteppe*), has formed here because of the low precipitation, low atmospheric humidity, and solar exposure resulting in a radiation-rich climate with high insolation and strong warming. The Valais rock steppe hardly climbs beyond 1000 m and is host to several drought-tolerant continental or steppe forms including species of hairgrass (*Koeleria vallesiana*), fescue (*Festuca valesiaca*), centaurea (*Centaurea valesiaca*), artemisia (*Artemisia valesiaca*) and feather grass (*Stipa pennata*), which also support a corresponding fauna (butterflies, grasshoppers, praying mantises, green lizards, snakes and birds).

**Forests of the
Subalpine Zone**

The iconic tree of the subalpine zone is the Norway spruce, but some of its stands have disappeared as a result of clearances. Places regularly subject to avalanches are occupied chiefly by green alder (*Alnus viridis*). On the northern side, as above the Wengern Alp and below the Mittellegigrat, spruce is intermingled with dwarf mountain pine (*Pinus mugo* ssp. *mugo*) and less frequently with rowan (*Sorbus aucuparia*) and birch (*Betula pendula*).

In higher-insolation regions on the southern side, spruce gives up some ground to continental tree species. Virgin soils such as those in glacier forelands are soon colonised by European larch (*Larix decidua*). Climax forests, on the other hand, are dominated by arolla pine (*Pinus cembra*). One of the most splendid examples, where the entire successional series can be traced from pioneer vegetation to climax forest, is the foreland of the Great Aletsch Glacier together with the adjoining Aletsch forest. Moraines from the stade of the 1850s divide this forest area in two. Located inside the moraines are young, mineral-rich virgin soils with a pioneer fauna that follows the receding glacier. Broadleaved plants and grasses are abundant in the pioneer associations, but large numbers of young trees are also present. Species represented include larch (*Larix decidua*), spruce (*Picea abies*), birch (*Betula pendula*) and aspen (*Populus tremula*). Outside the 1850s moraines, mature soils (podzols) support an arolla pine and larch forest with some very old trees and a distinctive population of low bushes dominated by Alpine rose (*Rhododendron ferrugineum*) and bilberry (*Vaccinium myrtillus*). Even though it has been under protection since 1933, the Aletsch forest is not a virgin forest, for intensive use (timbering and forest pasturage) continued into the 1920s.

While arolla pine and larch are found on the northern side as well, inside the perimeter they occur only in isolation and close to the treeline, for example at the foot of the Eiger and on Alp Understeinberg in the Hinteres Lauterbrunnental. The arolla pine stands on the Sunnig Aare in the Grimsel area deserve special mention as relicts of earlier intensive use that ceased long ago.



Fig. 10:
The Valais rock steppe
(Walliser Felsensteppe)
with the small village of
Erl (Photo: S. Eggel).

**The Low Bush Belt
and Alpine
Grasslands**

Just above the present-day treeline, as a rule, there is a distinct belt of low bushes including hairy Alpine rose (*Rhododendron hirsutum*) on basic substrates and Alpine rose (*Rhododendron ferrugineum*) on acidic rocks.



Fig. 11: Lake-margin sedge wetland with cotton grass (*Eriophorum* sp.), Märjelensee, Valais (Photo: S. Ehrenbold).

A wide variety of associations are found, depending on environmental factors such as bedrock, exposure, elevation and morphodynamics. Widely encountered forms include bent sedge meadows (*Caricion curvulae*) and *Festuca varia* grasslands on primary rock; mat-grass meadows, blue moorgrass swards and rusty sedge meadows on carbonates and on carbonate and silicate scree; snowbed communities typical of both base-rich and acidic soils; and cryoplankton including the pink-snow alga *Chlamydomonas nivalis*. Less common are alpine azalea and Elynyion associations as well as meadows of glaucous sedge (*Caricion firmae*). Various communities associated with glacier forelands, that is, the full range of alpine meadows and scree habitats in all successional and zonal stages, are of special significance, including in particular stands of willow herb and stream bank associations.

Bogs and Fens

On suitable substrates, as at Wengern Alp and Alp Understeinberg in the Hinteres Lauterbrunnental, acidic bogs and basic fens have developed. Indeed, there is a transitional bog at an elevation of 2017 m in the Aletsch forest. Study of this body by pollen analysis has yielded a vegetation history covering more than 9000 radiocarbon years since the region became ice-free. A vast number of large, small and tiny wetlands, mostly acidic marginal sedge bogs (*Kleinseggenriede*) with roundleaf sundew (*Drosera rotundifolia*) among other species, are present in basins of the Grimsel roche moutonnée landscape.

Fauna

The range of elevations means that chiefly subalpine to alpine fauna should be expected. Neither the fauna of the nominated area nor population figures are known in adequate detail. Only a few quite typical species are listed here; for the rest, it can be assumed on grounds of climate that invertebrate biodiversity in particular will be much greater on the Valais side (Lötschberg South Ramp) than on the Berne side. In all 1243 species have been confirmed in the nominated property: 42 mammals, 8 reptiles, 99 birds, 4 amphibians, 97 molluscs and 979 insects (Suppl. 3, "List of Faunistic Data").

hoofed animals

Of mammals, the hoofed animals are most prominent. The area harbours a large population of chamois (*Rupicapra rupicapra*). The Alpine ibex (*Capra ibex*), extirpated throughout Switzerland at the beginning of the 20th century but now reintroduced, is also represented by multiple colonies. It seems probable on the basis of geography that the colonies in the Berner Oberland are genetically separated from those of Valais. Another typical representative of the alpine/subalpine fauna is red deer (*Cervus elaphus*), found on both the Berne and Valais sides although the Valais populations are much greater. This species had vanished from the nominated area at the beginning of the 20th century but was reintroduced to the Aletsch forest in 1934. Inward migration from the Obergoms to the east in the 1960s and 1970s boosted the population, which has now grown to the point that it must be regulated in order to protect the forest. Roe deer (*Capreolus capreolus*) is not common in the subalpine and montane zones because of the elevation and the depth of winter snow.



Fig. 12: Two typical hoofed animals of the Jungfrau-Aletsch-Bietschhorn area: Alpine ibex (*Capra ibex*) and chamois (*Rupicapra rupicapra*) (Photo: L. Fischer).

- Carnivores** Among carnivores, lynx (*Felis lynx*), wiped out but reintroduced, is confirmed on the Berne and Valais sides. It is possible that wolf (*Canis lupus*) may also make a reappearance in the next few years. Other typical representatives are red fox (*Vulpes vulpes*), ermine (*Mustela erminea*), white weasel (*Mustela nivalis*) and stone marten (*Martes foina*).
- Typical subalpine and alpine species present in the nominated area also include marmot (*Marmota marmota*) and white hare (*Lepus timidus*).
- Birds** The subalpine-alpine avifauna is also well represented. Part of the Important Bird Area Aletsch Region (IBA No. 23) lies inside the nominated property. This IBA is among the most important in Switzerland for seven species: rock partridge (*Alectoris graeca*), Alpine accentor (*Prunella collaris*), rufous-tailed rock thrush (*Monticola saxatilis*), wallcreeper (*Tichodroma muraria*), yellow-billed chough (*Pyrrhocorax graculus*), white-winged snowfinch (*Montifringilla nivalis*) and citril finch (*Serinus citrinella*). Other characteristic or easily identified species are golden eagle (*Aquila chrysaetos*), common kestrel (*Falco tinnunculus*), raven (*Corvus corax*), chough (*Pyrrhocorax pyrrhocorax*), rock ptarmigan (*Lagopus mutus*), black grouse (*Tetrao tetrix*), hazel grouse (*Bonasia bonasia*), nutcracker (*Nucifraga nucifraga*) – formerly killed because it was thought harmful to arolla pine – black woodpecker (*Dryocopus martius*), green woodpecker (*Picus viridis*) and great spotted woodpecker (*Dendrocopos major*). Populations of rock ptarmigan and black grouse in the Aletsch region have been tracked for some 30 years because these species are threatened throughout the Alps as a result of tourism. Bearded vulture (*Gypaetus barbatus*) has been observed from time to time, as in March 2005 in the Sefinenfurgge region. Boreal owl (*Aegolius funereus*) and Eurasian pygmy owl (*Glaucidium passerinum*) have also been confirmed.
- Reptiles** Reptile species including common viper or European adder (*Vipera berus*), European asp (*Vipera aspis*), common lizard (*Lacerta vivipara*), wall lizard (*Podarcis muralis*) and even green lizard (*Lacerta viridis*) have been confirmed – the last of these, however, only on the Valais side.
- Amphibians** The amphibians Alpine salamander (*Salamandra atra*), Alpine newt (*Triturus alpestris*), European common toad (*Bufo bufo*) and European common frog (*Rana temporaria*) occur on both the northern and southern sides of the area. In keeping with the elevation, the fish fauna is relatively species-poor. The following are confirmed: brook trout (*Salmo trutta fario*), bullhead (*Cottus gobio*) and minnow (*Phoxinus phoxinus*). Non-autochthonous species including lake trout (*Salvelinus namaycush*), rainbow trout (*Oncorhynchus mykiss*), perch (*Perca fluviatilis*) and rudd (*Scardinius erythrophthalmus*) are present especially in the Oeschinensee.
- Invertebrates** The invertebrates have also developed great species diversity. For reasons of climate, the diversity is much greater on the Valais side (Lötschberg South Ramp) than on the Berne side. Among the specialties of the glacier fauna is the glacier flea (*Isoptoma saltans*), which is not a true flea but a springtail whose optimal temperature is barely above 0 °C.

Fig. 13:
A specialty of the glacier
fauna: the glacier flea (*Iso-
toma saltans*) (Photo: L.
Albrecht).



**The extension
of the perimeter
implicates:**

So far as is known, the perimeter extension does not add any new habitats or, aside from the fish fauna of the Oeschinensee, new species.

2.b History and Development

Geology

The region acquired its present form over about a billion years of geological history. The petrologic situation together with tectonic processes became the clay, so to speak, for modeling by natural exogenous processes (see Section 2.1.2). In comparison with what went before, developments in the Holocene are mere trifles. After the end of the Younger Dryas, about 10'000 B.C., the glaciers returned to their present extent, fluctuating thereafter within a rather narrow range. While the current extents of glaciers lie within this range, they must be regarded as minimal in the context of the past millennium. They have also been smaller.

Occupation

While the nearer and wider surroundings of the World Heritage Site have been occupied steadily for thousands of years – Celts, Romans and Alemans have lived there in recent millennia – the site itself has been subject to year-round occupation to an extremely marginal extent if at all. Nor do the climatic conditions make it suitable for permanent settlement. Historical vegetation studies show, however, that human beings entered the landscape starting about 3400 B.C. Bronze Age alpine farming is known from many parts of Switzerland. Use of pastures since the late Middle Ages, especially in the Aletsch area, is evidenced not only by alpine buildings but also by documents recording the sale of grazing rights (*Alprechte*). Continuously occupied buildings today are found only at the Jungfrauoch (the Jungfraubahn railway station

and High Alps research station). Other mountain cabins and alpine refuges are generally not in continuous operation.

Central Valais is a markedly arid region. An intricate water conveyance system featuring aqueducts (called *Suonen* in German-speaking Upper Valais, *bisses* in French-speaking Lower Valais) was therefore devised long ago. Comparable works can be found in all the dryer areas of the Alpine Arc, from Savoy to the Tyrol. As a rule, because they carry water throughout the growing season, glacier-fed streams are captured and the water is led to irrigation ditches by canals, partly in tunnels, partly in trenches blasted out of the rock. Construction of the first large water systems provably dates to the High Middle Ages; it is uncertain whether they are of Roman or pre-Roman origin.

Use of Ores, Minerals and Rocks

Many economically significant ores, minerals and rocks are found in the World Heritage property. These are products of definite geological processes taking place over given spans of time. Traces of mining activity are important evidences of the interaction between human beings and the geology. Exploitation was local and limited and ceased a long time ago. Its impact on nature and landscape was at most temporary, resulting for example from 18th-century forest clearances in the Lauterbrunnental to get wood for ore smelting. Lead-zinc ores were mined in the Lötschental between the 15th and 20th centuries. Iron ore mining began around 1700 at Trachsellaenen in the Hinteres Lauterbrunnental but then was abandoned as early as 1805. The Baltschieder granite has quartz veins containing the mineral molybdenite (MoS₂). This body, the only one in Switzerland, was mined for molybdenum during the Second World War, but only to a modest extent. It appears that the concession to produce molybdenum-tungsten ore in the Baltschiederental has now lapsed. For several hundred years (between the 16th and 20th centuries), soapstone lenses were mined on the south side of the Lötschental. This easily worked stone was an excellent material for furnaces because of its heat storage capacity. The Grindelwald-Rosenloui parautochthonous imbricated zone in the north of the area features marbles that gained renown after quarrying began in 1740. Known as Grindelwalder-Marmor and Rosenloui-Marmor, these adorn the doorcases of the parliament building and the University of Bern. Production stopped in 1903.

Present Uses

The World Heritage Site is subject to a variety of uses representing long traditions:

- Hydroelectric generation
- Forestry
- Alpine farming
- Hunting
- Tourism
- Research
- Mineral (crystal) collecting



Fig. 14: The alluviale site of the Gasteren valley (the left side of the river is part of the western extension area) (Photo: T. Labhart).

Electric power generation	<p>Electric power generation (hydropower) use is on the whole marginal within the area. The Gebidum-Stausee, a reservoir lying on the perimeter and partly inside the area, merits mention in this connection. Hydropower use outside the area, however, and particularly in the newly added Grimsel area, is quite important. While there have been some interventions at the perimeter, these are negligible. For example, the water of the Grueben Glacier (<i>Gruebengletscher</i>) is captured immediately outside the perimeter, conveyed into the Bächlital (and thus inside the perimeter), and there once again captured outside the area. Via a tunnel that opens in the Grimsel moorland, it then flows into the Grimselsee. This in turn is located outside the area. Other works that can be classified as minor ones are found on the Sefinenlütschine (Elektrizitätswerk Lauterbrunnen, pressure pipe lying partly inside the existing perimeter), the Öschibach below the Oeschinensee (impoundment) and the Lonza.</p>
Forest management	<p>Forest management use is insignificant today and confined to the outermost margin. In earlier times, especially when ores were being produced, some forest areas were severely overused (the Aletsch forest, the Grimsel stone pine forest, the forest in the Hinteres Lötschental). Present-day management is oriented to sustainability, for virtually all forest areas are under protection. These have the function of safeguarding lower-lying areas from avalanches and rockfalls. The focus of forestry efforts is therefore less the use of the timber than the conservation of stable forests. This programme does not impair the natural value of the area.</p>
Alpine farming	<p>Use for alpine farming is locally somewhat more important than forestry use but also restricted to the margin, since 80% of the area is free of vegetation. Stock pastured here includes chiefly heifers, with fewer dairy cattle, as well as sheep. While goat-herding is less common, the Walliser Schwarzhalsziegen breed occupies a special place. In general, alpine farming is a sustainable pursuit, but it is on the decline. This use of the land, probably dating to the Bronze Age, does not impair the value of the area as long as it continues in a sustainable manner.</p>
Hunting	<p>Hunting, formerly carried on by the inhabitants to supply their own needs, certainly impacted wild populations. Several animal species, including Alpine ibex, red deer, roe deer, wolf, bear, lynx and bearded vulture, were wiped out or their populations severely diminished. The situation, however, has changed substantially. The creation of national game reserves afforded refuge to the creatures, and today the populations of hoofed game animals, with the exception of the Alpine ibex, are exploited by hunters. Ibex is taken only for purposes of population control, as set forth in a special federal regulation. Hunting in both Berne and Valais cantons is governed by a license system, and anyone wishing to hunt must pass an examination first. Berne canton, in contrast to Valais, does not permit hunting of white hare, rock ptarmigan and black grouse. For most animal species that may be hunted at all, federal legislation defines close seasons, which the cantons can extend. The federal and cantonal governments keep accurate statistics of game taken. As long as hunting is carried on in accordance with planning principles from wildlife biology – and this is the case – it does not impact the value of the area.</p>

Fishing

Fishing is almost negligible with the major exception of the Oeschinensee, which is newly included in the perimeter. Here it is a great tourist attraction, especially in the summer. Fishing requires a license. In recent years, however, there has been strong growth in ice fishing, so that more visitors can be seen in the winter as well. Fish populations are bolstered by stocking with Arctic char (*Salvelinus alpinus*), lake trout (*Salvelinus namaycush*) and rainbow trout (*Oncorhynchus mykiss*) as permitted by national legislation. Streams where fishing is permitted (including the Sefinenlüttschine, the Weisse Lüttschine and the Kander) are partly stocked with the native brook trout (*Salmo trutta fario*) to help sustain population levels.

Tourism

The 18th and 19th centuries saw a medieval fear of the mountains give way to impassioned, romantic ideas about the Alps and an enthusiasm for nature. The first travelers brought news to an astonished world of mighty wonders of nature, ice giants, glaciers, waterfalls, and unfamiliar customs followed by the mountain folk. While the chief motivations at first were the arts and sciences, this changed in the course of the 19th century. The first tourists came, marking the start of a development that continues today. Both the Jungfrau and Aletsch regions saw a change in the way the people made their livings. What used to be a farming society became one based on service. Summer tourism was biggest at first, and by the close of the 19th century all the major mountains in the area had been climbed (beginning with the Jungfrau in 1811 and ending in 1885 with the Hinter Fiescherhorn).

Table 6: First Ascents of Important Peaks in the nominated area.

Jungfrau	1811	Bietschhorn	1859
Finsteraarhorn	1812	Schreckhorn	1861
Lauteraarhorn	1842	Gross Fiescherhorn	1862
Wetterhorn	1844	Doldenhorn	1862
Mönch	1857	Gross Grünhorn	1865
Eiger	1858	Gspaltenhorn	1869
Aletschhorn	1859	Hinter Fiescherhorn	1885

Only in the 1930s did skiing become a popular sport, shifting the center of gravity from summer to winter tourism. The growth of tourism was accompanied by a railroad mania in the Berner Oberland in 1870–1914 and again after 1950. The first period saw the construction of the Jungfrauabahn, conceived and operated as an electric road from the outset. From the Kleine Scheidegg at an elevation of 2061 m, the route passes chiefly through the rock of the Eiger and the Mönch to attain the Jungfrauoch at 3454 m. Construction started in 1896, and the Jungfrauoch station was dedicated on 1 August 1912. The Jungfrauabahn is equally a technical masterpiece and a cultural monument reflecting the spirit of its time. The original plans also called for running a lift and spiral stairs to the summit of the Jungfrau.

Aside from the Jungfraubahn railroad and the funicular in the mountain interior at the Trümmelbach, there are no other facilities for tourist transport inside the perimeter. Ski slopes are present only at the Eiger Glacier (*Eigergletscher*) station and beneath the Eggishorn, but their impacts on the area are not significant.

The demand for recreation in the immediate vicinity of the natural landscape led to the creation of a network of hiking trails. Trails are well developed mainly in the marginal parts of the World Heritage Site, especially in the Aletsch area. Otherwise, the property is largely closed to hikers except for some access trails leading to shelters. The area is outstandingly suitable, on the other hand, for experienced summer and winter alpinists, who enjoy a well-developed network of facilities, mostly shelters erected by the Swiss Alpine Club (SAC), the Academic Alpine Club of Bern (AACBE), the Academic Alpine Club of Basel (AACBS) and others.

Table 7: Shelters and Mountain Cabins in the World Heritage Site, with Elevations.

Swiss Alpine Club		Academic Alpine Club	
Aarbiwak	2731 m	Bietschhornhütte	2565 m, AACBE
Baltschiederklause	2783 m	Schmadrihütte	2262 m, AACBE
Bächlitalhütte	2328 m	Gruebenhütte	2512 m, AACBS
Bärglihütte	3299 m		
Blümlisalphütte	2840 m	Others	
Doldenhornhütte	1915 m		
Finsteraarhornhütten	3048 m	Anehütte	2355 m
Fründenhütte	2562 m	Eiger Ostegghütte	2320 m
Glecksteinhütte	2317 m	Fusshornbiwak	2780 m
Gspaltenhornhütte	2317 m	Mittellegihütte	3355 m
Guggihütte	2791 m	Mönchsjoehütte	3657 m
Konkordiahütten	2850 m	Wiwannihütte	2460 m
Lauteraarhütte	2393 m		
Lötschenhütte Hollandia	3235 m	Berggasthaus Trachsellauenen	1200 m
Mittelaletschbiwak	3013 m	Berghaus Tschingelhorn	1678 m
Mutthornhütte	2898 m	Berghütte	1750 m
Oberaarjochhütte	3256 m	Hotel Obersteinberg	1778 m
Oberaletschhütten	2640 m	Jungfrauoch	3454 m
Roselauibiwak	2330 m	(no overnight stays)	
Rottalhütte	2755 m		
Schreckhornhütte	2529 m		
Silberhornhütte	2663 m		
Stockhornbiwak	2598 m		
Strahlegghütte	2687 m		

Helicopter flights have offered access to the area since since many years. At present there are seven high-altitude landing facilities in the area: Äbeni Flue, Jungfrauoch, Langgletscher, Mutthornhütte, Blümlisalphütte, Petersgrat and Rosenhorn. The last three are added by the extension of the perimeter.

Research

A High Alpine Research station has been located at the Jungfrauoch since 1931. It is supported by an international foundation with Belgian, German, British, Italian, Austrian and Swiss participation. The station is unique in Europe by virtue of its high elevation, 3471 m, and the fact that it is accessible year-round via the Jungfraubahn railway; as a result, conditions are excellent especially for studies in the fields of environmental physics, terrestrial and solar atmospheric physics and astronomy. The area as a whole is also studied to varying degrees by workers in a variety of disciplines (geology, glaciology, geomorphology, botany, zoology, tourism, etc.).

The nature protection centre opened in 1976 by the NGO Pro Natura, located on the Riederalp outside the World Heritage area, serves mainly as an information centre for visitors. Although it is not a research facility, the centre makes infrastructure and support available. Research in the Aletsch forest reservation is closely linked to this activity.



Fig. 15: The High Alpine research station at the Jungfrauoch (Photo: Jungfraubahnen).

Mineral (crystal) collecting

Mineral (crystal) collecting has been an important secondary (and sometimes primary) source of income for part of the native population for centuries, especially in the Oberhasli. Initially only the water-clear rock crystal, which could be sold to cutters in Milan, was sought. The high point of this period came in 1719 with the discovery of a huge cleft on the Zinggenstock where, up to 1737, quartz crystals weighing from 20 to 150 kg could be won. A growing interest in minerals beginning at the end of the 18th century brought the crystal collectors a big new market for sales to individuals as well as scientific collections. Smoky quartz, formerly held in low regard, was just one of many minerals that enjoyed a boom as a result. The distribution of mineral-bearing tension joints in the area is quite uneven. The main deposits are located in the perimeter expansion of the World Heritage Site, in the Grimsel granodiorite, and some of the Zinggenstock joints are the only ones of their kind in the world. Joint density and frequency fall off sharply toward the west. Amethyst, rare in Switzerland, occurs in a deposit near the Fiesch Glacier (*Fieschergletscher*).

A renowned mineral region, but one very different in character, is the Lötschental, where joints chiefly found in amphibolites house unique assemblages of adularia, calcite, chlorite, amianthus, titanite, epidote, anatase, ilmenite, pyrrhotite, zeolites and axinite.



Fig. 16: Waterfall above the Oeschinensee (extension area in the north-west) (Photo: L. Fischer).

**The extension
of the perimeter
implicates:**

In terms of development and history the extensions add little of importance, since the general development has affected the area as a whole. The former heavy use of crystals at the Grimsel and fishing in the Öschinensee represent new aspects of the area.

Sources

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Annexes

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Supplements

2, 3, 4

3 Justification for Inscription

3.a Criteria under which inscription is proposed (and justification for inscription under these criteria)

Three of the four UNESCO criteria being satisfied, the Jungfrau-Aletsch-Bietschhorn area was accepted for inscription in the World Heritage list on 13 December 2001. The criteria apply with undiminished force to the extension as well. For this reason, after adaptation to the new Guidelines of the World Heritage Centre (2005), they are also proposed with minor modifications for the expanded area

Criterion (vii) previously (iii) contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

The aesthetics of the area have attracted an international clientele and it is globally recognised as one of the most spectacular mountain regions to visit. The impressive north wall of the High Alps from the Wetterhorn-Eiger-Mönch-Jungfrau-Gletscherhorn-Breithorn-Blüemlisalp, which is centred around the Eiger/Mönch/Jungfrau and extending 40 km in length, is a superlative scenic feature. On the southern side of the alpine divide, tectonic forces and glacial erosion have resulted in a collection of spectacular peaks and a valley system which supports the two longest glaciers in western Eurasia.

Criterion (viii) previously (i) be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;

The Jungfrau-Aletsch-Bietschhorn site provides an outstanding example of the formation of the High Alps which resulted from uplift and compression during the Tertiary geological period 20–40 million years ago. Within an altitude range from 809 m to 4274 m, the site displays 400 million year old crystalline rocks thrust over the younger autochthonous (rocks formed in situ) calcareous sediments due to the northward drift of the African tectonic plate. Added to the dramatic record of the processes of mountain building is the great variety of geomorphic and glaciological features found in the site. Classic examples of U-shaped glacial valleys, cirques, horn peaks, valley glaciers and moraines are found in abundance. The whole site is the most glaciated area in the Alps and incorporates the Aletsch glacier, the largest and longest in western Eurasia. It is thus of significant scientific interest in the context of glacial history and ongoing processes, particularly related to climate change.

Criterion (ix) previously (ii) be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;

Within its altitudinal range and its dry southern/wet northern exposures, the JAB site provides a wide range of alpine and sub-alpine habitats. On the two main substrates of crystalline and carbonate rocks, a variety of ecosystems have evolved in the ab-

sence of significant human intervention. Superb examples of ecological succession exist, including the distinctive upper and lower treeline of the Aletsch forest. The global phenomenon of climatic change is particularly well-illustrated in the region, as reflected in the varying rates of retreat of the different glaciers, in turn providing new substrates for ongoing ecological succession.

3.b Proposed Statement of Outstanding Universal Value

The declaration, already formulated for the existing area on the Homepage of the World Heritage Centers, is equally applicable without modification required for the nominated area (quoted from <http://whc.unesco.org/en/list/1037>):

This is the most glaciated part of the Alps, containing the largest and longest glacier in Western Eurasia and a range of classic glacial features such as U-shaped valleys, cirques, horn peaks and moraines. It provides an outstanding geological record of the uplift and compression that formed the High Alps. The diversity of flora and wildlife is represented in a range of Alpine and sub-Alpine habitats and plant colonization in the wake of retreating glaciers provides an outstanding example of plant succession. The impressive vista of the North Wall of the High Alps, centred on the Eiger, Mönch and Jungfrau peaks, has played an important role in European art and literature.



Fig. 17: The largest and longest glacier in Western Eurasia: The Great Aletsch Glacier (Photo: T. Andenmatten).

3.c Comparative analysis (including state of conservation of similar properties)

Slightly adapted from the IUCN Evaluation 2001; this analysis is still valid.

There are around 50 areas inscribed on the World Heritage List in the various mountain ranges of the world. These include Huascarán National Park (Peru) which is generally accepted to encompass the most outstanding group of peaks in the Andes, and Sagarmatha National Park (Nepal) which represents “the best” of the Himalayan range.

Similarly, the most outstanding portions of many other mountain ranges have been given World Heritage status (for example there is one site each in the Caucasus, Altai, Urals, Pyrenées, New Zealand Alps, St Elias Mountains and the Pacific Coast range). Three natural World Heritage Sites are found in the Rocky Mountains of North America, a region larger than Europe which extends over 40 degrees of latitude.

Within the Alps, a region spanning 1100 km and eight countries, two natural World Heritage sites have been inscribed, the Jungfrau-Aletsch-Bietschhorn site and the Monte San Giorgio (due to its exceptional fossil finds). The Network of Alpine Protected Areas identifies over 300 protected areas within the Alpine Arc. Most of these are small nature reserves and regional parks (IUCN category V), which may have cultural landscape values but would not appear as likely candidates under World Heritage natural criteria. In the 1997 UN List of Protected Areas (IUCN/WCMC), there are seven areas listed in the Alps under IUCN categories I and II. The JAB site stands out from all of these and other mountains in the High Alps in having the following four qualities:

- The scenic and aesthetic appeal of the JAB site is one of the most dramatic of the Alps, as evidenced by the long history of international visitation to the area. The impressive northern wall of the site with the panorama of the Eiger, Mönch and Jungfrau mountains provides a 40 km long signature classic view of the north face of the High Alps. There are a number of other impressive peaks such as the Finsteraarhorn, Wetterhorn, Aletschhorn, Breithorn, Bietschhorn, Doldenhorn and Blüemlisalp, as well as the extensive views of the Aletsch glacier basin from the Eggishorn ridge. The only other areas in the Alps that rival the JAB site for sheer scenic splendour are in the Pennine Alps around the Matterhorn/Monte Rosa and Mont Blanc. Both these areas have been much altered by human activity and are not under protective status. High natural scenic values exist throughout the Alps but are most dramatically expressed in the JAB site.
- Glaciation within the JAB site is the most extensive in the Alps. The Great Aletsch Glacier is the largest and longest glacier in Western Eurasia in terms of area (128 km²), length (23 km), and depth (900 m). For comparison, the longest glaciers on Mont-Blanc are less than 10 km in length. The study of the Aletsch glacier began early in the 20th century and precise mass balance and runoff studies are ongoing. Comparative studies on the fast-reacting small glaciers on the northern exposure have provided further indications of climatic change. Along with the exten-

sive glacial cover of the area, an exceptionally wide suite of glacial features also occurs.

- The extensive glaciation and rugged topography found in the JAB site as well as protection measures which date back to 1933 have resulted in it being one of the most (if not the most) undisturbed natural areas in the Alps. The intact status of such a relatively large area within a long-occupied and intensively-used economic region is another distinctive feature of the site.
- For its record of productive scientific research on geology, geomorphology, climatic change, biology and atmospheric physics, the JAB site is unsurpassed in the Alps and, in certain fields, at the global level. Observations on some of the glaciers go back to the 12th century and have allowed reconstructions of historical fluctuations, particularly of the highly sensitive glaciers on the northern slopes of the site. The scientific importance of the area is also indicated by the selection of the Grindelwald and Aletsch areas as two of four study sites in the Swiss Alps for MAB programme studies in the period 1977–1989. As noted in a review of Mountain Research in Europe (Price, 1995), this programme was most productive and generated a substantial quantity of data with practical planning applications. The research station at the Jungfraujoch is one of a network of global sites studying astronomy, high-altitude atmospheric phenomena, radiation and air quality. The Centre for Nature Protection at Riederfurka also has facilitated natural history research in the region. While other areas in the Alps and Pyrenées have been important areas for research, scientific activity in the JAB site has been particularly impressive, with a particular emphasis on monitoring and understanding glaciological, geomorphological, and ecological processes (criteria i and ii).

Although the site is not nominated for its biological values (criterion x) it does contain a wide range of species typical of the Alps. However, floral diversity is higher in the calcareous massifs of the western and southern Alps where Mediterranean affinities are stronger. It is important to note, however, that the nominated area is much more than just glaciers and rocks. Almost 20% of the area is in the forest zone and these lower altitudinal belts contribute to the overall natural features of the site.

Global comparisons are difficult and would be most relevant with other sites in temperate glaciated high mountain systems. The closest comparison would be with the Western Caucasus World Heritage Site which, although much larger, contains peaks of lesser elevation (3360 m a.s.l. at the highest) and a much lesser extent of glaciation (18 km²). A comparison of the JAB site with the Khumbu-Everest region in the Himalaya helps illustrate the uniqueness of this much smaller region of the High Alps. The relative altitudinal difference from the last village at the boundary of the JAB site (Stechelberg) to the top of the Jungfrau is 3000 m over a distance of 5 km. In the Everest region, the elevation difference between the last village Dingboche (4358 m ü.M.) to Ama Dablam (6828 m ü.M.) is about 2500 m. Dingboche's relative relief with Mt. Everest is 4500 m but this is over a distance of 14 km. The relative elevation differences and gradients in the JAB site thus are quite substantial even compared with the highest range on Earth. Similarly, the 23km length of the Aletsch glacier is longer than the ice streams flowing from the Everest/Lhotse massif with its 17 km Khumbu glacier, 16 km Rongpu glacier and 8 km long Lhotse glacier. Another com-

parison can be made with the Canadian Rockies World Heritage Site where the relative relief of Mt. Robson to its base, 6 km distant, is also about 3000 m. While there are other longer glaciers in temperate mountain regions, e.g., Karakorum, Pamirs, Rocky Mountains, the Aletsch rates high even on a world scale.

3.d Integrity and/or Authenticity

The property is a heavily glacier-covered high mountain landscape that is affected by alpine pasturage and forestry use only at the margins. These impairments are so slight, however, that the area is essentially a wilderness region. The perimeter for the most part follows natural features, chiefly those noticeable on the ground such as ridges, ravines and vegetation limits. The area includes a wide range of glacial forms, from firn fields to the most varied types of glaciers, as well as glacial erosion structures such as trimlines, moraines and roches moutonnées. In particular, it takes in entire glacial systems: accumulation areas, ablation areas, and recent glacier forelands designated “Alpine alluvial sites” in the Swiss inventory of nationally significant alluvial sites, IGLES. It also includes areas that had already become ice-free toward the end of the last Ice Age (the Würm).

The nominated property extends over a petrologically and tectonically complete cross section through an Alpine central massif: from Altkristallin rocks and granite intrusions to autochthonous sedimentary rocks (where these have not been scoured or eroded away) and parautochthonous and allochthonous nappes (the last of these being merely rudimentary)

Vegetation zones ranging from montane to nival are fully represented, and similarly the several stages of natural succession are all present.

The extension of the perimeter implicates:

The newly inscribed area will represent better coverage of the far-reaching, almost contiguous glacial landscape and will now take in several mountain massifs such as the Wetterhorn group, the Grimsel, the Doldenhorn group and the Blüemlisalp, as well as the entire Bietschhorn massif (of which only the eastern part was formerly included). The World Heritage property will thus be better consolidated in spatial terms. This made it possible for the new area to satisfy the requirements of authenticity and integrity already met by the existing property.

Sources

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Annexes

1, 2, 3, 4, 5, 6, 7, 8, 9

Supplements

1, 2, 3, 4

4 State of Conservation and factors affecting the Property

4.a Present state of conservation

The legal and planning status of the World Heritage property is discussed in 5.b. As to its actual status, by far the greatest part amounts to a wilderness area. Human use has occurred only at isolated points, though some such use dates back several decades (compare 2.b). The limited and relatively highly regulated uses for farming, forestry and tourism (shelters) have not altered the character of the property. While such interventions have a certain significance locally, they can therefore be neglected in the larger picture.

Nearly the entire property is protected by Swiss legislation at one or more levels (national, cantonal, regional) (Annex 2). Along with general provisions relating to land-use planning, protection of nature and the homeland, hunting and fishing, the World Heritage Site and its extension area enjoy special territorial protection:

Protection designation	Area covered and percentage of total	
• Federal inventory of landscapes worthy of protection (BLN)	774 km ²	94 %
• Federal inventory of moor landscapes of national significance	1,8 km ²	0,2 %
• Federal inventory of moors of national significance	0,18 km ²	0,02 %
• Federal inventory of alluvial sites of national significance	9,5 km ²	1,2 %
• Contractual area under the VAEW (a regulation governing payments to offset damages due to hydropower use)	160 km ²	19,4 %
• Federally established game reserves	90 km ²	11 %
• Cantonal nature protection areas, Berne	123 km ²	15 %
• Cantonal nature protection areas, Valais	8,1 km ²	1,0 %

Among the impacts of protected status are those on the creation of infrastructure. Upgrading of infrastructure is banned inside the area or made subject to stringent requirements bearing on landscape protection and conservation. Already-existing infrastructure in the World Heritage property (extract):

- Tourist transport railways: 2 + private cablecars
- shelters and guesthouses: 39
- High-altitude landing strips: 7
- Underground tunnels for the power stations (Massa and Grimsel), water reservoirs
- Alpine huts, barns and stalls
- Hiking paths, via ferratas
- Forestry roads and paths

The protection status of the region ensures the aim of protecting and maintaining the biodiversity is achieved. This includes mainly the following (cp. Chap. 2 to 4):

- specialised habitats at montane, sub-alpine and alpine levels
- over 1800 vascular plants
- Fauna of the sub-alpine and alpine levels

The extension of the perimeter implicates:

The present protected status of the area will not change by the extension.

4.b Factors affecting the property

(i) Development Pressures (e.g., encroachment, adaptation, agriculture, mining)

The high elevation and the topography of the site afford natural protection to most of it. Whether in summer or winter, great expanses of it are not accessible to members of the public without special knowledge and special gear. What is more, the area is not suitable for fashionable pursuits such as canyoning and mountain biking.

Possible severe interventions, such as additional tourist activities, are not compatible with applicable legislation and the concession policy of the Swiss federal government and can be ruled out for the time being.

The Gebidum-Stausee reservoir is located on the perimeter but within the area. It impounds the Massa, which receives water from the Aletsch region (Upper, Middle and Great Aletsch glaciers). Some water is discharged through turbines at Bitsch in the Rhône valley (*Rhonefall*); the rest goes via the Massaschlucht, a gorge lying entirely outside the area. Further use of hydropower cannot be ruled out entirely, especially in the Grimsel region where there is already such a use outside the World Heritage site (Grimselstausee reservoir). New and larger interventions would have to meet the test of environmental compatibility, which would require a detailed description of all impacts.

In the marginal section used for farming and forestry, infrastructure measures needed for these uses are possible. If the resulting negative impacts should impair the values of the area, such efforts would be banned under a strict application of pertinent legislation. Because these marginal areas are not fertile land, however, the future is likely to see a more extensive use in agriculture with decreasing needs in infrastructure.

It is permissible and consonant with the protective goal to maintain and renovate existing structures and facilities that were lawfully erected, such as shelters. If other facilities should be planned, legislation dictates that the interests of the World Heritage property be accorded special weight, as in the case of other questions concerning infrastructure.

The site does not contain ore and other mineral deposits now deemed exploitable. The great natural value of the area suggests that concessions are hardly likely to be granted.

The occasional military use of some areas (e.g. the Fiescher Glacier) for range practice is a factor to be considered. In particular, since past military waste material is being uncovered due to the melting of the ice, this is a problem which still requires a solution.

(ii) Environmental pressures (e.g., pollution, climate change, desertification)

It is now well known that the world's climate has been heating up since the mid-19th century. A related phenomenon is the retreat of glaciers everywhere, including the World Heritage area. It remains an open question whether global warming is due to natural or anthropogenic factors or both. There are signs, however, that it results from a natural greenhouse effect intensified by an anthropogenic increase in the atmospheric levels of greenhouse gases.

Data on glacier fluctuations for the reference period of 1850–1973 now make it possible to model glacier shrinkage scenarios. If the 2:1 equilibrium line should move upward just 100 m, the remaining glacier-covered area would be only 3/4 of the 1973 figure. How much any one glacier will shrink, however, depends on its configuration, that is, its elevation/area distribution.

Increased warming does not simply reduce the glacier-covered area. It also causes an upward shift in the lower permafrost line, particularly in relation to discontinuous permafrost, thus diminishing the stability of slopes. The same applies to hanging glaciers, which likewise become unstable. For this reason there is a heightened danger of icefalls or ice avalanches, which can represent a localized threat to structures and facilities both inside and outside the area. Long-term changes in hydrology can also be expected.

Climate warming will also affect the plant world. Vegetation limits such as the timberline will move upward, while individual plant species will find their elevation distributions shifting.

These changes are utterly beyond the control of planners. Their causes cannot be altered on a small scale because the problem is a global one. While nature per se will not be destroyed by such processes, it will be modified. What is clear is that if present trends continued, aesthetic qualities such as the distribution pattern of firn and rock, which today form part of the value of the World Heritage property, would suffer in the long term.

(iii) Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)

What human beings regard as catastrophic events are, from the viewpoint of nature, not catastrophes but environmental factors of the ecosystems involved. Extreme events to be expected in the World Heritage site include heavy rainfalls and snowfalls, avalanches, icefalls and rockfalls, rock drift and mud flows. Forest fires can also occur in the subalpine part of the area, especially on the Valais side. Because most of the property is wilderness, these processes must be accepted as natural ones. Problems do arise in the marginal sections, but they have less to do with planning inside the property than outside (demarcation of danger zones and adoption of suitable practices). It is conceivable, however, that protecting human populations and property values outside the area may necessitate further concrete measures to avert natural dangers inside it. The chief region of concern is where the BLS (Berne-Lötschberg-Simplon) rail line runs along the southern side of the Lötschberg. Protective structures have already been erected, for example, above Rarnerchumma in the commune of Raron. Because these issues bear only on the outermost margins of the area, its central values are not impacted. The consequences of global warming have already been discussed (4.b.ii).

(iv) Visitor/tourism pressures

Natural conditions limit the number of visitors, yet infrastructure intended primarily to support tourism is located inside and immediately on the perimeter of the World Heritage site. In the property are 34 shelters and five mountain cabins, seven high-altitude landing sites, two railways for tourists (Jungfrauoch and Trümmelbachfälle), and hiking trails in some marginal sections. Transportation facilities for tourists are already found outside the property (see Annex 10).

Winter conditions make parts of the valleys, as well as other tourist attractions such as the Trümmelbach, inaccessible. Other areas, however, are heavily impacted in winter by heliskiing, ski treks, and other skiing activities. There are bans on such activities for sensitive areas such as the Aletschwald. Additional visitor pressures are not to be expected in the winter, however. The situation changes somewhat in the summer. Places of heavy tourist use are the Jungfrauoch, followed by the Trümmelbach, the Aletsch forest-Märjelen area and the Fafleralp-Langgletscher in the Lötschental. No problems are anticipated at the Jungfrauoch and the Trümmelbach even if visitor numbers rise further. Delivery of supplies and disposal of wastes are already under control. As for the hiking areas in the Lötschental and on the Aletsch plateau, well-maintained trails and a suitable trail network will serve to control visitors. In this way it is possible to lower the risk that the populations of sensitive species such as black grouse and rock ptarmigan will be threatened by increased tourist use of their habitats. This kind of control together with appropriate informational efforts and supervision, as in the Aletsch forest, can help to minimize damage or at any rate hold it to present levels.

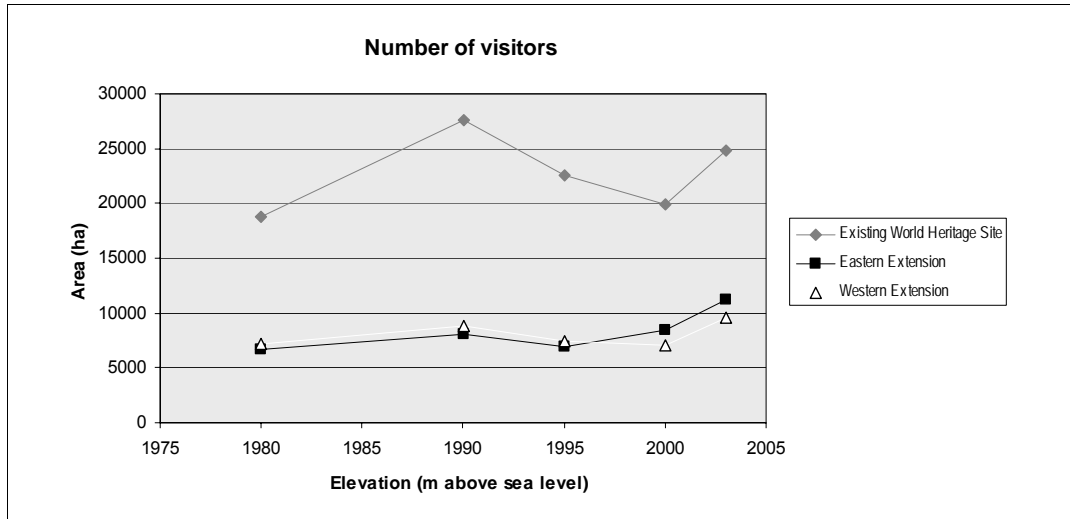
As the glaciers recede, hiking trails may have to be upgraded or new access provided to shelters. While these actions are minor, they must be planned with due attention to landscape and habitat concerns.

The past 20 years have seen a steady growth in the number of overnight accommodations in the World Heritage property. The 1582 sleeping spaces in the 34 shelters generated some 45'000 overnight stays in 2003 (see Fig. 19). The trend is still upward, but no further shelters are planned; existing ones may, however, be maintained and renovated. Disposal of fecal matter is a problem at some of the most-frequented shelters; this is less an ecological problem than an aesthetic one, but high altitude and associated low temperatures make it difficult to solve. Efforts toward a technical solution are under way, and such problems have already been remedied at the much larger facilities on the Jungfrauoch, where wastewater is conveyed via the Kleine Scheidegg to the Grindelwald treatment plant.



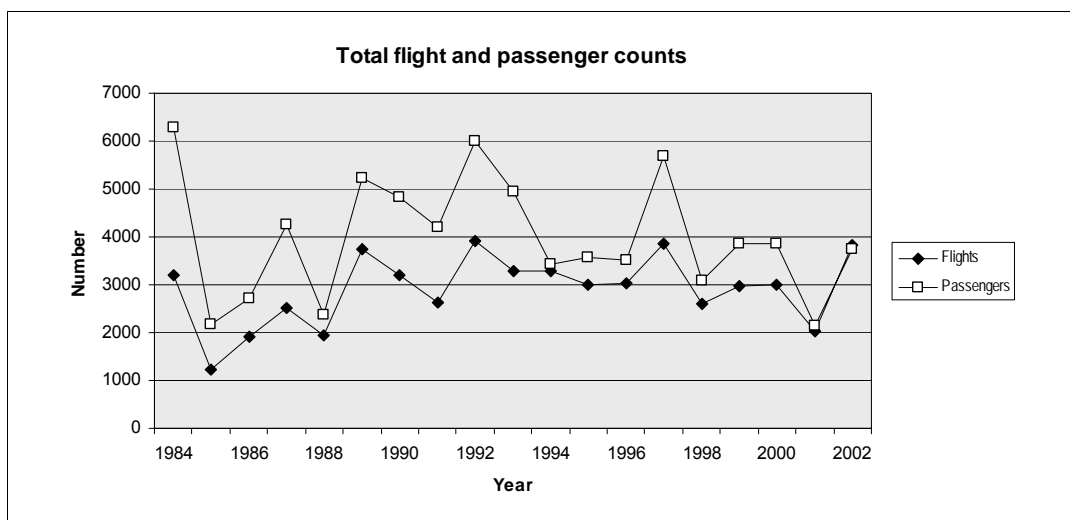
Fig. 18: The Great Aletsch Glacier, situation in 1856 (left) and in 2003 (right). View from the Belalp (H. Holzhauser).

Fig. 19:
Number of over-
night stays in
SAC shelters
within the existing
World Heritage
Site and its
extensions, 1980–
2003. (Source:
SAC shelter
statistics).



The seven high-altitude landing facilities currently spread throughout the World Heritage property represent an impairment of value. The number of flights per year varies between 3000 and 4000 (counting two flights per landing and not counting overflights with no landing). No trend can be identified over the last 15 years, but there was a marked increase between 2001 and 2002. While flights take place in both the summer and winter halves of the year, there are differences in the numbers for some landing sites. In comparison with the 1990s, passenger counts are down (Fig. 20). The federal civil aviation agency, which exercises jurisdiction over these activities, currently has various aspects of the landing facilities (economics, safety) under review. Issues related to the potential for conflict between protection and use interests are especially important with regard to flights into and out of the property. Stricter regulation is anticipated, particularly in protected areas, and there is no question of new landing facilities inside the area.

Fig. 20:
Cumulative flight
and passenger
counts for the
seven high-
altitude landing
facilities in the
nominated area,
1984–2002.
(Source: BfS).



(v) Number of inhabitants within the property

Estimated population located within:

- Area of inscribed property: ca. 10
- Area of extension: -
- Total: 10
- Year: 2004

The number of permanent residents in the property is limited to the staffs of the rail-road station and the research station at the Jungfrauoch. These number just a few persons.

The communes having part of their area inside the World Heritage property are home to some 35'100 persons.

The extension of the perimeter implicates:

With regard to possible threats to the World Heritage Site, the extension changes nothing. External and uncontrollable threats are equal for the region as a whole. The increase of nine shelters to the current total of 34 is unimportant in view of the large area newly inscribed. The three new landing facilities (added to the previous four) are also spread over the new area, so that the problems posed for the entire property are similar to what existed before. The number of permanent residents does not change as a result of the extension, since the added land is mostly uninhabited. Because the number of communes sharing in the World Heritage area has increased from 16 to 26, the population in the adjacent surroundings has gone up by 15'200.

Sources

Albrecht L. (1997), Bfs (2001), Bruderer B. & Komenda-Zehnder S. (2005), Egli H.-R. et al. (2005), Ehrenbold S. (2005), Flückiger E. (2005), Halder U. (2000), Hoelzle M. et al. (1999), Holzhauser H. (1984, 2005), Holzhauser H. & Zumbühl H. (2005), Kienzholz H. et al. (2005), MeteoSchweiz (2004), Müller F. et al. (1976), Müller H. & Reichenau D. (2005), NFP48 (2005), VAW (2004), Weingartner R. (2005), Welten M. (1982), Wipf A. (1999), Zumbühl H.-J. & Holzhauser H. (1988).

Annexes

2, 10, 3, 4, 5, 6

5 Protection and Management of the Property

The regulations applying to the existing World Heritage also apply to the extension of the perimeter. Therefore, no additional regulations are required.

5.a Ownership Indicate the major categories of land ownership (including State, Provincial, private, community, traditional, customary and non-governmental ownership, etc.)

The table below breaks down the area of the nominated property between cantons Berne and Valais.

Table 8: Areas of the nominated property between cantons Berne and Valais.

	Area	
	km ²	%
2005 Perimeter	823'577	100,0
• Located in canton Berne	354'055	43,0
• Located in canton Valais	469'522	57,0
2001 Perimeter	539'373	100,0
• Located in canton Berne	124'487	23,1
• Located in canton Valais	414'886	76,9
Extension, total	284'204	100,0
• Extension in Valais	54'636	18,0
• Extension in Berne	229'569	19,2

After the extension, a total of 26 communes (as compared with 15 before the extension) have territory inside the nominated property.

Table 9: Areas of local communes inside the perimeter.

	Commune	Commune area inside perimeter (km ²)	Fraction of perimeter (%)	Total area of commune (km ²)	Fraction of commune area lying inside perimeter (%)
Canton Berne	Grindelwald	74,7	9,1	171,1	43,7
	Guttannen	93,5	11,4	200,8	46,6
	Innertkirchen	5,8	0,7	120,1	4,8
	Kandersteg	70,2	8,5	134,6	52,1
	Lauterbrunnen	88,8	10,8	164,6	54,0
	Meiringen	1,8	0,2	40,6	4,4
	Reichenbach im Kandertal	12,8	1,6	125,7	10,2
	Schattenhalb	6,4	0,8	31,5	20,2
Canton Valais	Ausserberg	9,9	1,2	14,9	66,4
	Baltschieder	29,1	3,5	31,4	92,6
	Bellwald	2,3	0,3	13,7	16,4
	Betten	17,8	2,2	26,4	67,4
	Birgisch	0,3	0,04	5,8	6,1
	Blatten	82,4	10,0	90,6	90,9
	Eggerberg	2,2	0,3	5,9	36,6
	Ferden	4,0	0,5	27,9	14,3
	Fieschertal	159,7	19,4	173,0	92,3
	Hoh Tenn	5,2	0,6	7,0	74,9
	Kippel	5,7	0,7	11,7	49,1
	Mund	33,2	4,0	40,1	82,7
	Naters	67,7	8,2	101,2	66,9
	Niedergesteln	12,5	1,5	17,4	69,6
	Raron	21,5	2,6	30,3	71,0
	Riederalp	6,0	0,7	21,0	28,4
Steg	4,3	0,5	7,2	60,3	
Wiler (Lötschen)	6,2	0,7	14,7	42,0	
	Total	823,6	100 %	1629,0	50,6

Territory lying in Fieschertal alone accounts for some 20% of the total area. Three communes (Fieschertal, Blatten and Baltschieder) have more than 90% of their area within the perimeter of the nominated property.

By far the greatest part of the land is publicly owned, that is, it belongs to local governments. Alpine pasturage is managed by cooperatives and organisations of various types, whose tradition-rich usage rules are often centuries old. As a rule, private ownership is restricted to urbanised land and thus to marginal areas. One of the largest private landholders is the nature protection organisation Pro Natura, which owns a total of some 500 ha on Alp Untersteinberg and Alp Breitlauenen in the Upper Lauterbrunnental. The perimeter extension brings in the electric utility Kraftwerken Oberhasli (KWO) as another large owner with around 8'500 ha including the Glaciers Lower and Upper Aar, Lauteraar and Finsteraar as well as the Bächli valley.

5.b Protective designation

Although the nominated site extends over two cantons and 26 communes – and is consequently governed by a complex legal system, with overlapping protected areas and various authorities responsible – it is effectively protected almost in its entirety (just 3,6% of the property does not enjoy protected status). In view of the federal structure, there is no question of the legal system being harmonized. However, this is not necessary either, provided that clear, shared goals are specified for the site, responsibilities and interfaces are defined, human and financial resources are secured, and an efficient controlling system is established. The shared goals have already been specified, responsibilities have been defined, and financial resources have been secured. A management plan and monitoring system have been devised recently (compare Section 5.e).

Legal protection essentially derives from four sources, i.e. from federal, cantonal and communal laws and from specific agreements, with federal law always taking precedence. The entire site is protected by federal law: on the one hand, by the provisions cited below, which relate to areas specified in the legislation; on the other, by generally applicable federal and cantonal legislation (laws pertaining to protection of nature and cultural heritage, forests, waters and the environment, land-use planning, etc.). The table in Section 4.a summarises the area within the nominated property that is protected under various terms. *Annexes 1 and 2* contain a map of the protected areas and the most vital portions of the pertinent legislative acts are found in the supplements (Suppl. 5 and 6).

Legal instruments (selection of the most important)

1. Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN)

Legal foundations	Federal Law on the Protection of Nature and Cultural Heritage, 1 July 1966 (SR 451.0). Ordinance concerning the Federal Inventory of Landscapes and Natural Monuments of National Importance, 10 August 1977 (SR 451.11).
Applicability	Since 1983, both regions “1507/1706 Berner Hochalpen und Aletsch-Bietschhorn-Gebiet (Bernese Alps and Aletsch-Bietschhorn Region)” have been listed in the inventory. These two account for virtually the entire area of the nominated property and in some places extend over its perimeter. On the other hand, some marginal parts of the nominated area are not included in the BLN: north of the Oeschinensee, on the Lötschental side of the Petersgrat, and in the region of the Engelhörner.

Goal	The goal is to preserve sites undiminished or to manage them with the greatest possible care. In fulfilling a federal task, departures from the principle that sites are to be preserved undiminished may only be considered if opposing interests, also of national importance, carry equal or greater weight. Federal tasks are considered to include the planning, erection and alteration of works and installations by the Confederation or federal enterprises; the issuing of licences and authorizations, e.g. for the construction and operation of transport infrastructure and facilities; and the provision of subsidies for planning, works and installations, e.g. for structural improvement projects, watercourse alterations, etc. As the property's ecological and landscape values are indisputably outstanding, the protective force of the inventory – albeit merely relative in principle – is substantial.
Responsibility for enforcement	Federal government, Federal Commission for the Protection of Nature and Cultural Heritage (ENHK), cantons.
Performance review	Under development.

2. Federal hunting reserves

Legal foundations	Federal Law on Hunting and the Protection of Wild Mammals and Birds, 20 June 1986 (SR 922.0). Federal Law on the Protection of Nature and Cultural Heritage, 1 July 1966 (SR 451.0). Ordinance on Federal Hunting Reserves, 30 September 1991 (SR 922.31).
Applicability	Since 1875, there have been six federal hunting reserves in the region of the World Heritage property. These areas lie partly or entirely in the nominated region (Wilerohorn, Alpjuhorn, Bietschhorn, Aletsch forest, Kiental, Schwarzhorn).
Goal	In federal hunting reserves, not only is hunting prohibited, but the areas concerned are to be preserved as a habitat for wild mammals and birds. This is to be achieved via a series of measures, such as a prohibition on disturbing animals, and appropriate agriculture and forestry. In addition, the reserves are to be taken into account in cantonal and communal master plans and land-use plans.
Responsibility for enforcement	Federal government, cantons.
Performance review	Game-keeping authorities of cantons and federal government.

3. Mire Landscape of national importance

Legal foundations	Federal Law on the Protection of Nature and Cultural Heritage, 1 July 1966 (SR 451.0). Ordinance concerning the Protection of Mire Landscapes of National Importance, 1 May 1996 (SR 451.35).
Applicability	The nominated site includes one mire landscape of national importance (Grimsel, since 2004).
Goal	In general, the total area and quality of mire landscapes are to be preserved.
Responsibility for enforcement	Federal government, cantons.
Performance review	System established.

4. Biotopes of national importance

Legal foundations	Federal Law on the Protection of Nature and Cultural Heritage, 1 July 1966 (SR 451.0). Ordinance concerning the Protection of Raised and Transition Bogs of National Importance, 21 January 1991 (SR 451.32). Ordinance concerning the Protection of Fens of National Importance, 7 September 1994 (SR 451.33). Ordinance concerning the Protection of Alluvial Sites of National Importance, 28 October 1992 (SR 451.31).
Applicability	The nominated site includes <ul style="list-style-type: none">• 5 alluvial sites (glacier forelands: Kanderfirn since 2001, Langgletscher/Jeggletscher since 1992, revised 2001, Üssre Baltschieder-gletscher since 2001, Rosenloui Glacier since 2001; Alpine alluvial plain: Bächlisboden since 2001)• 2 bogs of national importance (Understeinberg since 1991, Aletsch forest since 1991)• 3 small fens (Station Wengernalp since 1996, Flesch since 1991, Mederlouwenen since 2004)
Goal	Mires have to be preserved undiminished; this principle may not be overridden by any other interests. Alluvial sites should be preserved undiminished. Departure from this protection goal is only permissible for projects dependent on a specific site that serve to protect human life or serve some other overriding public interest also of national importance.
Responsibility for enforcement	Federal government, cantons.
Performance review	System established for mires, under development for alluvial sites.

5. Areas subject to contractual protection (VAEW)

Legal foundations	Federal Law on the Exploitation of Hydropower Resources, 22 December 1916 (SR 721.80). Ordinance concerning Compensation for Losses in Hydropower Generation (VAEW), 25 October 1995 (SR 721.821).
Applicability	The contracts in question are between the Swiss Confederation (represented by the Federal Water and Geology Agency), the cantons and the communes. Within the nominated area, 40-year contracts on the renunciation of hydropower generation have been in effect for the Jolital and Bietschtal since 2001, the Baltschiederatal since 2002, the Gredetschtal since 2001 and the Oberaletsch since 2002.
Goal	In addition to the renunciation of hydropower generation, the protection regulations require those assets to be preserved that account for the national importance of the region. Consequently, the following are prohibited: construction of buildings and infrastructure of any kind, soil degradation, and cable railways, ski-lifts, etc. To ensure that the contracts have legal force and compensation payments can be made, the protection regulations must be universally binding, which is achieved by incorporating them in communal land-use plans.
Responsibility for enforcement	Federal government, cantons, communes.
Performance review	Established.

6. Cantonal nature reserves

Legal foundations	Cantonal nature protection laws and protection decrees of cantons Berne and Valais.
Applicability/Year	The nominated site includes: <ul style="list-style-type: none">• 7 cantonal nature protection areas (Hinteres Lauterbrunnental since 1960, Grimsel since 1958, Fisi-Biberg-Fründen, Wengernalp since 1999, Aletsch forest since 1933, Märjelen since 1938, Jeggigletscher/Langgletscher since 2001).• 2 small fens of regional importance (unnamed; in the territories of the communes of Guttannen and Blatten).
Goal	The characteristic biocoenoses and underlying abiotic factors are to be preserved.
Responsibility for enforcement	Cantons, in some cases; in others, nature protection organisations like Pro Natura.
Performance review	Varies.

7. Others

Other instruments in addition to those mentioned above include the contract between the nature protection organisation Pro Natura and the commune of Riederalp concerning the Aletsch forest (strict nature reserve) or the contract on protection of the Baltschiederdtal between the communes of Baltschieder, Eggerberg, Ausserberg and Mund on the one hand and the Swiss Landscape Protection Foundation and Pro Natura Wallis (the former Walliser Bund für Naturschutz) on the other. The region as a whole is covered by the cantonal master plans.

5.c Means of implementing protective measures

As has been noted, the nominated property is protected on four levels, though the protected areas differ. The protective provisions are based on clear goals (compare Section 5.b) and are binding on the authorities and users affected.

Just as the protective instruments are diverse, so is their implementation.

- Inventory of Landscapes and Natural Monuments of National Importance (BLN): The protective functions of the BLN lie primarily in the framework of federal tasks (those in the jurisdiction of the federal government) and must be implemented primarily at the federal level. Among the practices by which these functions are exerted are the following: a) assessment of projects for compatibility with protective requirements of the Law on the Protection of Nature and Cultural Heritage and its implementing regulations, performed by the respective departments of the Federal Environmental, Forest and Landscape Agency, as well as b) obligatory assessment by the Federal Commission for the Protection of Nature and Cultural Heritage (ENHK).
- Federal hunting reserves: Compliance with regulations is monitored by the cantons. To this end the canton appoints one or more game-keepers for each area. These are cantonal officers who supplement the existing cantonal game-keeping service.
- Other federal inventories (mire landscapes, mires, alluvial areas): Implementation of these inventories is under cantonal jurisdiction, and the cantons are free to choose what instruments are suitable (protective decrees, contracts, etc.). For the mires at Station Wengernalp, for example, canton Berne has decreed a nature protection area, as has canton Valais for the alpine meadow in the Langgletscher/Jeggigletscher foreland.
- Cantonal protection areas: Federal legislation obliges the cantons to protect and maintain inventoried areas of national importance as well as biotopes of regional and local importance. How to do so is left to them. They can even transfer the duty to private parties, as has been done in some areas. Alp Untersteinberg and Alp Breitlauenen are within the cantonal protection area and are also owned by the nature protection organisation Pro Natura. This organisation has further entered into a 99-year protective contract with the commune of Ried-Mörel. Protection of the

Baltschiederthal has been governed since 1986 by a contract between the communes of Baltschieder, Eggerberg, Mund and Ausserberg (the last of these only since 1994) on the one hand and, on the other, the Swiss Landscape Protection Foundation and the Valais Nature Protection League. The terms of the contract call for preserving conditions as they existed in the reference year 1986.

In general, protection, maintenance and revaluation measures are cantonal tasks. The communes are responsible for implementing commune-level protection zones; the canton has an oversight role in this respect. The federal government extends specialist support to the cantons and makes substantial contributions to the costs.

5.d Existing plans related to municipality and region in which the proposed property is located (e.g., regional or local plan, conservation plan, tourism development plan)

The nominated area has been integrated into various cantonal, regional and communal plans in cantons Valais and Berne. Protection rests on three main pillars: protection of nature and cultural heritage, implementation of land-use plans, and building codes. In terms of land-use planning, the area is covered at the master plan level (in Valais as of 1999, in Berne as of 2002). Master plans are approved by the federal government and are binding on all authorities.

Valais

In Valais, the cantonal master land-use plan is conceived as a dynamic coordination tool with scope for development and is therefore kept under continuous review. It represents a tool for coordinating land-use approvals in the canton. A number of coordination documents are important for nature and landscape protection. Under *Koordinationsblatt* f. 603/2 (as in effect 21 July 1999, Suppl. 6), agencies exercising jurisdiction must ensure that the tasks and conditions arising from the incorporation of the Aletsch region in the BLN are respected. Under cantonal nature and cultural heritage protection legislation of 1 October 2000, the communes bear actual responsibility in the area of nature and landscape protection. The legislation requires that the UNESCO World Heritage Site Jungfrau-Aletsch-Bietschhorn be listed as a protected area of international importance in communal land-use plans. In addition to this object of international importance, nature and landscape protection areas of local, cantonal and national importance figure in the communal land-use plans. The binding land-use plans are supplemented by communal construction and zoning codes, which contain protection and use provisions for the various zones. These plans are created by the individual communes.

Berne

Governmental policy instruments in canton Berne include the cantonal master plan (decreed in 2002 by the cantonal council). It defines the framework for consolidated land-use planning and sets forth the mission statement and concept for landscape

development in the canton. In the context of an overall coordinated strategy, the Cantonal Landscape Development Concept (KLEK, decreed in 1998 by the cantonal council) establishes goals and practices for future landscape development efforts in the canton. This concept is binding for the canton and also forms a basis for cooperation with regions and communes. The KLEK contains location-specific statements on “cantonal priority areas” in which the canton wishes to engage particularly for landscape development. “Cantonal preservation areas” take in the BLN areas, mire landscapes, federal hunting reserves, and cantonal nature protection areas.

Several objectives are pertinent to the nominated area:

- The canton is to promote differentiated development of the landscape in areas specially designated for such development. Such efforts are guided by the nature protection principles “Preserve – Maintain – Re-create.”
- Areas of special ecological and landscape value that have been developed slightly or not at all are, when even possible, to be developed with roads or tourist transportation facilities in a very conservative manner.
- Habitats of threatened species and rare and valuable biotopes are to be preserved in value, revalued and interlinked in such a way that long-term survival of species and their associations is ensured. Canton Berne engages actively in protecting and promoting species and biotopes for which it bears special responsibility in the Swiss context as a whole.

Special policy page R_04 has been inserted into the master plan to cover the nominated area: “To implement the UNESCO World Heritage Site Jungfrau-Aletsch-Bietschhorn” (Suppl. 6). The canton exercises jurisdiction for nature protection at the level of national and cantonal importance. There are four cantonal nature protection areas within the nominated property.

The cantonal council has approved regional forest plans for the region as a whole. These constitute a binding working tool for all agencies and technical offices, providing them with instructions for all activities and decisions relating to forests.

At the regional level, land use is governed through planning regions. The two regions involved can rely on approved master plans: the Oberland East Regional Master Plan (1984) and the Kandertal Regional Landscape Master Plan (1985). In addition, since 2004 there has been a Regional Landscape Development Concept (R-LEK) for the Oberland East region.

5.e Property management plan or other management system

The management plan was developed by the management centre, which is supported by the UNESCO World Heritage Site Jungfrau-Aletsch-Bietschhorn. A slightly abridged version of the plan appears in English in the Annex (Suppl. 7).

The goal of the management plan is full compliance with the various protective instruments in order to preserve the character of the present and extended JAB World Heritage site, which is unmatched anywhere in the world. The 26 participating communes have linked themselves in a network. In their “Konkordiaplatz Charter” (Suppl. 8) they have jointly pledged to promote the development of their communes in accordance with the sustainability principle and to recognize and give due weight to the extraordinary beauty of the landscape and its great ecological and cultural importance.

Creation of the management plan, based on the Konkordiaplatz Charter, involved residents, local organisations and bodies, and researchers. Great importance was accorded to the participatory process. Local residents took part through public discussions that gave the local people a chance to formulate – in collaboration with those responsible for the project – their goals and expectations for the World Heritage Site, express fears of conflicts, and contribute to developing concrete policies for implementation.

Because of its heavy glacier cover and unusual topography, the nominated area is among the least human-affected parts of the entire Alpine Arc. This untouched character, in the midst of a region marked by habitation and small-scale agriculture, is one of the salient qualities of the existing World Heritage Site according to the IUCN assessment of 2001. It is therefore not surprising that there have not been many efforts to protect this unaffected region within the perimeter. The challenge lies in the close association of wilderness and agricultural landscape. Because of their knowledge of the continuing development of the surrounding areas in particular, the communes have also taken up the ideal of protecting the nominated region. For this reason, the management plan reflects a close linkage between development practices for the region and those for the nominated property.

The goals formulated for the present and extended World Heritage Site and its surrounding region are based on the provisions of existing law and seek to ensure its better implementation and monitoring. Six binding goals of highest priority have been stated for the site; these have the force of recommendations for the region.

Goals of highest priority (taken from the management plan)

The overall goals apply above all to the area within the perimeter (= nominated World Heritage Site); however, they should be taken into consideration throughout the entire World Heritage Region.

- 1. The diversity, individual character and beauty of the World Heritage Site and the variety of natural and near-natural ecosystems and ecosystem complexes are to be preserved for current and future generations. Moderate and sustainable economic, cultural and recreational use and development is to be brought in line with this goal.*
- 2. All species of wild fauna and flora native to the region, along with their biological communities, are to be conserved in populations viable in the long term, and are to be nurtured or utilised if necessary. Natural developments must be allowed to take their course whenever possible.*
- 3. The various natural and cultural landscapes, together with their traditional cultural features, are to be preserved as far as possible, or developed with care.*
- 4. Economic use is to be guided by market conditions, the social and cultural situation, and legal regulations, but also by the long-term carrying capacity of the natural systems as outlined in overall goals 1–3.*
- 5. Man is welcome in the World Heritage Site as a visitor, actor and user who is mindful of the risks of natural hazards and pays due regard to the sensitivity and need for protection of the natural resources. Appropriate infrastructure is to be maintained and, if necessary, expanded in line with the capacity of the natural systems to tolerate use.*
- 6. Local inhabitants and visitors are to be informed in a competent fashion and made aware of the value, uniqueness and beauty of the World Heritage Site. The resulting awareness will motivate them to interact with and experience the Site, and will provide a necessary basis for long-term preservation of the value of the Site.*

Along with goals and policies for protection and sustainable development, the management plan also sets out the structure of a research platform and informational activities.

5.f Sources and levels of finance

Funding is based on public-private partnerships. The exact level of funding required for the nominated area cannot yet be stated exactly. On the one hand, expenses for protecting a wilderness area are relatively low, nor are there significant payments not already provided for, since general costs of oversight and maintenance are already items in the cantonal and federal economies and not separately accounted for. The same applies to offsetting payments for renounce of use of hydropower, which are funded by pass-throughs on water rates. On the other hand, linking the management of the World Heritage area with management of sustainable development for the whole region demands a larger budget (around CHF 3 million a year; compare management plan in Suppl. 7), which must be supplied from public and private sources. The management centre is directed by UNESCO's JAB World Heritage Site Association. The cantons each put in CHF 75'000 yearly. Support at the federal level flows through several channels. In the areas of protective measures, communications and research relating to the World Heritage area, funding for concrete projects is extended in the amount of some CHF 400'000 to 500'000 annually, as provided by the federal Law on the Protection of Nature and Cultural Heritage.

5.g Sources of expertise and training in conservation and management techniques

Cantonal and federal officers responsible for nature and landscape protection are chosen from holders of university diplomas, generally in biology, geography or engineering.

5.h Visitor facilities and statistics

There is not yet a visitors' centre as such. The management centre performs various visitor information functions (including through the web site www.welterbe.ch) and supports other regional groups interested in communications and environmental education about the World Heritage Site Jungfrau-Aletsch-Bietschhorn. The nature protection organisation Pro Natura, with its Aletsch centre on the Riederalp, is active specifically in this area. The Aletsch centre is optimally located at the boundary between natural and developed landscapes. Along with exhibits, an audiovisual show and an Alpine garden, Pro Natura runs excursions from the centre and offers courses, meetings and seminars on environmental education. Some 50'000 to 70'000 persons visit the Aletsch forest every year.

Infrastructure at the Jungfrauoch comprises a facility with restaurant, a railway station (in the rock) and a research station. No overnight facilities are offered for visitors. The

Jungfrauoch is a tourist attraction on the one hand but on the other hand is also an ideal research location. An interpretive exhibit deals with research, scientific knowledge, and the history of the Jungfrau railroad. Roughly 500'000 visitors a year come to the Jungfrauoch.

A concept on the construction of a Jungfrau-Aletsch-Bietschhorn information network is elaborated, including the already existing dialogue and visitors' centres at Naters and in the Bernese Oberland. These will give an overall picture of human culture and nature both in the nominated area and throughout the region, using not only documentation but also direct experience.

Other facilities, in particular the shelters and cabins inside the nominated perimeter, are chiefly oriented to use by alpinists (compare Section 4.b iv). Here too, however, interpretive materials on the World Heritage Site are to be provided with the aim of educating and sensitising visitors.

There are no other facilities or infrastructure for visitors inside the World Heritage area. Outside the area, the communes offer a wide assortment of accommodations, parking, and public and tourist transportation.



Fig. 21: The Aletsch forest, a focal point for the tourists due to its natural values
(Photo: L. Albrecht).

5.i Policies and programmes related to the presentation and promotion of the property

By including the two objects Bernese Alps and Aletsch-Bietschhorn (which take in virtually the entire area of the nominated property) in the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN), the federal government acknowledged that these areas merit protection. Efforts to implement federal tasks are subject to stringent conditions because the areas are especially worthy of preservation with no diminution and also of the greatest possible protection in the course of restoration and appropriate replacement projects. But this determination does not amount to solid protection, and so other protective measures have been overlaid on it. A study is now under way to determine how protection for BLN objects can be further improved. The efforts of the cantons in this direction find support from the federal government. The designation of the area as a UNESCO World Heritage Site is being used by the local communes to publicise the beauty of the landscape and also forms the basis for a commitment to sustainable development throughout the region's communes.

5.j Staffing levels (professional, technical, maintenance)

The area is monitored in the usual way by cantonal officers with special education and advanced training for this task (e.g., game-keepers and fishing wardens). The management centre is run by specialists familiar with the region, who have the job of enlisting needed technical personnel for projects to be implemented.

Sources	Gerber B. et al. (1999), Hammer T. (2005), SAEFL (1998, 2000, 2002), Thielen R. et al. (2002), UVEK (2003).
Annexes	1, 2, List of national and cantonal legislations: Chapter 7.b
Supplements	5, 6, 7, 8

6 Monitoring

6.a Key indicators for measuring state of conservation

A performance review system for the nominated area is still being developed. A selection of the key indicators listed below may serve this purpose but still has to be validated in detail. If possible, performance review should be built into existing control systems or derived from existing data records. It should be considered in particular that the corresponding data can be obtained with sufficient accuracy at a reasonable expense.

The key indicators should relate to the criteria characterising the state of protection in the nominated area as described in Section 4.a. They should in particular refer to the assertions in the Statement of Outstanding Universal Value (compare Section 3.b).

The selected system of indicators must still be refined and made more operable. Points of focus include determining the intervals at which data should be acquired. At present, many kinds of data are acquired regularly and can be used as indicators (e.g., counts of hoofed animals, number of visitors, number of overnight stays, etc.). Data from the national measurement network are also available and, at present, are employed chiefly in environmental monitoring.

Table 10: Proposed key indicators, possible frequency of determination (Y = annually; S = after several years; R = running record), and place of data retention (Mgt. centre: Management centre has data from different sources, goal: all data are available at the management centre).

Indicator	Frequency	Data held at
Biological indicators:		
Size and reproduction rate of lynx population	S	Canton
Size and reproduction rate of wolf population (probable number of individuals at present: 0)	S	Canton
Sizes of populations of hoofed animals (Alpine ibex, red deer, chamois)	Y	Canton
Size and reproduction rate of bearded vulture population	S	Canton
Size and reproduction rate of golden eagle population	S	Canton
Density of certain bird populations (e.g., grouse)	S	Canton
Ecosystem indicators:		
Quantity and quality of protected areas	S	Canton/federal
Approach of forests to natural state	S	Canton
Animal loading of alps	Y	Canton
Sociocultural indicators:		
Number of overnight stays	Y	Mgt. centre
Quality of deliveries and disposal	S	Mgt. centre
Mechanical interventions	Y	Mgt. centre
Length of hiking trails	Y	Mgt. centre
Length of via ferrata	Y	Mgt. centre
Length of forest and alpine roads	Y	Mgt. centre
Number of the flights and passenger counts	Y	Mgt. centre
Number of the high-altitude landing facilities	Y	Mgt. centre
Expansion of existing shelters	Y	Mgt. centre
Construction of new shelters	Y	Mgt. centre
Planning indicators:		
Implementation of area in master plans	S	Canton
Implementation of area in zoning plans	S	Canton
Indicators from national measurement networks:		
MeteoSchweiz network: climatological and meteorological parameters	R	Meteo-Schweiz
National Air Pollution Monitoring Network	R	Federal
Swiss Glacier Measuring Network	R	Federal
Red Lists	S	Federal
Swiss Biodiversity Monitoring	S	Federal

6.b Administrative arrangements for monitoring property

In recent years the federal government has made intensive efforts at both strategic and operational levels in the area of performance monitoring, after allotting to itself the task of constructing standardised monitoring policies for the federal inventories so that actions taken and their impacts could be assessed (new Art. 27a in the Ordinance on Nature and Landscape Protection (RS 451.1), in force since 1 August 2000).

Under a federal government mandate, the BLN is currently undergoing a comprehensive effectiveness review. A monitoring system will be established so that the impact of the BLN can be evaluated for Switzerland as a whole and longitudinally over time.

The performance review system is already in operation for mire protection. Mires of national importance within the area are also included, particularly the one in the Aletsch forest.

For alluvial sites of national importance, a performance review system is in place and the first phase of information gathering is complete (including for objects inside the nominated area). Assessments, however, will have to wait on a second phase of information gathering in a few years.

Sector-by-sector performance reviews are carried out in federal hunting reserves. Game-keepers prepare annual reports for the SAEFL, including estimates of wildlife populations in the reserves.

Ibex colonies are specially monitored. Under the Ordinance of 30 April 1990 on the Regulation of Ibex Populations, the cantons carry out annual surveys to determine populations, sex and age breakdowns, gains and losses, and population development.

A federal monitoring programme aided by experts on rock ptarmigan and black grouse has been installed in the Aletsch forest. The federal government has turned over nationwide monitoring of large carnivores (bear, lynx, wolf) to the Carnivore Coordination Office (KORA). There is also a nationwide monitoring programme for bearded vulture. Monitoring (and in some cases promotion) programmes supported by the federal government are also in place for other threatened bird species. Monitoring is carried out in cooperation with the cantons.

Changes in the lengths of some glaciers are already being measured, generally every year, although this is done not to gauge performance but as a contribution to environmental monitoring. Glaciers in the nominated area that are included in the measurement network are the Blüemlisalp, Upper and Lower Aare, Upper and Lower Grindelwald, Rosenloui, Gamchi, Tschingel, Alpetli (Kanderfirn), Eiger, Fiesch, Langgletscher and the Great, Middle and Upper Aletsch.

The Swiss Biodiversity Monitoring Programme is designed for an on-the-ground census of animal and plant species in specified areas. These places are systematically distributed over the entire country and some are located in the nominated area. The resulting data series will support inferences about the development of the fauna and flora.

6.c Results of previous reporting exercises

Reports concerning the area as a whole have not yet been prepared. It will be a task of management to put such reports together. Surveys already conducted (see above, Section 6.b) do, however, permit some statements describing the present situation.

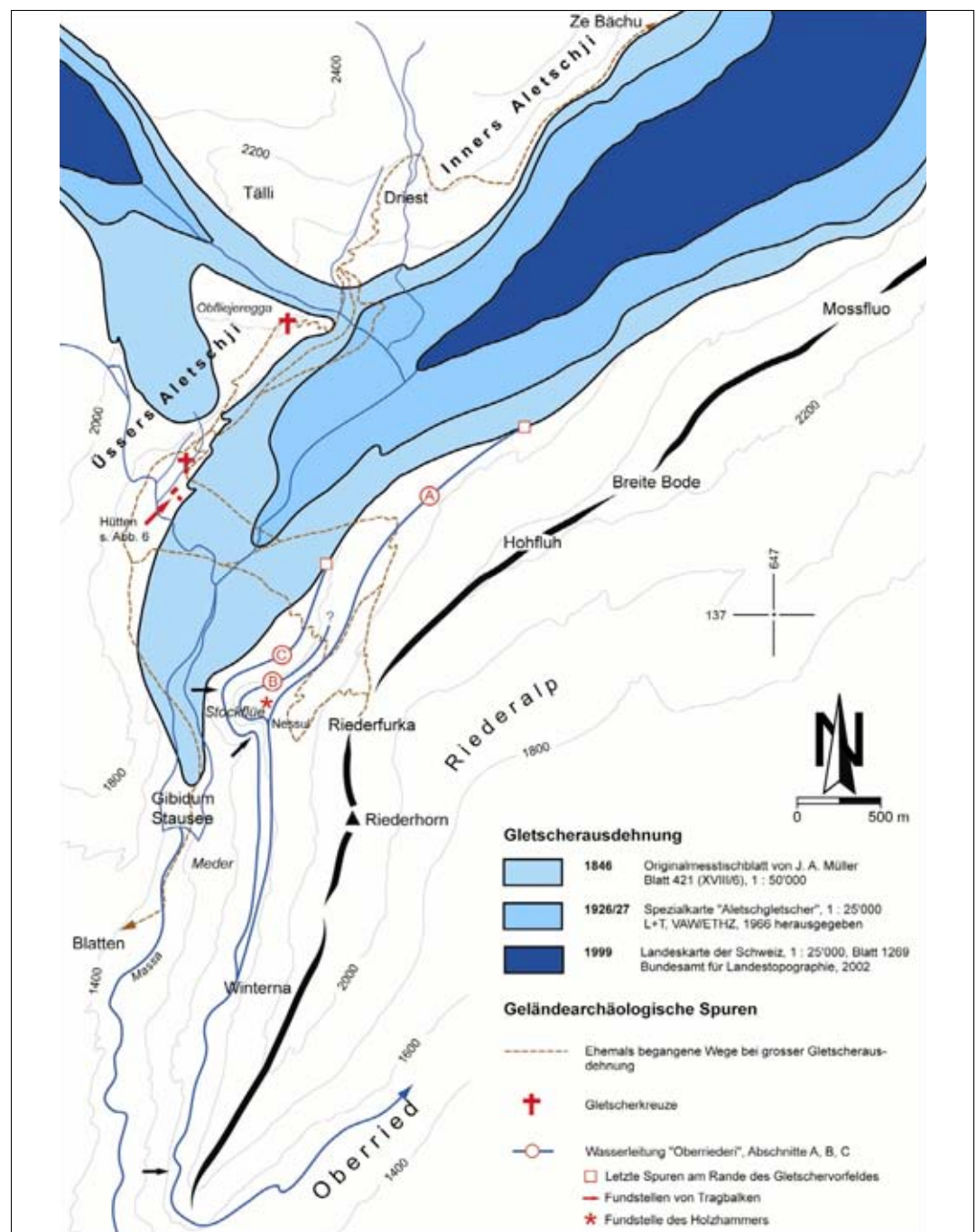


Fig. 22: Evolution of the Aletsch glacier between 1846 and 1999 as well as historical trails, landmarks and irrigation systems (H. Holzhauser, 2005).

In the hunting reserves, wild population is constant. The ibex colonies are developing well. The Annual Hunting Reserves Report 2004 provides information about hunting activities in the federal hunting reserves (Suppl. 9).

Several publications document the retreat of the glaciers over several years. A most impressive example is the Aletsch glacier. Figure 22 shows the evolution of the glacier between 1847 and 1999.

The red deer population creates problems connected with distribution and land use, especially in the Aletsch forest. Here, in contrast to the Aletsch plateau with its intensive use in tourism, the animals find an undisturbed home range free of hunting; as a result, their density has risen to the point that they interfere with new growth.

The populations of rock ptarmigan are steadily decreasing since the beginning of the monitoring in 1975 (Suppl. 10).

Sources	Bruderer B. & Komenda-Zehnder S. (2005), Gerber B. et al. (1999), Hintermann U. et al. (2002), Holzhauser H. & Zumbühl H. (2003), KORA (2005), SAEFL (2000, 2002, 2005), SOSS (2005), Thielen R. et al. (2002), UVEK (2003), Wiesmann U. & Liechti K. (2004).
Annexes	10
Supplements	9, 10, 11, 12, 13

7 Documentation

7.a Photographs, slides, image inventory and authorization table and other audiovisual materials

Image inventory and photograph and audiovisual authorization form

Id. No	Format (slide/print/video)	Caption	Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner (if different than photographer / director of video)	Contact details of copyright owner (Name, address, tel/fax, and email)	Non exclusive cession of rights ¹
TL1	slide/print Fig.3	The chain of peaks of the Bernese High Alps with Eiger, Mönch und Jungfrau (view from Schilthorn)	10/1985	Toni Labhart		Prof. Dr. Toni Labhart Austr. 26 CH- 3084 Wabern toni.labhart@bluewin.ch Tel: 0041 31 961 25 00	Yes
TL2	slide	North faces of the Bernese High Alps with Eiger and Wetterhorn (north-eastern part of the extension area), view from Schilthorn	9/1985	Toni Labhart			Yes
TL3	slide/print Fig.7	Upright Mesozoikum in Gross Wellhorn (part of the north-eastern extension area Wetterhorn-Engelhörner), view from east	9/1988	Toni Labhart			Yes
TL4	slide/print Fig.6	The edge of the glacier-polished surface in the Brunhorn-Brandlammhorn chain north of Grimsel Lake (south-eastern part of the extension area). The upper edge of the snow coincides with the highest level of the glacier during the ice age	9/1988	Toni Labhart			Yes
TL5	slide/print Fig.14	The alluvial site of the Gasteren valley (left side of the river is part of the western extension area)	7/1982	Toni Labhart			Yes
TL6	slide	Bietschhorn, view from north west	10/1978	Toni Labhart			Yes
TL7	slide	Fusshörner, view from east. Alpin Aaregranit broken off in shavings. Nesthorn in the background.	8/1983	Toni Labhart			Yes
TL8	print Fig.4	The Aletschhorn seen from the Sparrhorn, summit of gneiss on a base of central Aare granite	uk	Toni Labhart			Yes
KH1	slide	Finsteraarhorn early in the morning (view from ascent to Schreckhorn)	1990	Karl Hausmann		Karl Hausmann Schoren 25 CH-3653 Oberhofen karl.hausmann@bluewin.ch	Yes
HH1	slide	Glacier cross dated from 1818 in Usseren Aletschji on Baselflie. Eggishorn and Bettmerhorn with Aletsch glacier can be seen in the background.	uk	Hanspeter Holzhauser		Dr. Hanspeter Holzhauser Ahornstr. 38 CH-8051 Zürich Tel.: 0041 44 322 99 53 h.holzhauser@tiscali.ch	Yes
HH2	slide	Moraine of the lower Grindelwald glacier	2005	Hanspeter Holzhauser			Yes
HH3	print Fig.18	The Aletsch Glacier, situation in 1856 (left) and in 2003 (right). View from the Belalp	2003	Hanspeter Holzhauser			Yes
HZ1	slide/print Fig.9	The Lower Aar Glacier (eastern part of the extension area), view from east, with Finsteraarhorn and Lauteraarhörner in the background	9/1990	Heinz J. Zumbühl		PD Dr. Heinz J. Zumbühl Geographisches Institut Hallerstr. 12 CH-3012 Bern zumbuehl@giub.unibe.ch	Yes
LA1	slide	The valais rock steppe	uk	Laudo Albrecht		Laudo Albrecht Pro Natura Zentrum Aletsch Villa Cassel CH-3987 Riederalp laudo.albrecht@pronatura.ch	Yes
LA2	slide/print Fig.21	Aletsch forest	1994	Laudo Albrecht			Yes
LA3	slide	Märijelensee surrounded by glacier ice	1999	Laudo Albrecht			Yes

Id. No	Format (slide/print/video)	Caption	Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner (if different than photographer / director of video)	Contact details of copyright owner (Name, address, tel/fax, and email)	Non exclusive cession of rights ¹
LA4	print Fig.13	A specialties of the glacier fauna: the glacier flea (<i>Isotoma saltans</i>)	1995	Laudo Albrecht			Yes
SE1	slide/print Fig.11	Dwarf sedge community (<i>Caricion</i>) with Cotton Grass <i>Eriophorum</i> sp. near Märjelensee VS.	2001	Samuel Ehrenbold		Samuel Ehrenbold Monbijoustrasse 112 CH-3007 Berne, samehrenbold@gmx.net	Yes
SE2	slide	An alpine alluvial site at the end of the Aletsch glacier	2001	Samuel Ehrenbold			Yes
STE1	slide	Bietschhorn	11/1999	Stefan Eggel		Stefan Eggel CH-3903 Birgisch s.egge@walliserbote.ch	Yes
STE2	slide	The valais rock steppe (Walliser Felsensteppe) at the south ramp of the Lötschberg	10/2001	Stefan Eggel			Yes
STE3	slide/print Fig.10	The valais rock steppe (Walliser Felsensteppe) with the small village of Erl	9/1988	Stefan Eggel			Yes
STE4	slide	The Mundbach in the Gredetsch valley	08/1999	Stefan Eggel			Yes
STE5	slide	The Oberaletsch shelter of the Swiss Alpine Club	07/1988	Stefan Eggel			Yes
TA1	slide/print Fig.17	The Aletsch Glacier, the largest and longest glacier in Western Eurasia	uk	Thomas Andenmatten		Thomas Andenmatten Bahnhofstr. 5 CH-3900 Brig	Yes
TA2	slide	Hiker on a Suone (ancient irrigation system) in the Baltschieder valley	1995	Thomas Andenmatten			Yes
LF1	slide/print Fig.5	The Trümmel brook fall, an example for a fluvatile gorge	7/2001	Lorenz A. Fischer Allvisions Sälihalde 6 CH-6005 Luzern lafischer@allvisions.ch, www.allvisions.ch	see right column	Association UNESCO Welterbe Jungfrau-Aletsch-Bietschhorn Postfach 444 CH-3904 Naters info@welterbe.ch	Yes
LF2	slide	The impressive limestone north face of the Scheideggwetterhorns	10/2004	Lorenz Fischer			Yes
LF3	slide	Grimsel lake (south-eastern part of the extension area) with Schreckhorn and Lauteraarhorn in the background	8/2005	Lorenz Fischer			Yes
LF4	slide/print Fig.16	Waterfall above the Oeschinen lake (north-western part of the extension area)	8/2005	Lorenz Fischer			Yes
LF5	slide	Blüemlisalp glacier (north-western extension of the extension area)	7/1996	Lorenz Fischer			Yes
LF6	slide	Panorama with Grosshorn, Breithorn and Tschingelhorn	8/2005	Lorenz Fischer			Yes
LF7	slide	Arolla pine and larks in front of a moraine	10/2001	Lorenz Fischer			Yes
LF8	slide	Schreckhorn with the upper Grindelwald glacier	9/2002	Lorenz Fischer			Yes
LF9	slide	Gspaltenhorn, one of the highest north faces of the alps (part of the north-western extension area)	9/2002	Lorenz Fischer			Yes
LF10	print Fig.12	Chamois (<i>Rupicapra rupicapra</i>)	8/2005	Lorenz Fischer			Yes
UK1	print Fig.12	Alpine ibex (<i>Capra ibex</i>)	uk	uk			no
JB1	print Fig.15	The High Alpine research station at the Jungfraujoch	uk	Jungfraubahnen		Jungfraubahnen Höheweg 37 CH-3800 Interlaken	no

¹ The copyright owners want to be informed, in the case of using the photos.

7.b Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property

List of the relevant federal legislations

The most important are attached in the supplement.

All are available online under <http://www.admin.ch/ch/f/rs/45.html>.

Loi fédérale du 1 ^{er} juillet 1966 sur la protection de la nature et du paysage (LPN, RS 451).	Suppl. 5
Ordonnance du 10 août 1977 concernant l'inventaire fédéral des paysages, sites et monuments naturels (OIFP, RS 451.11)	Suppl. 5
Loi fédérale du 20 juin 1986 sur la chasse et la protection des mammifères et oiseaux sauvages (LChP, RS 922.0)	Suppl. 5
Ordonnance du 30 septembre 1991 concernant les districts francs fédéraux (ODF, RS 922.31); http://www.admin.ch/ch/f/rs/c922_31.html	Suppl. 5
Ordonnance du 30 avril 1990 sur la régulation des populations de bouquetins (ORB, RS 922.27)	Suppl. 5
Ordonnance du 25 octobre 1995 sur la compensation des pertes subies dans l'utilisation de la force hydraulique (OCFH, RS 721.821)	Suppl. 5
<i>Ordonnance du 28 octobre 1992 sur la protection des zones alluviales d'importance nationale (RS 451.31)</i>	
Ordonnance du 21 janvier 1991 sur la protection des hauts-marais et des marais de transition d'importance nationale (RS 451.32)	
Ordonnance du 7 septembre 1994 sur la protection des bas-marais d'importance nationale (RS 451.33)	
Ordonnance du 1er mai 1996 sur la protection des sites marécageux d'une beauté particulière et d'importance nationale (RS 451.35)	

List of relevant cantonal and communal legislations, contracts and plans

Canton du Valais	Loi sur la protection de la nature, du paysage et des sites du 13 novembre 1998	Suppl. 6
	Koordinationsblatt f. 603/2 (Stand 21. Juli 1999) aus dem Richtplan des Kantons Wallis (31. Dezember 1999)	Suppl. 6
	Beschluss des Staatsrates des Kantons Wallis zum Schutz des Aletschwaldes vom 5. Mai 1933	Suppl. 6
	Beschluss des Staatsrates des Kantons Wallis zum Schutz der Gegend des Märjelensees vom 23. Februar 1938	Suppl. 6
	Entscheidung des Staatsrates des Kantons Wallis betreffend den Schutz der vier Auengebiete von nationaler Bedeutung und der Gletschervorfelder des Jegi- und des Langgletschers im Lötschental vom 20. Mai 1998	Suppl. 6

Kanton Bern	Loi sur la protection de la nature 15 septembre 1992	Suppl. 6
	Plan zum Landschaftsentwicklungskonzept 2005 (1991)	
	Naturschutzgebiet 4.1.1.39, Hinteres Lauterbrunnental, Extrait du procès verbal No 3804 du Conseil-exécutif du Canton de Berne, 21 Juin 1960	Suppl. 6
	Naturschutzgebiet 4.1.1.206, Wengernalp, Extrait du procès-verbal No 3502 du Conseil-exécutif du Canton de Berne, 22 décembre 1999	Suppl. 6
	Richtplan Region Oberland Ost (1984) Regionaler Waldplan Lüttschinentäler (1999)	
Management		
Managementplan: Erstellt von der Trägerschaft des Vereins UNESCO Welterbe Jungfrau-Aletsch-Bietschhorn, Oktober 2005	Suppl. 7	
Charter of Konkordiaplace, 26 September 2001 and 1 March 2005 (additional communes)	Suppl. 8	

7.c Form and date of most recent records or inventory of property

The protected areas are in the appendices to the respective national and cantonal ordinances and government decisions.	see 7.b
Lists of the federal inventories are located in the appendices of the corresponding ordinances	see 7.b
Map of the inventory of landscapes worthy of protection (BLN) and Biotope Protection (National)	Annex 1
Maps of areas designated for national and cantonal landscape protection	Annex 2
Fauna and flora data are collated by a number of national databanks. The datalists for the site in question were drawn from October 2005:	
• List of tubular plants,	Suppl. 2
• List of mosses	Suppl. 2
• List of fauna data (mammals, reptiles, amphibians, fish, shellfish, gastropods, insects)	Suppl. 3
• List of birds	Suppl. 3
A study of the biodiversity in the 26 perimeter districts of the JAB from August 2005 provides information in particular concerning the habitat distribution and the distribution of the endangered species:	
• Maps of the number of habitats per km ² (maximum 4)	Annex 8
• Maps of the number of endangered species per km ² in the 4 habitats.	Annex 9

7.d Address where inventory, records and archives are held

Information concerning federal inventories, fauna and flora

Swiss Agency for the Environment, Forests and Landscape (SAEFL)
Department of Nature and Landscape / Species Management Department
CH-3003 Bern
Switzerland

Information concerning visitors facilities and statistics, management and information

UNESCO World Heritage Site Jungfrau-Aletsch-Bietschhorn
Administration Center
Kirchstrasse 1, CH-3904 Naters and
Jungfraustrasse 38, CH-3800 Interlaken

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9 Signature on behalf of the State Party

Berne, december 15, 2005

Swiss Agency for the Environment,
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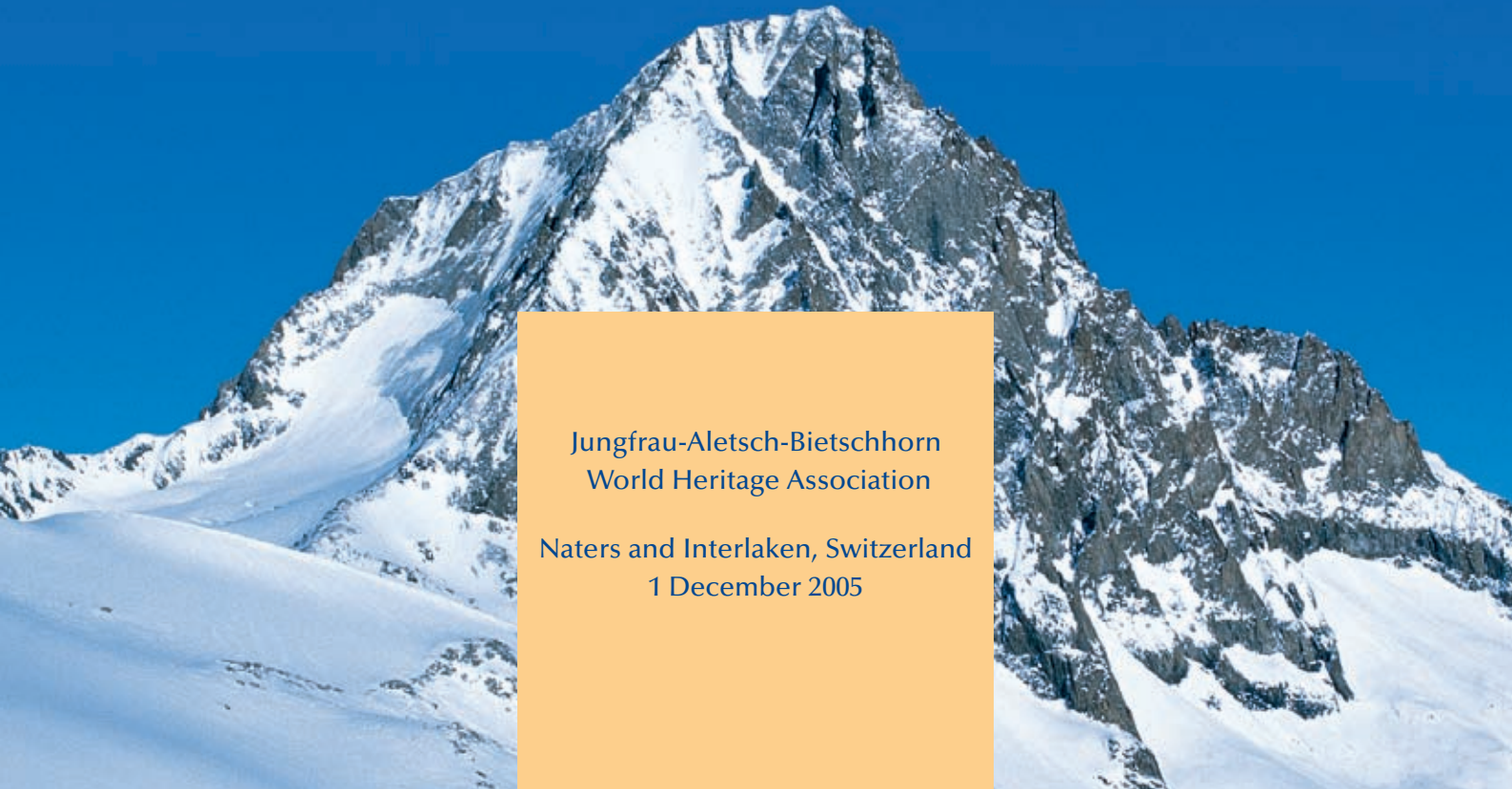
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Management Plan for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site



Jungfrau-Aletsch-Bietschhorn
World Heritage Association

Naters and Interlaken, Switzerland
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Cover photos

Jungfrau-Aletsch-Bietschhorn World Heritage Association (2005)

Albrecht (1999); Ehrenbold (2001); Andenmatten (1995); Jungfraubahnen

No earthly object that I have seen approaches in grandeur to the stupendous mountain wall whose battlements overhang in mid-air the villages of Lauterbrunnen and Grindelwald; the lower hills that rise beneath it, like the long Atlantic rollers beaten back from the granite cliffs on our western coast, are a most effective contrast to its stern magnificence; in the whole Alps there is no ice-stream to be compared to the noble Aletsch glacier, sweeping in one majestic curve from the crest of the ridge down to the forests of the Rhone valley; no mountains, not even the aiguilles of Mont Blanc, or the Matterhorn itself, can show a more graceful outline than the Eiger – that monster, as we may fancy, the act of bounding from the earth. (Stephen 1871: 70)

Leslie Stephen, the first to climb the Bietschhorn, Blüemlisalphorn, Schreckhorn and Zinalrothorn and to cross the passages of Jungfraujoche, Eigerjoch and Fiescherjoch

Source: STEPHEN L., *The Playground of Europe* (1871)

Foreword

The project for implementation of the Jungfrau-Aletsch-Bietschhorn UNESCO World Natural Heritage Site is a model of intercantonal cooperation. It has both stimulated and strongly promoted regional policymaking and may justifiably be regarded as an opportunity for the region.

The actual basis for operational implementation was created with the foundation of the Association and the Management Centre with offices in Naters and Interlaken. In the Canton of Valais, 18 communes have areas inside the perimeter of the World Heritage Site, and the 6 seats on the Supervisory Board accorded to the Valais are occupied by 3 representatives of the communes and 3 stakeholder representatives. In the Canton of Berne, 8 communes have areas inside the perimeter. Here, Association members constitute two planning regions that function as points of contact and donors. These planning regions consist of a total of 34 political communes and include communes in the vicinity of the World Heritage Site so as to guarantee broadly based support. Like the Valais, the Bernese side also delegates 3 representatives of communes and 3 stakeholder representatives to the Supervisory Board. In addition, the Association presidency is currently held by the Bernese side.

The greatest challenge facing all parties involved is to acknowledge the common heritage and promote the common objectives aimed at sustainable development. A time-consuming participatory process in 2 cantons and 26 communes has contributed a great deal to this declared goal, and deserves recognition as an innovation. Commitment to a sustainable JAB World Heritage along with the requisite attitude and willingness to act accordingly, represents a long-term opportunity for regional development.

We would like to extend special thanks to voters and the political bodies in the associated communes. Without their consent, initialisation of a World Heritage Site and the extension of the perimeter would not have been possible.

Our thanks also go to everyone involved in the forums: to the many participants and, in particular, our forum chairmen Thomas Egger, Jürg Meyer, Urs Schaer and Hans Weiss, who have made a huge contribution towards the Jungfrau-Aletsch-Bietschhorn World Heritage Site project. A big vote of thanks also to the authors who contributed the comprehensive reports which form the basis of Chapter 2 of this Management Plan. Furthermore, we should like to thank the National Centre of Competence in Research North-South (NCCR North-South; co-financed by the Swiss National Science Foundation and the Swiss Agency for Development and Cooperation) at the Institute of Geography of the University of Berne and its staff for the support they provided during the forum process, as well as for drawing up the Management Plan and the related map material. Finally, our thanks go to the participating federal offices SAEFL and seco, the cantons of Berne and Valais, and to private institutions for their financial support and cooperation.

The foundations for sustainable development have now been laid, presenting the region with a unique opportunity. Let us now ensure that our ethos and vision are translated into reality. Let us accept the field of conflict that exists between this outstanding zone of natural beauty and the population of both this zone and the surrounding areas. The declared objective of the World Heritage Region is to achieve sustainable development as a place of business, residence, recreation, and natural beauty.

On behalf of the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site
Project Management and Association



Martin Heim, President

Notes for Readers

Annexes 1 to 4 are an integral part of the Management Plan and, in addition to basic documents such as the Charter of Konkordiaplatz, statutes, regulations and organisational chart (Annex 1), contain exemplary insights into already defined projects and activities of the core groups (Annex 2). Annex 3 consists of maps, block diagrams and graphics related to the various topics discussed in the Management Plan, thus providing an important source of visualisation of the contents of Chapters 1 to 7. In addition, Annex 4 contains a comprehensive list of statistical data on the Jungfrau-Aletsch-Bietschhorn World Heritage Region.

For ease of reading the term Jungfrau-Aletsch-Bietschhorn is sometimes referred to in the text by the abbreviation JAB. Accordingly, JAB Region or World Heritage Region refer to the entire territory of the 26 associated communes. Inside the perimeter of the WHS and the World Heritage Site refers only to the area inscribed by the UNESCO Committee as a World Heritage Site in December 2001, including the extensions decided on at the end of 2004, but excluding the territory of the associated communes outside the WHS perimeter.

Summary

Management Plan

This Management Plan outlines measures to ensure the long-term preservation of the unique Jungfrau-Aletsch-Bietschhorn (JAB) World Heritage Site and discusses ways in which its value can be leveraged by the surrounding region. The Management Plan addresses all groups within the administration, the general population, the business sector and civil society who are involved and interested in the protection and use of the World Heritage Site and its surrounding region. It represents a binding obligation on the part of the JAB World Heritage Site Association to initiate and coordinate the implementation process. At its core are the objectives, measures and processes which will ensure the conservation of the first Alpine World Natural Heritage Site and promote sustainable development for the region's economy, community, and nature.

The plan is the result of a broadly based process of negotiation and clarification by means of which the –originally highly disparate – expectations of the World Heritage Site were refined, formulated, and translated into areas of action. As such, it represents a working instrument for use in further resolving conflicts and interests and in promoting creative, innovative projects and initiatives in the World Heritage Site and Region.

Background

On 13 December 2001, at the request of the Federal Council, the UNESCO World Heritage Committee inscribed the Jungfrau-Aletsch-Bietschhorn region on its World Heritage List. This inscription was awarded on the basis of three criteria: (1) The importance of the high-mountain region and its glaciation as a source of geological data and a witness to climate change; (2) The importance of the region as a dynamic (due to glacier fluctuations) and rich in diversity alpine and sub-alpine habitat; (3) The extraordinary scenic and aesthetic appeal of the region, which has frequently been attested to throughout cultural history.

The designation as a World Heritage Site was awarded to a region that covers 539 km² and is shared by 15 communes. In the course of negotiations on the formulation of the Management Plan, the World Heritage Region was extended by 53%. Subject to UNESCO's approval, the future World Heritage Site will cover a surface area of 824 km², of which 57% lies in the Canton of Valais and 43% in the Canton of Berne, covering parts of 18 communes on the Valais side and 8 communes on the Berne side.

According to the applicable UNESCO criteria, the JAB World Heritage Site mainly comprises natural high-mountain landscapes. Consequently, only 15% of the area is below an altitude of 2000 metres and, according to land cover and land use statistics, the proportion of unproductive vegetation and vegetation-free areas in the area is 88%. However, these natural landscapes are not static, but are subjected to extensive and continual change that has accelerated additionally as a result of glacial recession in recent decades. Despite the fact that the majority of the area inside the perimeter of the WHS is not subject to direct use by humans, the Jungfrau-Aletsch-Bietschhorn World Heritage Site plays an important role as a tourist attraction and recreational space. It may therefore be reasonably assumed that conflicts regarding the preservation and use of the World Heritage Region in connection with tourist offers or flight corridors will be further exacerbated.

A major part of the economy and the 35,000 inhabitants of the 26 communes in the World Heritage Region are directly or indirectly linked to tourism. The attractiveness of the region is predicated not only on the high Alps and impressive natural landscapes; its uniqueness lies also in the contrast with

traditional cultural landscapes that adjoin the perimeter and are primarily shaped by centuries of agricultural use and culture. Given the ongoing dramatic changes in the agricultural sector, the risk facing the cultural landscapes in the World Heritage Region must be assessed as higher than that facing the natural landscapes inside the perimeter of the WHS.

These factors were recognised early on by the communes involved. The inscription on the World Heritage List was therefore leveraged not only as an opportunity to contribute to the preservation of the World Heritage Site in the narrower sense, but also as a commitment to sustainable development in the entire Region covered by the associated communes. The foundations were laid in 2001 with the signing of the Charter of Konkordiaplatz, which calls for sustainable development of the economy, community, and ecology of the World Heritage Region.

Maintaining the right balance between the preservation of the World Heritage Site and the promotion of sustainable regional development therefore constitutes a key challenge for the Management Plan, particularly since implementation of the plan must take place within a highly complex institutional framework that involves the Confederation, 2 cantons, 26 communes, and a wide range of interested and concerned organisations.

Conservation and Development Objectives

The objectives related to the conservation and use of the World Heritage Site and the sustainable development of the World Heritage Region as a whole form a central element of the Management Plan, and were formulated on the basis of a broad negotiation process. Rather than formulating systematic, self-contained objectives, the aim of this process was to draw up a comprehensive list of objectives that address the needs, wishes and visions of affected or involved sectors of the population and stakeholder groups. Even if all the defined protection and development objectives were approved by a clear majority during the participatory process, they are not free of inconsistencies. A deliberate move was made not to eliminate all conflicts, since innovative, broadly based implementation processes are possible only if based on transparency from the outset.

The overall goals as well as the objectives within each target area are delineated within the legal framework and require no amendments to existing laws or regulations. They are intended solely as a means of improving implementation and controls. Consequently, in accordance with the above-mentioned binding nature of the Management Plan, the autonomy of communes is guaranteed at all times.

The Management Plan is based on six overall goals which are primarily aimed at the area inside the perimeter of the WHS but are applicable throughout the World Heritage Region as appropriate. The first three support the aim of preserving the integrity of the diversity and uniqueness of the natural and cultural landscapes, the natural and quasi-natural ecosystems, and the flora and fauna. The focus is on a dynamic rather than a static approach to conservation, which incorporates natural change as well as human-induced developments. The other three overall goals aim to ensure appropriate economic and social use, and stress the importance of awareness-raising and communication.

The overall goals are refined in 69 objectives within the individual target areas, for which the need for action as well as the relevant organisations and actors were identified. Objectives were formulated for the following areas: Natural and cultural landscapes (5 objectives); Flora and fauna (3 objectives); Agriculture and forestry (14 objectives); Hunting and fishing (5 objectives); Industry, trade and commerce (8 objectives); Energy and transport (12 objectives); Tourism and visitor management (12 objectives); as well as Culture, education, information and research (10 objectives).

Each objective has been defined as either addressing primarily the area inside the WHS perimeter or the Region as a whole. The relevance of each objective has been determined, along with the extent to which it is regarded as binding for the Association. It has become clear that the need to combine sustainable regional development with the conservation of the World Heritage Site necessitates objectives that address the entire Region and, in addition, are geared to concrete actors in the community and the business sector. Tourism, with its economic and social links, as well as agriculture, with its close links to forestry, hunting, fishing and the cultural landscape, are of special importance. This underpins the fact that implementation of the JAB World Heritage goals and objectives cannot be delegated to a single organisation or administration, but necessitates the active participation of a large number of public and private actors.

Protection Status and Organisation

One of the central aims of the Management Plan is to preserve the World Natural Heritage Site as outlined by the UNESCO inscription criteria. With a view to identifying the relevant need for action, the protection status of the World Heritage Region and, in particular, the area inside the perimeter of the WHS was determined. 94.4% of the World Heritage Site is protected by the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN; object 1507/1706). Moreover, 41% of the area is accorded additional overriding protection status in terms of biotopes of national importance, cantonal and communal nature reserves, federal hunting reserves, etc. Of the 5.6% of the surface not under BLN protection, a further 2% is protected by other measures. This situation means that protection in the legal sense of the term is sufficient to preserve the World Heritage (in total, 96.4% of the surface area is accorded at least one protection status). However, a need for action exists in terms of implementing and controlling the various existing protective regulations.

Studies conducted to determine the protection status once more highlighted the fact that implementation of the JAB World Heritage goals and objectives is not primarily a question of administration and legal status, but requires a broadly based process which must involve as many segments of the population, the business community and interested organisations as possible. In line with this, an organisational structure based on the following three pillars was proposed for implementation of the JAB World Heritage goals and objectives: (1) The Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site Association including the Management Centre, which comprises the main public and private representatives and steers the implementation process in its entirety; (2) Core groups involved in the implementation of specific prioritised project lines and consequently consisting of interested, competent individuals in the relevant segments of the population and organisations; (3) An extensive cooperation network of administrative and research bodies and interested organisations, which can be leveraged for specific project needs.

Implementation of Areas of Action

At the core of the implementation process lie 21 thematic fields of action consisting of so-called project lines. These project lines were created by systematically grouping the 69 objectives and associated measures formulated during the participative process, with a view to enabling the resolution of residual conflicts over objectives and measures, and ensuring that the Region's great potential can be leveraged in accordance with the idea of sustainable development and the World Heritage vision. The assignment of the objectives to thematic fields of action was carried out in collaboration with the affected population and interested organisations, who then also prioritised the fields of action.

The core groups formulated and recommended concrete projects and activities for each field of action. The relevance of these projects for the World Heritage Site, the World Heritage Region or the

general public may vary. The fields of action are not implemented simultaneously, but rather in accordance with their prioritisation as defined by the plenary forum. The duration and scheduling of the phases will vary depending on complexity and scope. Reports on the results of Priority 1 fields of action, where the definition phase has already been completed, are available for fields of action 1.5, 3.1, and 3.6/7 (as at August 2005).

The 21 fields of action are divided into three areas of action: (1) Nature and Habitat; (2) Economy and Culture; (3) JAB-Organisation and -Communication. The first area of action aims to coordinate objectives related to conservation and use, the second addresses the sustainability of the economy and culture, and the third aims to create organisational and communication structures to support the implementation of the World Heritage objectives and concerns.

“Nature and Habitat” covers 7 fields of action which are summarised as follows: (1) Rich Biodiversity; (2) Near-natural Forest; (3) Traditional Cultural Landscape; (4) Existing Laws and Ordinances; (5) Regulated Outdoor Activities; (6) Integrated Transportation Network; (7) Regulated Air Traffic. The entire area of action aims to achieve a balance between the intrinsic value of nature and nature as a human habitat, place of commerce, and recreational space. On the one hand, there is the existential right of nature, natural habitats, and wilderness independent of human needs. On the other hand, there are human requirements of landscape and nature as sources of production (e.g. drinking water), protection (e.g. protective forest), or recreation (e.g. right of access). All fields of action in this area of action must be appropriately harmonised within this field of conflict. Within the “Regulated Air Traffic” field of action, for example, concrete measures must be worked out and implemented to reduce conflicts between the objectives of intact, tranquil nature and the use of air space.

“Economy and Culture” covers the following fields of action: (1) Design of Tourism Products and Services; (2) Tourist Transport Facilities; (3) Promotion of Tourism; (4) Agricultural Products and Services; (5) Innovative Enterprises; (6) Environmentally Friendly Energy Use; (7) Cultural Network. The entire area of action aims for more sustainability in the economic, societal and ecological development of the Region’s most important sectors. On the one hand, the fields of action rest on the concrete values of nature and landscape promoted by the first area of action. On the other hand, they must also be tailored to the needs of the local population and economy, as well as to regional, national and global frame conditions. This field of conflict poses a major challenge to this area of action. For instance, it raises the question of how agricultural services can be designed and marketed in field of action (4) in order firstly to convey the close link to the World Heritage Site and the commune of origin, and secondly to meet the conditions imposed by national and international agricultural markets.

“Organisation and Communication” also comprises 7 fields of action: (1) JAB Information Network; (2) Multi-sectoral Labelling; (3) Balanced Funding; (4) Effective Lobbying for the JAB, (5) Local Residents as JAB Ambassadors; (6) Student Awareness; (7) Public Awareness. This third area of action covers the JAB World Heritage management in the narrower sense of the term and is concerned with the organisational structure as well as measures to raise awareness of the World Heritage Site in the minds and actions of the general population, decision-makers, visitors, and the broader public. As with the participatory process which resulted in the formulation of this Management Plan, the focus here is also on creating a sense of identity with the World Heritage Site (“creating ownership”). In other words, the aim is to instil local, regional and national responsibility for World Heritage and sustainable development through active participation and by creating an in-depth knowledge base. The World Heritage inscription can only exploit its long-term potential fully

if the World Heritage idea is supported by the region as a whole rather than being narrowly associated only with UNESCO or the JAB World Heritage Site Association.

Monitoring and Controlling

The Management Plan concludes with proposals for monitoring and controlling, since a process-controlled, broadly based procedure for implementation of the JAB World Heritage objectives and concerns necessitates a systematic means of monitoring progress. The proposed controlling instruments will be used to determine whether the measures and projects recommended in the Management Plan are being effectively implemented in line with the goals and objectives.

Monitoring, on the other hand, which will be carried out by a network of research institutions and administrative bodies, examines changes in the JAB Region rather than project activities. The aim is to verify whether the values and potential of the World Heritage Site are actually being sustained over the long term or can even be enhanced. Only when this is the case will the Management Plan have fulfilled its purpose.

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1 Introduction

1.1 Foundations of the Management Plan

The Great Aletsch Glacier is surrounded by a heavily glaciated, largely untouched high alpine landscape of extraordinary beauty. This landscape is an outstanding example of Alpine high mountain building, showing the influence of the ice ages. Evidence of important geological and geomorphological processes can be seen in the rich variety of natural formations. Particularly impressive and unique are the northern escarpment – with the north walls of the Bernese Alps visible from a great distance – and the southern escarpment, with its impressive glaciers and original valleys. The predominant morphodynamics continually create new living spaces while destroying others. Different rock and soil types and a broad climatic spectrum, from Mediterranean on the south ramp to arctic in the high Alps, establish the conditions for impressive examples of biological and ecological developments, such as glacier forelands and their successions. A diversity of ecosystems with communities of flora and fauna developed within a comparably small area. The area has long been known for extraordinary beauty and the spectacular natural character of its landscape, which have inspired creative output by generations of poets and painters. It is easy for visitors to access and enjoy, thanks to its location in the middle of Central Europe and to its well-developed infrastructure.

The Jungfrau-Aletsch-Bietschhorn World Heritage Site is embedded in a region that is not only comprised of natural landscape but has also long been used for economic purposes. By contrast with Alpine tourism, land use and forestry inside the perimeter of the Site are limited largely to marginal areas. If we take into account the total remaining area (settlements, agricultural land, transport routes, etc.) of the 26 associated communes, it is clear that this World Heritage Region is a valuable cultural landscape heavily shaped by human activity (see General Map, Annex 3.1). The present Management Plan refers to the total area of the 26 associated communes, unless otherwise specified.

Purpose of the Management Plan

The purpose of the Management Plan is to create a framework for effective protection and appropriate use of the Jungfrau-Aletsch-Bietschhorn region. The objective is to support the economic, social, and environmental dimensions of sustainable development, with the relation between World Heritage Site and World Heritage Region constituting a central challenge. This approach is based on the Charter signed by all the communes, on the Guidelines, and on the Terms of Reference for the Management Plan (TRÄGERSCHAFT UNESCO-WELTNATURERBE JUNGFRAU-ALETSCH-BIETSCHHORN, 2001a, b, c; Annex 1.1).

The Management Plan covers the area inside the perimeter (World Heritage Site) and the total area of the 26 associated communes (World Heritage Region).

The area of the World Heritage Region, at 1629 km², is twice the area of the World Heritage Site (see Map 1: Perimeter and Borders of the Associated Communes in the World Heritage Region) Hier Karte 1 auf folgender Seite einfügen. The Management Plan obligates the World Heritage Site Association to initiate and coordinate the process of implementation. By signing the Charter of Konkordiaplatz, the 26 associated communes pledged to undertake the process of establishing a “Local Agenda 21” and to develop long-term programmes of action that promote sustainability (see Charter of Konkordiaplatz, Annex 1.1). The Management Plan for the World Heritage Site (the area inside the perimeter) thus serves as a guideline for the associated communes within the framework of existing laws and ordinances. In the remaining communal area it has the character of a recommendation, and constitutes a basis of negotiation for achieving objectives in the entire World Heritage Region.

The Management Plan, together with its annexes, constitutes a comprehensive, informative document for all interested parties. It allows for rolling procedures, so that modifications can be made in the course of implementation.

Criteria for inscription on the World Heritage List

The Jungfrau-Aletsch-Bietschhorn area was approved as a World Heritage Site by the UNESCO World Heritage Committee on 13 December 2001. The Swiss Federal Council had petitioned UNESCO on 28 June 2000 to inscribe the Jungfrau-Aletsch-Bietschhorn area on the World Heritage List. This petition in turn was based on intense discussions with the population and the communes concerned in the cantons of Valais and Berne, which eventually led to a definition of the boundary of the future World Heritage Site – the so-called perimeter (see Map 1).

Inscription took place after three of the four criteria listed in the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 1977) had been fulfilled:

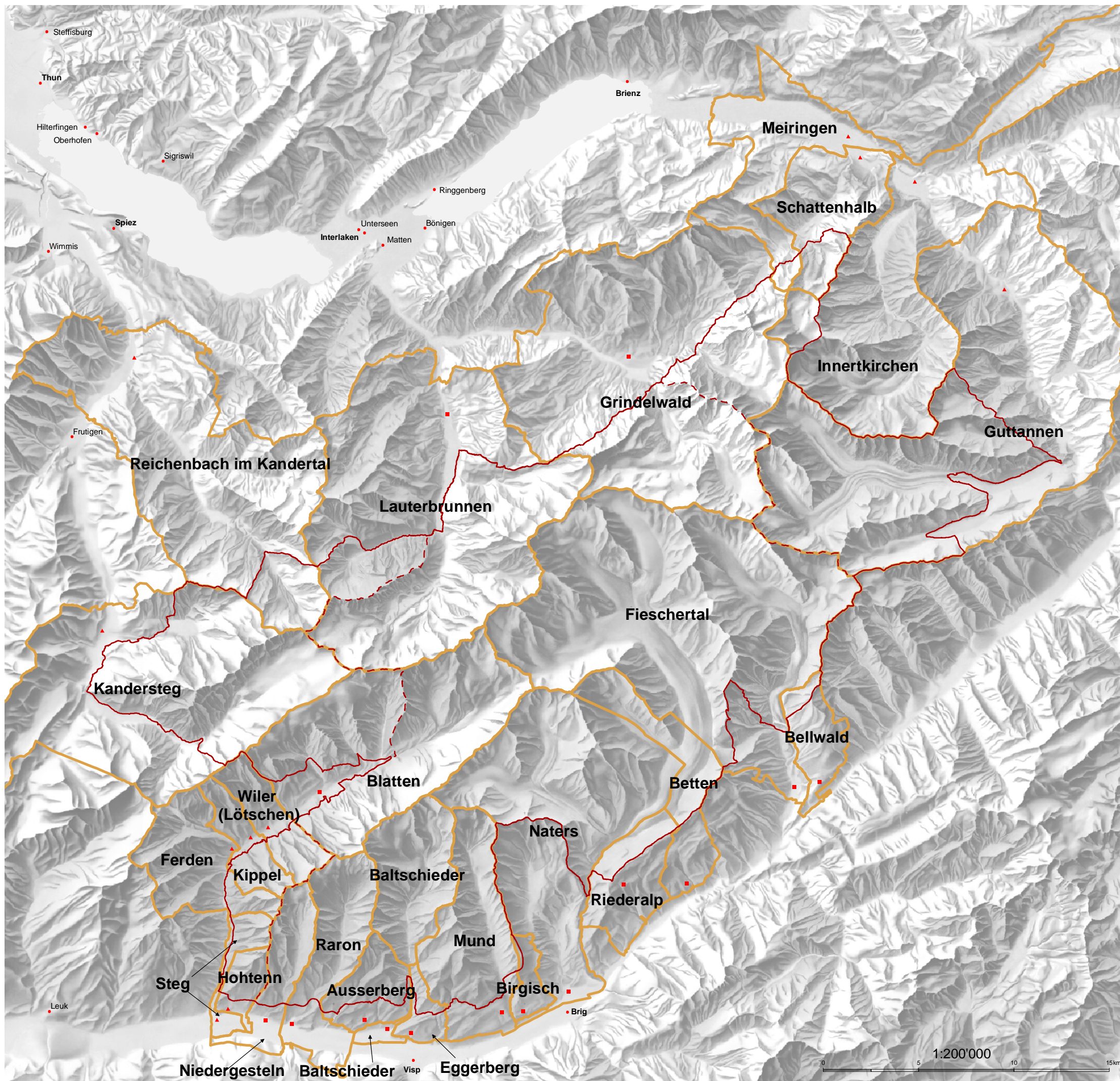
“A natural heritage property [...] which is submitted for inclusion in the World Heritage List will be considered to be of outstanding universal value for the purposes of the Convention when the Committee finds that it meets one or more of the following criteria and fulfils the conditions of integrity set out below. Sites nominated should therefore:

- i: be outstanding examples representing major stages of earth’s history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features; or
- ii: be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of flora and fauna; or
- iii: contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance; or
- iv: contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.”

According to the IUCN (The World Conservation Union), the Jungfrau-Aletsch-Bietschhorn area meets three of the four criteria, as follows:

- i: The Jungfrau-Aletsch-Bietschhorn area is an impressive example of mountain building and of the diversity of geological and geomorphological processes associated with it. This region has the most glaciers in the Alps, and contains the largest glacier in western Eurasia – the Great Aletsch Glacier. This is of significant scientific interest in connection with the history of the ice age and ongoing processes, particularly those related to climate change
- ii: The Jungfrau-Aletsch-Bietschhorn area is characterised by a wide variety of alpine and sub-alpine habitats. It contains outstanding examples of ecological succession, including the characteristic upper and lower treelines of the Aletsch Forest. The global phenomenon of climate change can be observed particularly well in this region, in terms of varying rates of glacial retreat for different glaciers. This, in turn, creates new space for the development of diverse ecosystems.
- iii: The impressive landscape of the Jungfrau-Aletsch-Bietschhorn area has played an important role in European literature, art, mountaineering, and Alpine tourism. The area’s natural beauty has attracted an international clientele and is known as one of the world’s most spectacular mountain regions. (Küttel, 1998; IUCN, 2001).

Perimeter and Borders of the Associated Communes in the World Heritage Region

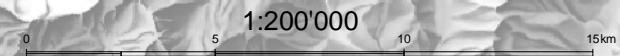


Legend

- Border of associated commune
- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- Perimeter of the World Heritage Site, 2001



Sources of data:
 National borders, lakes, commune borders: GG25 © 2002
 Swiss Federal Office of Topography (DV002213)
 Main centres in communes: SWISSNAMES © 2004
 Swiss Federal Office of Topography (DV012687)
 Perimeter of the World Heritage Site, 2001 and 2005
 Swiss Agency for the Environment, Forests and Landscape
 Relief: PK100 © 1998 and PK500 © 1999
 Swiss Federal Office of Topography (DV 351.4)
 Digital map data PM100, reproduced by permission of swisstopo (BA057399)
 Map compilation and cartography:
 CDE (Centre for Development and Environment), Institute of Geography, University of Bern,
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Naters, 11.2005



Perimeter, communes, and land use

The area approved for inscription on the World Heritage List in 2001 comprises a total of 539 km². The communes that have a portion of their territory inside the perimeter are: Grindelwald and Lauterbrunnen in the Canton of Berne, and Ausserberg, Baltschieder, Bellwald, Betten, Birgisch, Blatten, Eggerberg, Fieschertal, Mund, Naters, Niedergesteln, Raron, and Riederalp in the Canton of Valais (see Map 1 for location of the World Heritage Site in Switzerland, commune borders, and the perimeter, including the extension).

Following intense negotiations and subsequent broad acceptance in other communes, a proposal to extend the perimeter will be submitted to UNESCO in January 2006, together with the Management Plan. The area inside the perimeter, including this extension, would be 824 km², expanding the entire area of the Heritage Site by 53%. This extension, adapted to the natural features of the region, would include an additional 11 communes – 6 in the Canton of Berne (Guttannen, Innertkirchen, Kandersteg, Meiringen, Reichenbach, Schattenhalb), and 5 in the Canton of Valais (Ferden, Hohtenn, Kippel, Steg, Wiler). The proportions of the area of each canton in the World Heritage Site would thus be 43% for Berne and 57% for Valais.

Table 1: Area of communes/cantons inside the perimeter of the World Heritage Site

Commune	Area of commune [km²]	Area in World Heritage Site [km²]	Area in World Heritage Site [%]	Area of commune/canton within perimeter as proportion of World Heritage Site [%]
Canton of Berne		354.0		43 %
Grindelwald	171.1	74.7	43.7	9.1
Guttannen	200.8	93.5	46.6	11.4
Innertkirchen	120.1	5.8	4.8	0.7
Kandersteg	134.6	70.2	52.1	8.5
Lauterbrunnen	164.6	88.8	54.0	10.8
Meiringen	40.6	1.8	4.4	0.2
Reichenbach i.K.	125.7	12.8	10.2	1.6
Schattenhalb	31.5	6.4	20.2	0.8
Canton of Valais		469.6		57 %
Ausserberg	14.9	9.9	66.4	1.2
Baltschieder	31.4	29.1	92.6	3.5
Bellwald	13.7	2.3	16.4	0.3
Betten	26.4	17.8	67.4	2.2
Birgisch	5.8	0.3	6.1	0.0
Blatten	90.6	82.4	90.9	10.0
Eggerberg	5.9	2.2	36.6	0.3
Ferden	27.9	4.0	14.3	0.5
Fieschertal	173.0	159.7	92.3	19.4
Hohtenn	7.0	5.2	74.9	0.6
Kippel	11.7	5.7	49.1	0.7
Mund	40.1	33.2	82.7	4.0
Naters	101.2	67.7	66.9	8.2
Niedergesteln	17.4	12.1	69.6	1.5
Raron	30.3	21.5	71.0	2.6
Riederalp	21.0	6.0	28.4	0.7
Steg	14.7	4.3	60.3	0.5
Wiler (Lötschen)	14.7	6.2	42.0	0.7
Total	1629.0	823.6	50.6	

The area of all 26 associated communes together (World Heritage Region) is 1629 km², corresponding to the area covered by the Charter of Konkordiaplatz (see Annex 1.1). Currently, approximately 35,000 people live in the World Heritage Region (BFS, 2001a). The areas of individual communes as a proportion of the World Heritage Site (area inside the perimeter) vary greatly (see Table 1). The area inside the perimeter is either uninhabited or only seasonally inhabited, with few exceptions (the research station and the train station on the Jungfrauoch, Swiss Alpine Club huts, the upper Lauterbrunnen Valley, the Lötschberg south ramp, alpine pastures).

Analyses of statistics on land cover and land use between 1992 and 1997 (BFS, 2001b; Annex 4) show significant differences between the area inside the perimeter and the total area of the World Heritage Region with respect to land cover and thus (potential) land use. The total area comprising unproductive vegetation and no vegetation (ice, rock) inside the perimeter is thus greater than 88.4%, while this figure is only 63.6% for the entire area of the associated communes. Only 5% of the area inside the perimeter, on the other hand, can be classified as heavily influenced by human activity¹, while this proportion amounts to 20% for the entire Region. Forests understood in the broadest sense² account for about 6% of the area inside the perimeter, and 15% in the entire Region. Only 15% of the area inside the perimeter lies above the altitude of 2000 m (see map on Land Cover and Land Use, Annex 3.4; and map on Elevation, Annex 3.5).

The Charter of Konkordiaplatz and the Guidelines

Following a broad process of negotiation, the associated communes signed the Charter of Konkordiaplatz in accordance with the terms of the UNESCO World Heritage Convention (see Annex 1.1). The purpose of the Charter is to preserve the aesthetic beauty of the landscape in the vicinity of the Jungfrau, the Aletschhorn and the Bietschhorn for future generations. By signing the Charter, the associated communes commit themselves to practise sustainable land use beyond the perimeter of the World Heritage Site, i.e. to observe the principle of sustainable development in the remaining area of their commune. Ecology, economy, and society enjoy equal status as fields of development. Just as the Great Aletschfirn, the Jungfrau firn, and the Ewigschneefeld (Eternal Snow Field) come together at the Konkordiaplatz to form the largest glacier in the Alps, different ideas from within the regions and communes should also flow together to form one philosophy of development. The Konkordiaplatz symbolises, as it were, the unity of different forces beyond cantonal and communal borders that form a common credo. The Charter is the regional conscience of the associated communes and the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association.

The *Guidelines* drawn up prior to inscription on the World Heritage List and the *Terms of Reference* for the Management Plan constitute the basis of the present Management Plan. Although they focus on the perimeter of the World Heritage Site, they emphasise its integration in the Region, with which it has diverse relations. The *Guidelines* lay out basic principles, directions, and rules, with spatial delimitations in the background. The Management Plan replaces this.

The UNESCO World Heritage Programme

UNESCO is a United Nations Agency responsible for education, science, culture, and communication. In 1972 the General Conference of UNESCO approved the Convention Concerning the Protection of the World Cultural and Natural Heritage. The purpose of the Convention is to help protect important cultural and natural objects. World cultural heritage includes important monuments, groups of buildings, archaeological sites, and cultural landscapes, while natural heritage

¹ Vineyards, orchards, horticulture, arable land and meadows, home pastures, alpine meadows, alpine pastures, built-up areas, land around built-up areas, industrial structures, industrial land use, special settlements, recreational and green areas, roads, railways, airports and airfields.

² Closed forest, open forest, shrub forest, woody vegetation.

includes geological formations, natural features, and areas that constitute the habitats of threatened species of flora and fauna.

The World Heritage List is one of the instruments of the Convention. The List consists of objects considered to be of outstanding universal value as defined by the Convention. In 2004, 788 objects were added to the List: 611 world cultural heritage sites, 154 world natural heritage sites, and 23 sites that were a combination of both. Switzerland already contains four cultural heritage sites – the old city of Berne, the Cloister in St. Gall, the St. Johann Benedictine Cloister in Münstertal, and the Tre Castelli di Bellinzona. In addition to the Jungfrau-Aletsch-Bietschhorn region, the Monte San Giorgio has also been on the list of Swiss natural heritage sites since 2003. Among the best-known world natural heritage sites are the Galapagos Islands, Yellowstone National Park, and the Serengeti National Park. These sites share a common quality: they are all of outstanding universal value as unique natural formations and regions from an aesthetic point of view and as habitats of threatened species of flora and fauna.

UNESCO envisions that every country which has ratified the World Heritage Convention should maintain a national UNESCO commission. The Swiss UNESCO Commission is part of the Federal Department of Foreign Affairs (FDFA) and is the consulting organ at the federal level for all relations between Switzerland and UNESCO. The Federal Office for Cultural Affairs (FCA) and the Swiss Agency for Environment, Forests and Landscape (SAEFL) are primarily responsible for specific cultural and natural objects, respectively.

Legal foundations

According to the provisions of the UNESCO World Heritage Convention, national law applies exclusively once an area has been inscribed on the List (UNESCO, 1972). Thus inscription on the World Heritage List does not change the existing legal status of a protected area. In the case of the Jungfrau-Aletsch-Bietschhorn World Heritage Site, the provisions of the laws on nature reserves and protection of cultural heritage are the main points at issue, along with land-use planning laws pertaining to construction outside of areas zoned for construction. The perimeter of the World Heritage Site is virtually the same as the perimeter of BLN objects 1507 and 1710 – *Bernese High Alps and Aletsch-Bietschhorn Area, northern and southern parts* (see map on Federal Inventory of Landscapes and Natural Monuments of National Importance, Annex 3.6). The goal of the BLN is unrestricted preservation, or the greatest possible conservation of the object. Deviation from the goal of unrestricted preservation in carrying out federal responsibilities can be considered only if certain national interests of equal or greater importance are at stake (qualified balance of interests). The area is also protected by federal inventories and additional ordinances, such as the Ordinance Concerning Compensation for Losses in Hydropower Generation, and by the existence of cantonal, communal and private protected areas. A detailed presentation and evaluation of current protection measures can be found in Chapter 4.

The Jungfrau-Aletsch-Bietschhorn area extends over two cantons and 26 communes, and is thus subject to a complex system of laws with overlapping protection ordinances and different responsibilities. Given Switzerland's federal structure, it is not possible to unify this legal system. But this is not necessary so long as existing legal ordinances are applied in the area, personnel and financial resources are secured, and efficient controlling is established.

Sustainable regional development

The objective of the Management Plan is to promote sustainable development in the Jungfrau-Aletsch-Bietschhorn region and unrestricted observance of the different existing laws on protection, in order to preserve the universal uniqueness of the area inside the perimeter. Sustainability is based

on the three equal pillars of environment, economy, and society. Assessments must thus be made of the interactions between different forms of use and the environment. The main challenge is to cooperate with the population to create economic and social conditions that make it possible to preserve ecological stability and diversity as well as the beauty of the landscape, in conjunction with economic activity in the region. The balance between natural and cultural landscapes is a major asset of the World Heritage Region. Hence careful cultivation and maintenance of the region by humans plays a decisive role. Without this, the condition of the cultural landscape that we perceive as a “landscape of outstanding natural beauty and diversity” would no longer be stable.

The Brundtland Report (World Commission on Environment and Development, 1987) defines sustainable development as “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” Sustainability thus extends into the future and is necessarily laden with uncertainties. Accordingly, no reliable, conclusive criteria can be established for assessing sustainability; it must be the result instead of a process of negotiation that takes place within a given society. Consequently, sustainability is not an absolute quantity; it consists of degrees. As a result, sustainability cannot be precisely defined and determined, but only approximated. The sustainability of a given type of resource use must – like prior assessment of resources – be the subject of socio-political negotiation (Gruppe für Entwicklung und Umwelt, 1995: 16ff).

The Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site Association (see Chapter 5.1) has taken a decision to pursue this path of socio-political negotiation and has conceived the Management Plan accordingly. This will give the population concerned, as well as their various organisations and organs, an appropriate voice in the negotiation process, and will also preserve and support their ownership of the Region.

1.2 Origin and development of the Management Plan

The Management Plan is based on the *Charter of Konkordiaplatz*, the *Guidelines*, the *Terms of Reference* drawn up in 2001 for the Management Plan, and the collaboration of the local population and their various organisations and organs, as well as the collaboration of researchers.

The population was involved by means of so-called forums – open discussion platforms that allowed people, together with project leaders, to express their objectives and expectations for the World Heritage Site, and have a hand in implementing them by formulating concrete measures. A total of 256 people took part in these forums, representing the following sectors: agriculture, forestry, hunting, game keeping, tourism, hotel keeping, mountain railways, transport, commerce, trade, nature preservation, culture, education, social services, administration, planning, and local development. They were led by a group of experts consisting of four specialists, the World Heritage Site Management Centre, and scientists from the University of Berne. The objectives, measures, and resulting fields of activity elaborated can be found in Chapters 3 and 6 of this Management Plan, and in Annex 2.2.

A research platform was created in the World Heritage Site to allow exchange and communication of results and data among scientists, with the aim of coordinating research. As a first step, the scientists involved played an active role in drawing up the Management Plan, and in making inventories of existing data on the region. This inventory process resulted in a databank for the purpose of knowledge management that became a planning and implementation instrument. The databank (www.weltnaturerbe.ch/docu) is available to all interested persons seeking data of very different types and origins pertaining to the World Heritage Site and the Region (see also Chapters 5 and 6).

Box 1: The participatory process: an overview

The population, as well as various organisations and institutions, were actively involved in elaboration of the Management Plan. The central purpose was to develop a common vision with the aim of assuming responsibility for sustainable development in the region and promoting it successfully. The principal objectives were:

- Defining the goals of sustainable development;
- Evaluating the need for action and areas of conflict and synergy;
- Describing priority measures; and
- Defining project lines and fields of action to be further elaborated in core groups.

This process was designed to create ownership among the population and its organisations, and also to expose the potential for conflict and points of contention. Needs, project ideas, and synergies could thus be ascertained and compared.

The forums proceeded as follows:

The **first round** involved an exchange of visions and expectations. Following this – based on the Charter and the Guidelines – objectives for the World Heritage Site and the surrounding region were defined. The objectives formulated in the forums in the cantons of Berne and Valais were then compiled by the group of experts and made available to the participants for assessment (agree/disagree) and ranking.

In the **second round**, these objectives were discussed and clarified (see Chapter 3). They were then used as a basis for determining the need for action and corresponding measures. The group of experts compiled the proposed measures after the forum and forwarded them to participants for evaluation and ranking.

The **third round** was devoted to discussion and clarification of the compendium of objectives and measures (see Chapter 6 for measures), and to definition of appropriate project lines. The “JAB group of experts” assigned the defined project lines to 21 fields of action and divided these into three areas of action: **Nature and Habitat; Economy and Culture;** and **JAB-Organisation and -Communication**.

The three forum rounds concluded with a general forum in Naters, in which fields of action were prioritised by participants in terms of importance and urgency. Participants had an opportunity in the main forum to express their interest in helping to give concrete shape to the fields of action, with a view to implementation (see Chapter 6).

Current plans call for new forum rounds to be held periodically, and for a general forum to be held at least once annually. These forums are intended to help evaluate both the process of development of the fields of action and the development of new objectives and measures for existing and new projects in the Jungfrau-Aletsch-Bietschhorn World Heritage Region.

Box 2: Consensus and conflict in the discussion of objectives and measures

In the course of the forums, participants expressed their desire to make the Jungfrau-Aletsch-Bietschhorn area a model region. Most participants agreed that economic development should take place in harmony with nature and with the social and cultural characteristics of the region. However, as expected, there was a divergence of opinion with respect to exactly what constituted an intervention in nature or a threat. Thus additional restrictions relating, for instance, to the environment were rejected by many participants. Communal representatives and business owners, above all, emphasised that current protection measures were adequate. On the other hand, it was pointed out that designation as a World Heritage Site brought with it a heavy obligation to protect the region from damaging impacts (e.g. noise pollution).

In principle, participants expressed a desire that the people living in the World Heritage Region be given greater responsibility. They wanted to determine the course of their future development themselves, with minimal external interference.

Discussion of measures produced a notable result: particularly in the case of controversial objectives, conflicts in relation to specific measures were partially resolved – either because the areas in question were already adequately regulated by law, or because concretisation of measures made it possible to resolve ideological differences. As expected, it was not possible during the forums to deal conclusively with major areas of conflict such as air traffic, incentives to attract visitors, and tourist transport facilities. Work in the core groups is currently the proper vehicle for this. The Management Centre plays the role of mediator in conflict management.

Development of the Management Plan

The Management Plan consists of seven chapters and a detailed annex, as follows:

Following Chapter 1, which gives an introduction to the Management Plan and presents its most important bases, Chapter 2 portrays the Jungfrau-Aletsch-Bietschhorn region in greater detail. Its contents are a summary of background information on the Jungfrau-Aletsch-Bietschhorn World Heritage Region compiled by individual researchers that will be published at a later point in time. Chapter 2 also contains a presentation of the potentials and the challenges of the region with respect to sustainable development. Chapter 3 presents and explains the overall goals elaborated in different areas, in cooperation with the local population. Chapter 4 covers and assesses the legal situation. Chapter 5 explains the institutional structures and the role and tasks of the management and its partners. Chapter 6 describes the fields of action defined and prioritised in the forums, and the actors involved. Finally, Chapter 7 presents existing monitoring instruments and the principles of controlling.

Annexes 1-4 are an integral part of the Management Plan and contain fundamental documents such as the Charter, the Statutes, the Regulations, and the Organisational Chart (Annex 1). Annex 2 presents projects in some of the fields of action described in Chapter 6, as defined by core groups. Annex 3 consists of maps and diagrams of the various topics taken up in the Management Plan, thus providing an important overview of the contents of Chapters 1-7. Finally, Annex 4 contains the details of basic statistical data on the Jungfrau-Aletsch-Bietschhorn World Heritage Region.

2 The Jungfrau-Aletsch-Bietschhorn World Heritage Site and the World Heritage Region

The Jungfrau-Aletsch-Bietschhorn World Heritage Site designated by UNESCO is not only the first world natural heritage site in Switzerland but also the first such site in the Alps. Its uniqueness lies in its heavy glaciation and its extraordinary topography. Consequently, it is among the areas least marked by human influence anywhere in the Alps. This pristine character in the midst of a region containing settlements and small-scale cultural landscapes is one of the outstanding features of the Jungfrau-Aletsch-Bietschhorn World Heritage Site.

The site itself is situated in an area of transition between the northern and the central Alps. The different climatic and topographical conditions between the northern and inner Alpine zones have produced different ecosystems and land-use systems, influenced by both human beings and nature. Yet neither the natural landscape that comprises the World Heritage Site as such, nor the cultural landscape surrounding it are in themselves static. Both are subject to a dynamics that brings about constant change, with the result that there is interaction between the natural and cultural landscapes. Hence the interplay between the natural area designated as the World Heritage Site and the surrounding cultural landscape undoubtedly constitutes the greatest challenge in managing the site. It is the declared aim of the associated communes to preserve this area in all its diversity for future generations, and to strive to promote its sustainable development as an economic, living, recreational, and natural space (see Charter of Konkordiaplatz, Annex 1.1). In order to pursue this aim, it is necessary to recognise the potentials and the challenges of sustainable development in a World Heritage Region. Accordingly, in what follows, the natural area as well as the economic and living spaces and the institutional environment of the World Heritage Region will be presented, and the potentials and challenges of sustainable development demonstrated.

2.1 A unique natural area

To be designated a UNESCO World Heritage Site, an area must meet at least one of four criteria set by UNESCO (see Chapter 1 and UNESCO, 1977). The Jungfrau-Aletsch-Bietschhorn World Heritage Site is characterised by a natural landscape that, in accordance with such criteria, is noteworthy with respect to the following features:

- Natural history and geological and geomorphological formations;
- Ecological processes;
- Special natural phenomena or natural beauty of aesthetic value.

These key words alone do not give a detailed picture of the uniqueness of the Jungfrau-Aletsch-Bietschhorn World Heritage Site. In order to comprehend this uniqueness to its full extent, a more precise examination of the natural features of this World Heritage Site is necessary.

Geology

The chain of high peaks in the Bernese Alps (Wetterhorn, Schreckhorn, Eiger, Mönch, Jungfrau, Gletscherhorn, Breithorn, Blüemlisalp) is one of the most famous Alpine panoramas in the world. This mountain chain – like the rest of the World Heritage Site – is an outstanding example of Alpine mountain building. The World Heritage Region is a small-scale reflection of the geological history of Central Europe. For at least 500 million years of the Earth's history, this area was a theatre where every imaginable geological and geographical scenario developed: tropical seas, desert climate and

glaciation, and shifts and collisions of tectonic plates. The latter involved processes of folding and subsequent erosion of mountains that took place three times, at intervals of 150-200 million years, accompanied by magmatism, volcanic action on the continent and the floor of the sea, and deep subterranean metamorphosis. Mountain building is far from complete, however. The Alps continue to grow as the result of tectonic processes, at a rate of 0.5-0.7 mm annually, although this is not perceptible to the human eye. What is perceptible above all is evidence of erosion and degradation: weathering, rockfalls, rockslides, floods, and landslides. These natural processes can sometimes take destructive forms, particularly rockslides, landslides, mudslides, or avalanches (e.g. glacial slides and landslides in Grindelwald, slope movement in the Lauterbrunnen Valley and on the Kleine Scheidegg, avalanches in Goms and on the Lötschberg south ramp, floods in Brig, Baltschieder, and the Bernese Oberland).

In overall tectonic terms, the World Heritage Region consists largely of crystalline in the Aar Massif, and to a lesser extent of Helvetic sediment. Both complexes can be readily differentiated, thanks to their characteristic rock. The Aar Massif consists of crystalline, primarily granite and gneiss. It constitutes the high Bernese Alps between the western end of the Lötschen Valley and the Grimsel. The Aar Massif is part of the old European basement complex, with rock that is 300 million years old and more. Helvetic sediments are found at the northern, western and southwestern edges of the World Heritage Site heaped upon, embedded in, or aligned with the crystalline of the Aar Massif. The mighty northern precipices of the Massif can be found between the Engelhörner and the Jungfrau; to the northwest are the massifs of the Gspaltenhorn, Blüemlisalp, and Doldenhorn group. These consist of highly stratified, frequently folded sedimentary rock. Limestones of every type are dominant; in addition, marl, slate, sandstone and dolomite are found – sediment left by a sub-tropical sea that covered the underlying crystalline basement complex for 200 million years. This structure was completely altered by Alpine mountain building. During the Tertiary Period, the flat ocean sediments and all of their crystalline bedrock were thrust towards the Alps from south to north, as a result of the collision of continental plates. On the northern edge of the Aar Massif, the highest crystalline blocks were included in this process and dragged to the north, where they came to rest on top of sediment. Some of the most famous peaks in the Bernese high Alps – such as the Jungfrau and the Mönch – are thus capped by crystalline that was thrust onto Helvetic sedimentary nappe. The Eiger, by contrast, consists completely of Helvetic sediments consisting of layers of banded limestone (see Geological Map, Annex 3.14).

Glaciers

In addition to imposing mountain summits, the landscape of the Jungfrau-Aletsch-Bietschhorn World Heritage Site is dominated by glaciers. The glaciated area inside the perimeter of the site is 350 km², containing the largest continuous icefield in the Alps. The entire World Heritage Region contains a total of 380 km² of glaciated area. Five of the 7 longest glaciers in the Swiss Alps are found in the World Heritage Site, among which is the Great Aletsch Glacier – the largest glacier in the Alps in terms of area, length, and volume. At the Konkordiaplatz, where the bed of the Great Aletsch Glacier is massively overdeepened, a depth of approximately 900 m was measured in 1990 and 1991. Ice this thick is otherwise found only in the polar regions. The glaciers that remain today are meagre remnants of the ice cap that existed during the ice age. At the time of the greatest glaciation, the area that is now the World Heritage Region was covered with ice to a point just below the highest summits. This ice cap reached a maximum altitude of 2800 m above Obergoms. This highpoint is still noticeable as the upper limit of a glacier trough, above all in the Aare granite of the Grimsel. Here the extent to which the glaciers of the ice age left their mark on Alpine relief is also clear.



Figure 1: The glacier trough in the Brunhorn-Brandlammhorn chain north of the Grimsel lake. The upper edge of the snow corresponds to the highpoint of the glacier during the ice age. (Photo: Labhart 1988)

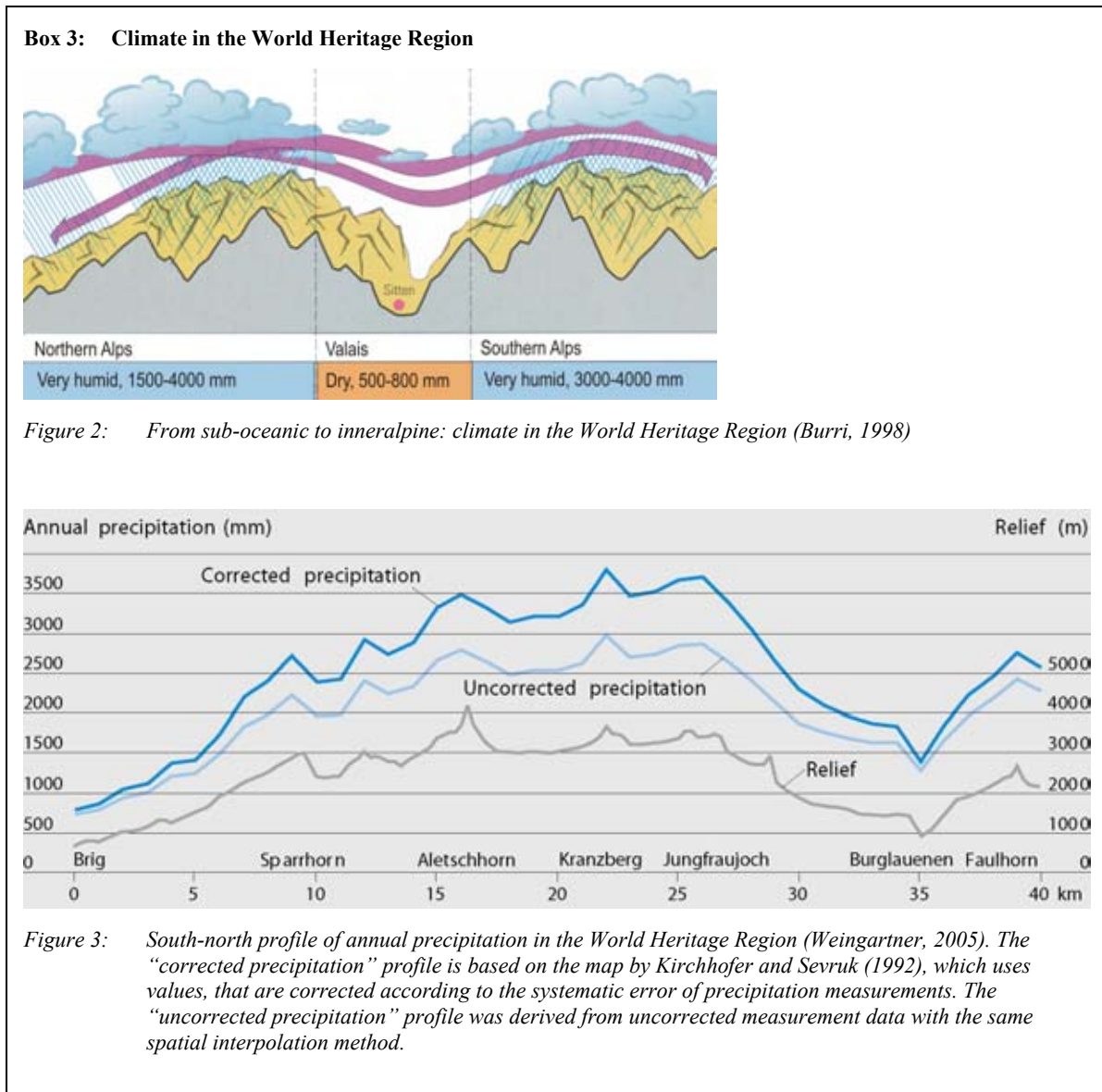
Glaciers are of major scientific and historical importance. The icefields in today's World Heritage Region, which contain imposing 4000-metre peaks, attracted the interest of Alpinists and scholars early on. The natural historian Franz Joseph Hugi from Solothurn laid the foundations of modern glaciology with his research on the Unteraar Glacier, making measurements of the first precise changes in the advancing glacier tongue. In addition to the Unteraar Glacier, the Great Aletsch Glacier is also of great scientific importance. Because the tongue of the Great Aletsch Glacier extended down to the treeline of coniferous forests, it buried soil and trees beneath it as it advanced. During the phase of glacial retreat, which is still continuing, the remains of trees continue to be exposed. These organic remains can be dated using the radiocarbon method; moreover, the age of well-preserved fossilised trees can often be determined to the precise year by means of dendrochronology. This makes it possible to pursue the history of the Great Aletsch Glacier for the past 3500 years.

Water and climate

Glaciers are not only fascinating elements of the landscape but also vital storehouses and sources of water. These functions make them an essential component of the water resources in the Alps. The water resources of the World Heritage Region, which are due in large measure to the great amount of precipitation at high alpine altitudes, are of crucial importance for the local population as well as surrounding areas. Natural sources and glaciers supply drinking water and irrigation water, as well as electrical power from hydropower stations. Thanks to fees generated from the production of hydropower, for example, some mountain communes can earn income from water. Water is also an important foundation of tourist activities – whether in the form of snow for winter sports, water used to produce artificial snow, or bodies of water used for recreational purposes in summer.

Although the World Heritage Site is located in the midst of the “water tower of Europe,” distribution of water resources within the World Heritage Region shows a highly variable pattern. The reason for this can be found in hydroclimatic contrasts. The northern front of the Bernese Alps, which is part of the main Alpine drainage divide, acts as a weather divide where a barrier effect occurs along a north-

south axis. A moist, cool, sub-oceanic climate prevails in the north (mean annual precipitation in Grindelwald for 1966-1989: 1390 mm), while the Canton of Valais constitutes a dry island with the characteristics of a sub-tropical climate, owing to its inneralpine location between the major chains of the Valaisian and Bernese Alps (mean annual precipitation in Visp, 1961-1990: 600 mm).



Precipitation values in the northern Alpine area are considerably higher than those in the inneralpine area. There is also great seasonal variation between the northern and inneralpine locations. There is more precipitation in summer (April to September) than in winter in the northern Alps. The inneralpine area, by contrast, has more winter precipitation than summer precipitation. Thanks to the water resources of the Alps, there is no problem with water supply in the World Heritage communes on the northern side of the Alps. On the south-facing slopes of the Aletsch Glacier and the Bietschhorn, on the other hand, water supply has always been a problem, owing to the aridity of the inneralpine valleys. Water has always had to be diverted with enormous effort from glacial streams, or tapped at remote sources and conducted over distances of many kilometres to southern slopes. Innovative construction of historic channels to collect water, known as “Suonen” (“bisses”), which were sometimes built even on overhanging cliffs, bear impressive witness to the centuries-old struggle over “sacred water.”

Knowledge of water discharge volume and of fluctuations in discharge is important for optimal use of water resources, as well as for protection of alpine water. The hydrograph of water flow in the World Heritage Region is determined primarily by the amount of meltwater, and thus exhibits great fluctuations on a daily as well as an annual basis. These daily fluctuations are particularly high during periods of good weather in summer, owing to daily freezing and melting processes on glaciers. As sunlight intensifies and temperatures rise, discharge increases during the day, reaching a peak in late afternoon. The main discharge phase is from May to September. The Massa and the Lonza rivers in the Canton of Valais exhibit a glacial regime with dominant discharge in the months of July and August, based on heavy glaciation of their catchment areas of 65.9% and 36.5% respectively. The White Lütchine on the Bernese side of the Alps has different characteristics, however. Because the glacial component of its catchment area is considerably smaller, at 17.6%, it has a glacio-nival discharge regime more heavily influenced by discharge from snowmelt in the months of June and July. The great depths of discharge, combined with minimal variability from year to year, create favourable conditions for water resource management in the World Heritage Region from a hydrological point of view. Hydropower production is largely limited, however, to the Massa, with the Gebidum Reservoir on the Great Aletsch Glacier; the Lonza; the Aare, with the Oberaar and Unteraar reservoirs in the Grimsel region; and the Fiescherbach. Hydropower capacity has not been expanded, owing largely to unfavourable natural conditions for water storage (topography and geology). Some communes, however, have refrained from hydropower generation in parts of the World Heritage Site in favour of landscape protection – for example, in the upper Lauterbrunnen Valley and in the valleys on the south side of the Bietschhorn. The communes of Ausserberg, Baltschieder, Eggerberg, Niedergesteln, Raron, Birgisch, Mund, Naters, and Riederalp in the Canton of Valais receive compensation for refraining from hydropower generation, based on the Ordinance Concerning Compensation of Losses in Hydropower Generation (VAEW) (see map on National and Cantonal Landscape Protection, Annex 3.7).

Natural landscapes and habitats

Great differences in altitude and climate within the World Heritage Region have given rise to the formation of many alpine and sub-alpine habitats. These can be distinguished by exposition, gradient, and altitude.

Table 2: Distribution of types of land use and land cover within the World Heritage Region and in the associated communes, in km² and %.

Description	World Heritage Site		World Heritage Region	
	km²	%	km²	%
Forest, woody vegetation	50.61	6.14	249.77	15.33
Agriculture	0.99	0.12	66.69	4.09
Alpine agriculture	38.96	4.73	233.25	14.32
Lakes and rivers	4.36	0.53	19.43	1.19
Unproductive vegetation	65.87	8.00	143.75	8.83
No vegetation	662.24	80.41	892.87	54.82
Settlements, industry, roads, railways	0.56	0.07	23.09	1.42
Total	823.59	100	1628.85	100

Table 2 shows that a total of 80% of the area of the World Heritage Site has no vegetation (see also the map on Land Cover and Land Use, Annex 3.4). Still, more than 500 flowering plants and ferns

have been identified to date, while more than 3500 species of flora and fauna are known above the treeline in the associated communes of the World Heritage Site. A study of the World Heritage Region delineated the areas containing particularly high numbers of endangered species or species for which Switzerland has a particular responsibility, based on the current state of knowledge. The study included investigation of the following major habitats: forest, meadows and pastures, pioneer sites (rock material, glacial drift), and transitional habitats (hedges and shrubs). Areal units covered by this study included all 1 km² plan quadrants that were partially or entirely located in the associated communes. A study such as this makes possible initial concrete indications of areas with above-average numbers of endangered species (so-called hotspots of species diversity). Maps compiled on the basis of available data (see Annexes 3.12 and 3.13) give a minimum amount of information about the presence of endangered species in selected major habitats. Even units (1 km² plan quadrants) with only one example of such a species can indicate minimum nature value. In any event, care must be taken to determine that existing gaps do not necessarily indicate gaps in distribution; they may also occur as the result of lack of information. In addition, it must be kept in mind that most of the World Heritage Site consists of areas with no vegetation or unproductive vegetation; this has an impact on biodiversity. In order to interpret the maps more accurately, the map of intensity of observation was compiled. This indicates two priority areas for observation: the southern slopes in the Valais, and the Lauterbrunnen/Grindelwald region (CAPT, 2005).

The following habitats are found in the World Heritage Region: glaciers, firn fields and snowfields, moraines and glacier forelands, rocky and stony areas, boulders, surface water and humid areas, alpine grass, forests, and agricultural habitats such as orchards, vineyards, and croplands, as well as alpine meadows and pastureland. Morphodynamics continually create new habitats while altering and destroying others. In addition, human interventions can impair or even destroy different habitats in the World Heritage Region. These interventions include drinking water abstraction and hydropower generation, creation of reservoirs, construction of channel protection structures, draining water and tapping springs, erosion damage at popular sight-seeing points, eutrophy resulting from agriculture, ski tourism, intensive forestry, and wildlife browsing.

Two habitats in the World Heritage Site stand out as particularly interesting: glacier foreland and inneralpine rocky steppes. Glacier foreland is a highly dynamic environment offering impressive observations of vegetation formation. Early pioneer plants take over newly available land shortly after a glacier recedes. Gradually, more demanding species follow, and vegetation rapidly becomes dense at favourable sites. Changes occur underground, in the water supply, in the microclimate, and in other on-site factors within very small areas.

This produces a pattern of plant societies that resembles a mosaic. Biodiversity in such areas is thus particularly rich. Glacier forelands with the character of alluvial zones are part of the “alpine alluvial zone” habitat. There are seven glacier foreland areas with alluvial character that are of national importance and are thus listed in the federal inventory of alluvial zones. Five of these are inside the perimeter of the World Heritage Site.

Inneralpine steppes consist of turf with the character of steppes, which develops from loosely disseminated bunch grass interspersed with areas that have no vegetation growth. Settlements are found on moraines and rocky slopes in inneralpine valleys with continental conditions. Rocky steppe habitats are found in the World Heritage Region on the dry southern slopes in the Canton of Valais that constitute the Lötschberg south ramp. Thanks to its subcontinental climate, this habitat is home to a great diversity of flora and fauna, with many species that are on the Red List of Threatened Species. Fire and sheep grazing have both contributed heavily to the expansion of rocky steppes.

Today, as a result of agricultural operations, sheep grazing no longer takes place in many areas. Consequently, shrub invasion poses a threat to the rocky steppe habitat.



Figure 4: *Inneralpine steppes on the Lötschberg south ramp*
(Source: Eggel 2002)

With regard to fauna, the part of the World Heritage Site located in the Canton of Valais, including the Lötschberg south ramp, is noteworthy for reptiles, invertebrates, and birds. The area is of extraordinary avian importance; a Swiss Important Bird Area exists in the midst of the World Heritage Region. The Aletsch region, which has been designated an Important Bird Area, has many breeding birds that are limited to a specific biome (in this case, the Eurasian high montane biome); Switzerland has a special responsibility for these species. Among them are the rock partridge, the white-winged snow finch, and the citril finch. In addition, there are many threatened Alpine bird species within the World Heritage Site. Among all the protected species of Alpine birds, the black grouse and the willow ptarmigan face a particular threat from increasing use of their habitats by tourists. Overall, the Jungfrau-Aletsch-Bietschhorn World Heritage Site has a considerable responsibility for ensuring the survival of Alpine avian fauna in Switzerland and throughout Europe. Large ungulates such as the red deer, the Alpine ibex, and the roe deer, attractive to visitors, disappeared in the mid-19th century as a result of intense hunting. Following their reintroduction, however, these species flourished so well that the wildlife population posed a danger to the regeneration of protective forests. Today the wildlife population is held in check by controlled hunting so that the forest can regenerate without major protective measures. Large predators such as the brown bear, the wolf, and the lynx also became extinct. Projects to reintroduce these species in Central Switzerland and the northwestern Alps have allowed the lynx to thrive once again; it has been identified in 18 communes in the World Heritage Region. Natural reintroduction of the wolf is underway in the Alps, although no wolves have been registered in the World Heritage Region.

Conclusion

The environment of the World Heritage Site is subject to ongoing dynamics, even though this may not be apparent at first glance. The resulting changes leave traces that can sometimes enhance the value of the natural landscape. On the other hand, these changes can also trigger natural processes that often take the form of natural hazards. The rock slide on the Jungfrauoch in 1991, the avalanches during the winter of 1999, and the floods in Baltschieder in 2000 and in the Bernese Oberland in 2005 are examples which clearly demonstrate that the force of nature in this unique natural landscape influences the lives of people who visit the World Heritage Region or live within it. This in turn has impacts on the potential opportunities and challenges of sustainable development in the entire World Heritage Region. Hence it is important to expand the previous focus on the natural

landscape and to examine the cultural and economic space of the World Heritage Region more closely.

2.2 A cultural and economic space in transition

The cultural landscape has been shaped to a great extent by economic and social activities, and has even been described as a “visual catalogue of human activity” (EGLI et al, in prep.). The landscape is being continually altered as a result of human impacts, with the result that the preconditions for future development are also being changed. Change is thus an essential feature of the environment. The following sections describe how change has taken place in the World Heritage Region and what the cultural and economic space of the World Heritage Region is like today.

Development of the economic culture

The area between the northern and inneralpine zones is a particularly noteworthy habitat. The special location of this area has resulted in different forms of settlement and agriculture within what is now the World Heritage Region. A small-scale subsistence economy based on farming and animal livestock production developed in the inneralpine zone (associated communes in the Canton of Valais). This economic system lasted until the mid-20th century. Division of inheritance (parcels of land were divided so that each child received a share) resulted in small or tiny plots of land known as *Blockfluren* (square plots). Alpine meadows and land use at different elevations were necessary to expand the insufficient area available in the valley. Settlements were concentrated in the valley, where so-called *Haufendörfer* (compact village settlements with farmland outside the village) developed. In the northern Alpine area (associated communes in the Canton of Berne), specialisation occurred at an early stage, based on the success of early trade with the cereal-producing Central Plateau. This trade was organised by markets in the towns, with city-states ensuring food security in the areas of the Bernese Oberland that specialised in livestock production and in the cereal-growing areas of the Central Plateau. The predominant form of settlement was the *Einzelhof-Streusiedlung* (farmhouse plus surrounding land). Ownership was passed on by entail (restricted inheritance), with key rights, such as the rights to use alpine pastures and forests, linked to the farm rather than the owner.

In the communes of both the cantons of Valais and Berne that lie within the World Heritage Region, a specific system of land use developed as the result of special and very restrictive natural conditions. This multi-level system characterised by significant differences in elevation within short distances, known as transhumance, is still prevalent throughout the Alpine landscape today.

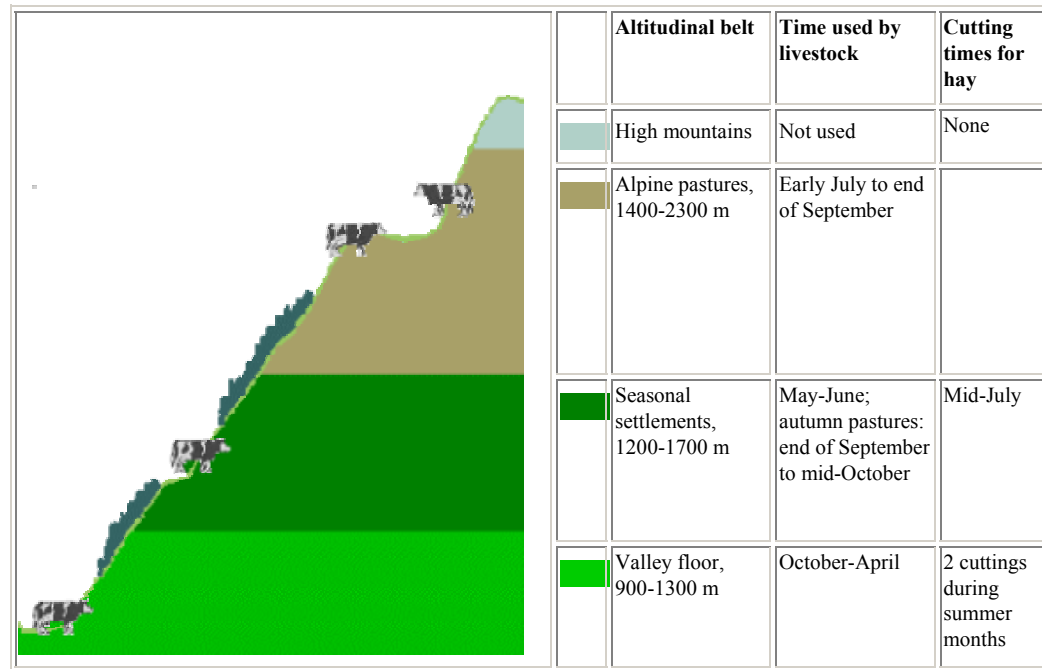
The 19th century was marked by the beginning of a transition to modern society, with new spatial patterns based on local employment. Small regions emerged, eventually becoming Alpine agglomerations, accompanied by the development of a transport network.

In the Bernese portion of what is now the World Heritage Region, the configuration of the landscape began to change; denser settlement came about, with churches, post offices, hotels and restaurants in a central location. Construction of hotels in the second half of the 20th century gave an unmistakably urban character to what had previously been an exclusively agricultural landscape. The growth of tourism in the last 40 years has transformed the village centres of Grindelwald and Wengen into urban zones where the original structure of settlement has become almost unrecognisable. Tourism became the dominant economic sector in the second half of the 20th century, while agriculture was marginalised.

Box 4: Transhumance

The practice of transhumance involves herders leading their livestock to the source of food rather than transporting food to the livestock. In summer, hay is produced in the valley for stall-feeding in winter. Beginning in spring, livestock move continually upwards to seasonal settlements at higher altitudes in search of fresh grass, finally grazing in mountain pastures in summer. This traditional pattern makes optimal use of all altitudinal belts and is still practised today.

The sketch below depicts the movement of livestock in the course of a year.



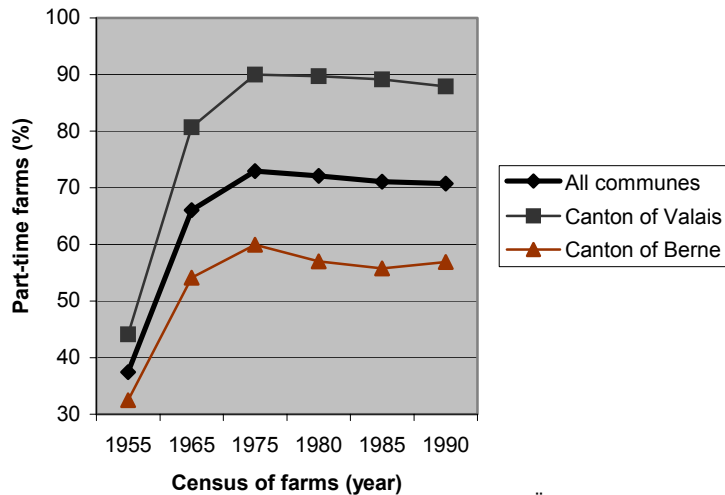
Source: http://www.cde.unibe.ch/griwa/intro_viel.htm

A number of large-scale industries were established in the Rhone Valley in the 19th century. As a consequence of industrialisation, other businesses also arose in small towns in the upper Valais, which became centres in this region. The establishment of industrial enterprises in the Valais gave rise to so-called “working farmers”: factory workers who remained attached to traditional forms of agriculture and continued to think of themselves more as farmers than as labourers.

The economic structure today

Growing centralisation and the process of regional development changed the employment structure (see map on Employment, Annex 3.10). Today, industrial and commercial enterprises are dominant in the Rhone Valley below Naters and in the lower Kander Valley, accounting for more than 50% of total employment. The service sector dominates in the remaining areas, accounting for 50% and occasionally as much as 75% of employment, largely as a result of the growth of tourism.

The primary sector still plays an important role in the World Heritage Region, employing 16% of the population as against 5.8% nationally. The number of full- and part-time farms is an important indicator of agricultural development (Figure 5, after EGLI et al, in prep.).



BÜHLMANN 2004

Figure 5: Part-time farms as a percentage of all operating farms in the respective areas of the cantons within the World Heritage Region
 (Sources: Federal Census of Business Enterprises, 1955, Volume 319; Federal Office for Statistics: Statweb, November, 2004)

There was a marked increase in the number of part-time farms between 1955 and 1965, at the expense of full-time farms, which declined slightly in number until 1990 (EGLI et al, in prep.). In 1990, 70% of all farms in the World Heritage Region were operated as part-time farms. Here, however, there was a clear difference between communes in the cantons of Valais and Berne: 43% of the farms in the Canton of Berne were full-time farms, while in the Canton of Valais the figure was only 12%. Nationally, 58% of all farms were full-time farms in 1990. This comparison illustrates that the development of agriculture in the Bernese communes within the World Heritage Region correlates fairly closely with development at the national level, while the trend towards more part-time farms in the communes of the Canton of Valais within the World Heritage Region deviates sharply from development at the national level. This clearly reflects the transition from full-time farmers to “working farmers” in the Rhone Valley.

The total number of farms (full- and part-time) decreased between 1955 and 1996, however. There was a 55% decrease in the World Heritage Region, while the country-wide figure was 66%. The change in the number of operating farms has an influence on the character of the landscape, and is a factor that contributes to habitat change. The altered character of the landscape is apparent above all in the increase in average individual farm size, as well as in the increase of shrub invasion on areas no longer under cultivation. Between 1955 and 1996, there was a pronounced increase in average farm size in all communes within the World Heritage Region, from 3.32 hectares to 7.68 hectares (Figure 6, after EGLI et al, IN PREP.).

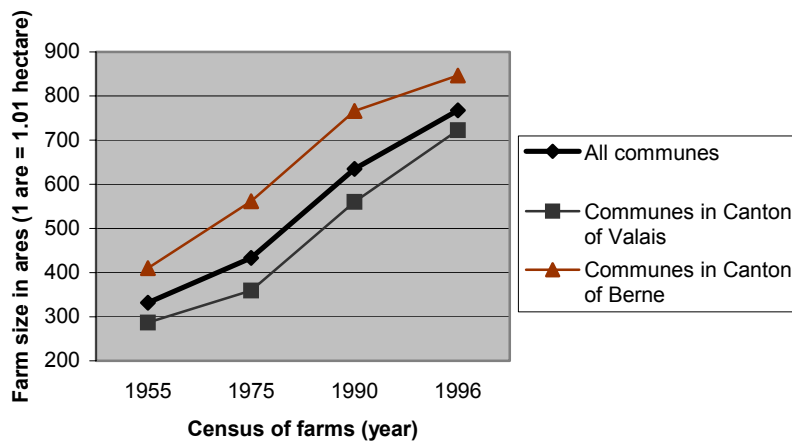


Figure 6: Changes in average farm size, 1955-1996 (comparison between Valais and Berne)
 (Sources: Federal Census of Enterprises, 1955, Volume 319; Federal Census of Enterprises, 1975, Agricultural Enterprises; Federal Census of Agriculture and Horticulture, 1990; Federal Office for Statistics: Data by request, November, 2004)

The fact that farms in the communes of the Canton of Valais were more than one hectare smaller on average than farms in the communes of the Canton of Berne during this period of development is the result of division of inheritance, the great number of part-time farms nowadays, and topographic features. Increase in area per farm is the consequence of a massive decline in the number of farms. Total cultivated area did not increase but declined during this period. Hence abandonment of a great number of farms was a necessary precondition for expanding those that remained, as expansion of the total cultivable area was virtually impossible. Nevertheless, not every plot from an abandoned farm is taken over by another farm. Some previously cultivated plots thus remain fallow and are subject to shrub invasion. As a result, forested area in the communes of the World Heritage Region has increased steadily since 1952. Forests play only a subordinate economic role, however, with wood being used primarily for local, individual purposes. Following the disastrous storm known as Hurricane Lothar in the winter of 1999, there was an additional decline in the already low price of timber owing to oversupply, further depressing the timber trade.

As previously mentioned, the proportion of people employed in the industrial sector (secondary sector) – 20% within the World Heritage Region – is somewhat lower than the national average. And at 64%, the proportion of those employed in the service sector (tertiary sector) is also somewhat lower than the national average. Figure 7 gives a breakdown of employment in the secondary (industry and commerce) and tertiary (service) sectors by category (as classified by the *Nomenclature générale des activités économiques*; NOGA) in the Jungfrau-Aletsch-Bietschhorn World Heritage Region for 2001.

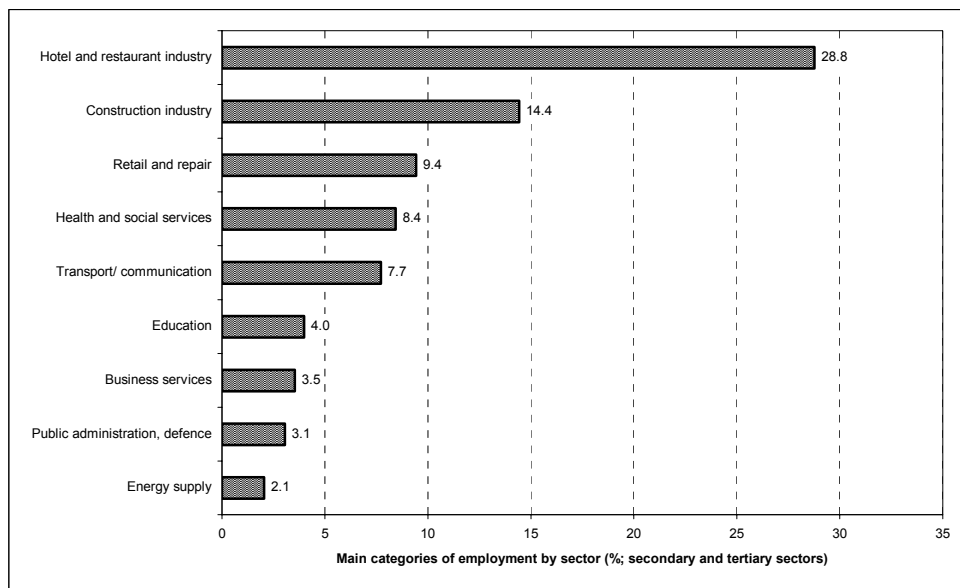


Figure 7: *Main categories of employment in the World Heritage Region, as classified by NOGA*
(Source: BFS, *Federal Census of Business Enterprises, 2001*)

This breakdown makes clear the importance of the tourist sector in the World Heritage Region. Most people employed in the service sector work in branches directly or indirectly related to tourism. Almost 29% of all those employed work in the hotel and restaurant industry. The percentage of people employed in the construction industry (14%) is also high. This is a direct function of the high level of tourism in the area. The necessary infrastructure for tourism must be provided to meet demand. The construction of second homes in the World Heritage Region probably also accounts to a great extent for the high level of employment in this sector. Construction of the Lötschberg Base Tunnel (scheduled to open in 2007) is an additional factor that boosted employment in this sector (BOSSART, in prep.).

Box 5: Development of Tourism in the World Heritage Region

The development of tourism in the Alps stems from the age of scientific exploration in the 17th and 18th centuries. Scientific curiosity about glaciers and mountains was supplemented by other factors in the 18th century, such as the quest for the romantic and the natural, as well as the motivating influence of athletic ambition. In the 19th century, scientific motives were increasingly overshadowed and pushed aside by aesthetic motives. Whereas an excursion to the Grindelwald Glacier to touch glacial ice by hand was previously the highpoint of a journey, an excursion to the Faulhorn later became the focus of travel, as this destination offered a broad panorama of the high Alps that simultaneously provided a contrast with the idyllic cultural landscape. The view of both elements in immediate proximity presented visitors with a paradoxical impression. This visual attraction of the landscape continues to influence tourists today. The shift from scientifically motivated travel to aesthetically motivated travel led to the construction of additional accommodations. The building of the Wengen Alpine railway helped residential tourism to replace round-trip tourism. Relaxation and refreshment in the immediate vicinity of a fascinating natural landscape came to characterise tourism from this point forward. Alpine sport was an additional development that stemmed from scientific work in the high Alps. Pioneering Alpine feats, such as the first ascents of the Jungfrau, the Finsteraarhorn, and other prominent summits in the region, marked the beginning of Alpine mountaineering. By the end of the 19th century the idea of experiencing winter in the mountains had caught on, while the demand for overnight accommodations in winter also rose as a result of the introduction of skiing in 1890. The construction of cable cars made it possible to transport large numbers of people to ski areas rapidly and easily (see map on Transport Infrastructure, Annex 3.5). Since the middle of the 20th century, winter tourism has surpassed summer tourism in importance.

The significance of tourism as the most important economic sector by far is reflected in its direct contribution to the gross domestic product (GDP). Nationally, tourism accounts for about 4% of the GDP. In mountain areas, however, the proportion is much greater. In the upper Valais, it is 35.4%, and in the Bernese Oberland 26.6%. There is a great economic dependence on tourism in many of the associated communes of the World Heritage Site. In some communes such as Grindelwald, it is almost possible to speak of a one-sector economy.

But a look at the development of supply and demand casts a shadow over the success story of tourism in the World Heritage Region. Based on changes in the number of beds, the number of overnight stays, and the use of mountain railways, a stagnating trend can be detected. This is apparent in relation to the number of beds and total overnight stays, which dropped by 10% between 1990 and 2003. Although overnight stays declined, there was an increase in the use of mountain railways in winter. This indicates growth in the number of daily tourist excursions. But it must also be taken into account in this context that society's leisure-time and mobility patterns have changed, with corresponding impacts on the number of overnight stays. Nevertheless, a stagnating trend in overnight stays in the World Heritage Region does not mean that the uniqueness of the landscape of the World Heritage Site has lost any of its fascination. Fascination is indeed still present. However, the generally romanticised image of the intact mountain environment has been expanded by changing context and interests in the tourism sector, which now include perceptions of the Alps as a sports arena, a wilderness area, or an economic space (STREMLow, 2002).

Furthermore, non-hotel accommodations have currently reached striking proportions and are increasingly competing with the traditional hotel industry. In Grindelwald and Riederalp-Bettmeralp-Fiesch, tourist destinations that are on virtually equal terms as measured by overnight stays, the proportions of non-hotel accommodations are 54% and 85%, respectively. This is also reflected in statistics on living units (see map, Annex 3.11). In tourist centres (Kandersteg, Mürren, Wengen, Grindelwald, Bellwald, Fieschertal, Betten, Riederalp, Wiler), the number of vacation units is clearly greater than the number of permanently inhabited units. In some communes east of Brig, vacation units outnumber permanently inhabited units by factors of four to six.

Conclusion

The Jungfrau-Aletsch-Bietschhorn World Heritage Site is located in the midst of a region characterised by structural change from an agricultural to a service-oriented society. The character of the landscape within the World Heritage Region has also changed accordingly, with more area devoted to settlement and infrastructure and less to agriculture. This is nothing extraordinary, however; the agricultural sector has declined in importance throughout Switzerland since the beginning of the industrial age, while the service sector has grown in importance. What is particular to the World Heritage Region, however, is the fact that it is precisely a cultural landscape marked by agriculture – which continually threatens to disappear owing to continuing structural change in the form of new infrastructure (hotels, roads, transport facilities, vacation apartments) and forest growth – that constitutes an important part of the fascination with the environment. How can the traditional survive without posing obstacles to options for developing the region? An additional major challenge is posed by expansion of the service sector, in particular tourism, which increases the pressure that this puts on the World Heritage Site.

Before considering the potentials and the challenges of sustainable development in the World Heritage Region, it is important to understand the institutional environment in which the World Heritage Site is embedded.

2.3 A multi-faceted institutional environment

The political and administrative environment and the legal and planning environment have an important role to play with respect to achieving the objectives of the Jungfrau-Aletsch-Bietschhorn World Heritage Site, and with respect to the concept of landscape protection in Switzerland generally.

The political and administrative environment

The political and administrative environment is shaped by a federal system comprised of three levels: communes, cantons, and the Confederation share official responsibilities in accordance with cantonal constitutions and the federal constitution. The cantons are responsible for nature and landscape protection, while the Confederation makes laws and regulations and supports efforts to protect nature and the landscape. Execution is a matter for the cantons, which in turn may delegate responsibility to the communes (which can also take action on their own). The Confederation, the cantons of Valais and Berne, the 26 associated communes, and private actors all participate in nature and landscape protection in the World Heritage Region.

The 26 associated communes do not constitute a political and administrative unit. The 8 communes in the canton of Berne belong to 2 different regional planning associations, while the 18 communes in the Canton of Valais belong to 3 such associations (Table 3), each of which has between 5 (Kander Valley region) and 31 (Visp/western Raron region) member communes.

Table 3: *Membership of associated communes in regional planning associations*

Name of region	Associated communes	Canton	Number of communes on perimeter / Total member communes	No. of IHG Region (investment assistance law for mountain regions)
Oberland East Regional Planning	Grindelwald, Guttannen, Innertkirchen, Lauterbrunnen, Meiringen, Schattenhalb	BE	6 / 29	23
Kander Valley Region	Kandersteg, Reichenbach i.K.	BE	2 / 5	24
Goms Region	Bellwald, Fieschertal	VS	2 / 21	231
Brig-Aletsch Region (previously Brig/eastern Raron Region)	Betten, Mund, Birgisch, Naters, Riederalp	VS	5 / 15	232
Visp/western Raron Region	Ausserberg, Baltschieder, Blatten, Eggerberg, Ferden, Hohstenn, Kippel, Niedergesteln, Raron, Steg, Wiler	VS	11 / 32	233

The system of nature and landscape protection in the World Heritage Region is quite complex, owing to the three-level federal system of communes, cantons, and the Confederation. Nature and landscape protection is based, among other things, on international agreements, as well as on national and cantonal constitutions and laws. The legal and planning environment as it relates to nature and landscape protection is outlined in Chapter 4, which assesses the status of protection and the need for action.

Conclusion

Given this situation, it is all the more important that the associated communes think of themselves as belonging to a World Heritage Region. Adopting a regional perspective will strengthen the feeling of ownership as well as identity vis à vis the outside world (e.g. in marketing), allowing the communes to achieve together the objectives they have formulated themselves (see Annex 1.1) and meet the requirements set by UNESCO.

Research and education

Any consideration of the institutional environment must also include a look at research and education, as research is an important mandate in a World Heritage Site. In what follows, the current status of research in the World Heritage Region will be surveyed. The role of research in management of the area is presented in Chapter 5.2 (“Management instruments and the role of cooperation”).

Whereas the cantons are responsible for education and training with few exceptions, it is the responsibility of the Confederation to support scientific research (HAMMER, in prep.). But scientific research also receives support from the cantons and from private sources. Research in Switzerland is thus decentralised to the extent that very different institutions have been carrying out research projects within the World Heritage Region, in different scientific fields, for quite some time.

In the regions of Grindelwald and Aletsch, comprehensive work in both the natural and social sciences was done by the Man and Biosphere Programme (MaB) in the 1980s (including work in the area of sustainable regional development). This body of work now constitutes a considerable contribution in terms of comparative studies and time series, among other things. These study sites were chosen in order to obtain a natural and cultural scientific profile along a north-south axis, from the northern to the central Alps (NATIONALES FORSCHUNGSPROGRAMM MAB, 1983-1989).

In addition, the National Research Programme known as NF48, “Landscapes and Habitats in the Alps,” currently still in operation, provides input to discussions about the future of this habitat and to active formulation of processes that will make sustainable resource management possible (NATIONALES FORSCHUNGSPROGRAMM NFP48, 2005). On the other hand, there is a clear lack of transdisciplinary ecosystem research focusing on processes, and a lack of systematic monitoring of achievements (NIEVERGELT, 2002).

The following institutions – listed in alphabetical order – are involved in research projects in the World Heritage Region (this list should not be considered complete):

Botanical Institute, University of Basel; Swiss Federal Research Station for Agroecology and Agriculture (FAL), Zurich; Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Birmensdorf; Swiss Federal Institute for Snow and Avalanche Research (SLF), Davos; Research Institute for Leisure and Tourism, University of Berne; Institute for the History of the Alps, Brig; Institute of Geography, University of Berne; Institute of Geography, University of Freiburg; Institute of Geography, University of Zurich; Historical Institute, University of Berne; Infraconsult AG, Berne; Institute of Plant Sciences, University of Berne; Institute of Agricultural Economics, Swiss Federal Institute of Technology, Lausanne; Institute for Geology, University of Berne; Institute for Spatial and Landscape Planning, Swiss Federal Institute of Technology, Zurich; Institute for Social and Economic History, University of Zurich; Institute for Transport Planning and Systems, Swiss Federal Institute of Technology, Zurich; Kurt Boesch University Institute, Sion; Interacademic Commission for Alpine Research, Berne; Interacademic Commission for Alpine Studies, Berne; Interfaculty Coordination Office for General Ecology, University of Berne; Aletsch Pro Natura Centre; Swiss Society for Folklore, Zurich; Swiss School of Tourism, Sierre; Seminar for Folklore,

University of Basel; Swiss Foundation for Landscape Protection, Berne; Zoological Institute, University of Berne.

The Jungfrauoch Research Station and the Aletsch Pro Natura Centre are institutions with their headquarters in the World Heritage Region:

The Jungfrauoch Research Station: Thanks to its unique location in an almost pristine high alpine environment at an altitude of 3471 m, and to its outstanding research endeavours, the Jungfrauoch Research Station plays an important role in national and international environmental research. Its key importance is evident above all in the following areas:

- The great number of chemical and physical atmospheric parameters that are measured simultaneously at one site with a range of highly modern research instruments.
- The availability of multi-year data series found nowhere else in the world.
- Intensive interdisciplinary exchange among researchers at different levels.

The research infrastructure at the Jungfrauoch Research Station, unique in Europe, is used by scientists from a number of different European countries. Work at the station focuses primarily on environmental research, material science technology, and astrophysics.



*Figure 8: The Jungfrauoch Research Station
(Photo: Jungfraubahnen)*

The Aletsch Pro Natura Centre: In 1976 Pro Natura opened the first nature protection centre in Switzerland in the Villa Cassel on the Riederalp. The Aletsch Pro Natura Centre was modelled on the Visitor Centres in American National Parks and on British Field Study Centres. The purpose of the Centre is to provide visitors with information about nature, and make them aware of the issues involved in nature protection. Each summer about 15,000 people visit the historic villa and benefit from the many things the centre has to offer (ALBRECHT, 2005). Research activities at the Aletsch Forest Reserve are closely linked with the Pro Natura Centre (ALBRECHT, 1991). The Pro Natura Centre carries out no research of its own, but provides infrastructure and support for research.



Figure 9: *The Pro Natura Centre Aletsch on the Riederfurka*
(Photo: Albrecht, 2000)

In addition to research institutions, there are a number of national measurement networks that are important to the World Heritage Region. These networks, which are concerned with monitoring in the World Heritage Site, are described in Chapter 7.1.

Protected areas such as the Jungfrau-Aletsch-Bietschhorn World Heritage Site have an obligation to conduct research in accordance with international requirements. To date, however, Switzerland, has neither a centre for coordinating research, nor research and funding programmes per se. Nor are there any regulations at the national level pertaining to education and awareness-raising (with reference to major protected areas and their responsibilities). Accordingly, major protected areas have no national mandate relating to education and awareness-raising. In a report to the Swiss Academy of Natural Sciences, NIEVERGELT (2002) pointed to research deficits in monitoring and in long-term and comparative research in protected areas. These deficits must be addressed.

Conclusion

It is clear that a large number of research projects are being carried out by different research institutions in the World Heritage Region, and that it is important, given the centrally organised nature of the research scene in Switzerland, to develop coordination among the different research institutions in the World Heritage Region.

2.4 Challenges in protection and management

The World Heritage Region is torn between the competing demands of protection and use. This has led to a situation in which it is necessary to develop, together with the local population, the scientific and social conditions that will ensure ecological stability and diversity and protect the beauty of the landscape, at the same time as economic activity is being carried on throughout the Region. Meeting the challenge posed by the dual functions of protection and use makes sustainable development a necessity (see Chapter 1). The Region has accepted the challenge of meeting this objective – made manifest by the fact that all the associated communes have signed the Charter of Konkordiaplatz (Annex 1.1). The Charter declares that development must take place throughout the entire World Heritage Region and not only in the World Heritage Site.

The potential of the natural landscape and related challenges

The unique glacial and high alpine landscape in the World Heritage Site has an aesthetic potential that has contributed significantly to economic development in the World Heritage Region for

centuries. But the dynamics of this unique landscape pose a major challenge. These dynamics are apparent above all in the changes affecting glaciers. This can be seen as both a gain and a loss with respect to opportunities for sustainable development within the World Heritage Region. Changes in the landscape resulting from glacial retreat can be beneficial to the extent that new habitats develop, thereby increasing ecological and hence scientific potential. At the same time, however, glacial retreat could make the landscape less attractive to tourists, thus impairing the economic potential of the World Heritage Region. The photographs of the Great Aletsch Glacier in 1920, 1980, and 2000 presented in Figure 10 show how the image of the “white Alps” is changing to one of “black Alps.”

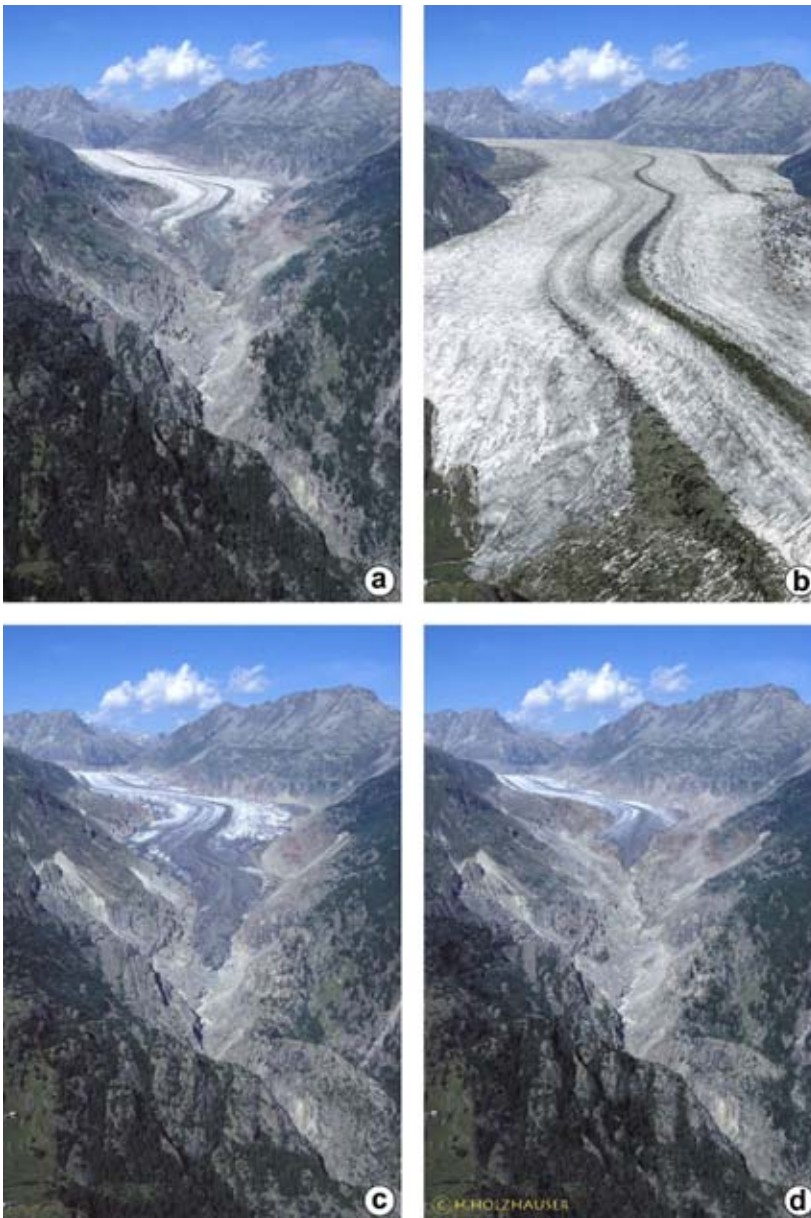


Figure 10: *The Great Aletsch Glacier through the ages: reality vs. fiction*
(Photos prepared by H. Holzhauser)

The question arises whether the Alpine landscape of the future will continue to be a source of fascination and attraction, or whether the World Heritage Region will lose some of its attraction for tourists as glaciers retreat. Another issue is the problem of waste disposal. All of the refuse that

disappears into glacial crevices surfaces again at some point when glaciers retreat. Currently, the appearance of military waste left over from military target practice on the Fiescher Glacier is an issue in the World Heritage Region. The problem of waste, which presents an ecological challenge in terms of management of the World Heritage Site, could also have negative economic consequences in the long term if the aesthetic value of the landscape is impaired. Moreover, when considering the disadvantages caused by glacial retreat, it is also important to remember that glacial retreat brings many natural hazards in its wake (ice avalanches, mudslides following heavy precipitation, rockslides triggered by melting of permafrost) that can pose a threat to the security of tourists and local residents (danger on hiking trails and hazards affecting alpine huts and settlements). Such developments could damage the function of the World Heritage Region as an economic space. An additional challenge posed by glacial retreat is the availability of water. Water in the form of snow is a valuable resource in the World Heritage Region. Snow security plays an important role for skiers in the choice of a ski area. Generally, areas with snow security now lie above 1300 m, thus including most of the World Heritage Region (see Figure 11; snow security is defined in terms of at least 100 days of snow cover sufficient for winter sports – 30 cm for alpine skiing and 15 cm for Nordic skiing – for at least 7 of 10 winters in the period from 16 December to 15 April).

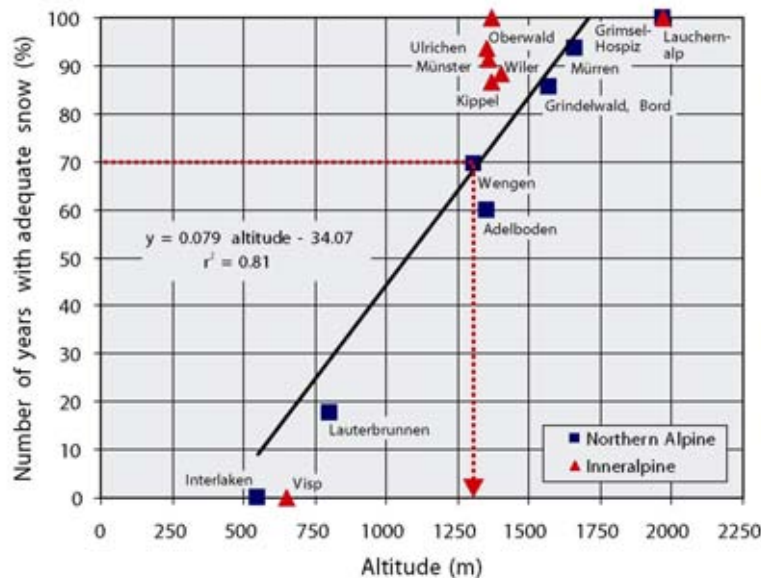


Figure 11: Snow security in the eastern Bernese Alps and the upper Valais (Weingartner, 2005; Source: SLF data: 1936/37-1993/4).

In view of climate warming forecasts of approximately 2°C, however, the snow level is likely to rise by 200-300 m. This implies a possible intensification of pressure on areas of snow security, accompanied by pressure to plan additional infrastructure projects inside the perimeter of the World Heritage Site. In addition, there is growing demand for snow-making equipment in ski areas in the World Heritage Region (these areas are all outside the perimeter of the World Heritage Site), which in turn means greater consumption of water. High demand for water presents a problem in many places, as levels in watercourses are low during the winter and spring discharge is at a minimum. Moreover, warming is linked with a change in the climate regime: precipitation in a warmer environment will be in the form of rain rather than snow, even at high altitudes. As a result, water will not be stored but lost to runoff. This will alter the runoff regime, making the Region much more susceptible to summer aridity. Warming will thus have a major influence on water supply in the World Heritage Region, with negative impacts on tourism, agriculture, and energy production.

This scenario makes it clear that glacial retreat could have manifold consequences for the World Heritage Region. Herein lies a significant challenge: combating scenarios of potential loss will require a commitment to raising awareness about environmental issues at the local level. At the same time, there must be a commitment on the part of the World Heritage Region to contribute to the global climate debate. Research carried out in the Region represents a great scientific potential that can make a significant contribution to the current international climate debate.

Nature versus economic activity: potentials and challenges

The contrast between the rough and impressive high alpine landscape and the well-groomed cultural landscape, which co-exist in close proximity in the World Heritage Region, fascinated the first tourists who came to the area at the end of the 18th century. This fascination has lasted to the present day. What has changed, however, is access to this high alpine landscape, as well as the ways in which people “experience” a region so difficult to access. The development of technical infrastructure (above all construction of railways on the Jungfrauoch and the Eggishorn) and the option of round-trip flights now make it possible to experience the highest parts of the Alps within a brief period. This has brought about a situation in which “experiencing” pristine areas of the World Heritage Region that could previously be reached only under one’s own power is becoming possible for increasing numbers of visitors. This in turn increases pressure on the World Heritage Site coming from use of and visits to the Region.

With respect to the fascination that stems from the close proximity of high alpine and cultural landscapes, it must be noted that continuing structural change is leading to crucial changes in the character of the landscape. Concurrent with structural change, the way in which the landscape is perceived is also changing, as demands on the Region made by local residents and tourists also change (the Alps as a sports arena; see STREMLow, 2002). This combination represents a unique opportunity for sustainable development in the World Heritage Region, which is in a position to exploit its small-scale unique features to meet different types of demand. In other words, regionally specific choices can be developed that do not focus on the World Heritage Region as a whole but on small regions within it. As a result, the World Heritage Region as a whole would enjoy the following advantages:

- Development of a diverse range of possibilities within the World Heritage Region that target different categories of visitors.
- A stronger identity for the World Heritage Region as such, both internally and externally, without losing the regional differences that have developed historically on the basis of topography and climatic conditions.
- Revitalisation and exploitation of traditional knowledge to support and promote regional commerce. The UNESCO World Heritage label is an important starting point for developing and marketing new and innovative quality products.

Changes in the character of the landscape triggered by structural change obviously pose challenges in terms of sustainable development. Cultivated areas, for example, are a central element of the traditional cultural landscape. As a result of the decline in the amount of land used for agriculture, forested areas are continually expanding. While some people regard this as undermining the attractiveness of the area for tourism, others see it as desirable in terms of the growth of wilderness. These divergent positions indicate a considerable potential for conflict.

In assessing the options for sustainable development in the World Heritage Region, it must be borne in mind that change in the cultural landscape did not begin with reforestation of fallow areas. The

cultural landscape developed historically and has changed continually over time. The pace of change has increased markedly in recent decades, however. Making a museum of the mountain landscape is not the goal. Rather, the different elements of the cultural landscape need to be preserved in a time of rapid economic and social change, without impeding sustainable regional development. Herein lies one of the greatest challenges in management of the World Heritage Region. It is entirely possible that some areas will experience a stark transition from previously well-groomed cultural landscape to areas of wilderness, while in other areas the cultural landscape will continue to be cultivated and maintained. The close proximity of natural and cultural landscapes that has been a source of fascination since the 18th century will thus be maintained and contribute to the sustainable development of the region.

The potential of 26 communes and 2 cantons as one World Heritage Region

The complex circumstances due to the institutional environment within the World Heritage Region give rise to a situation in which many owners, decision-makers, and representatives of different interests participate in discussions about implementing projects to promote sustainable development. This harbours a great potential for conflict. This should not be seen as a limitation, however, as it also represents an opportunity to develop small-scale, differentiated projects. This in turn can have positive results, as regionally specific options are expanded.

As the 26 associated communes in the Jungfrau-Aletsch-Bietschhorn World Heritage Site do not constitute a single political and administrative unit, it is important that they do not regard themselves as specifically Bernese and Valaisian entities, but develop instead an identity as a World Heritage Region, and perceive the World Heritage Site as a supra-regional concept. A regional identification of this sort, along with awareness of the special values that make up a supra-regional perception, will intensify a sense of ownership. Only then will it be possible to undertake effective lobbying and marketing as a World Heritage Region, by means of communication and public relations. Development of a supra-regional concept in the World Heritage Region does not mean, however, that the historic differences between the Bernese and Valaisian parts of the Region stemming from topography and climatic conditions need be suppressed. Both areas have developed differently on the basis of natural conditions relating to agriculture, industry, settlement, and social structure so that, today, regional characteristics are evident in both areas and constitute one of the special features of the World Heritage Region. The purpose of identification as a World Heritage Region should be to overcome differences between two cantonal regions without losing these special features.

Conclusion

Overall, it can be stated that the World Heritage Region has a great many options at its disposal with respect to sustainable development. In order to exploit this potential to the utmost, it will be necessary to develop a local perception of the Jungfrau-Aletsch-Bietschhorn Site in terms of opportunity. Local actors can take advantage of their options only if they recognise them. When new protected areas are established, the local population is frequently concerned that new restrictions on activity will result. It is therefore important to emphasise that designation of this region as a UNESCO World Heritage Site will result in no new protective measures. Nature and landscape protection measures in the World Heritage Region apply independently of designation as a World Heritage Site. But such designation does offer the World Heritage Region a chance to take up and advance initiatives for sustainable development that highlight uniqueness and in turn help to maintain the World Heritage Region as a natural, economic, and cultural space.

3 Conservation and development objectives

3.1 Overall goals of the World Heritage Site

The overall goals for the Jungfrau-Aletsch-Bietschhorn World Heritage Site were defined in the year 2000 during the elaboration of the Guidelines for the UNESCO World Heritage Site (TRÄGERSCHAFT UNESCO-WELTNATURERBE JUNGFRAU-ALETSCH-BIETSCHHORN, 2001b). These overall goals formed the basis for the participatory process described in Chapter 1.2, and after having been partly modified during the forums, were finally approved in a broad consensus. Starting from the overall goals, groups of people from the population defined objectives relating to different target areas (e.g. “Natural and cultural landscapes,” “Tourism and visitor management”), rated them, and assessed the need for action. This concretisation served as a means of taking into account the idea of development and the dynamics inherent to the region. The overall goals, as well as the objectives for the various target areas, operate within the existing legal framework and do not entail any changes in existing legislation, but rather aim to improve its implementation and enforcement. Correspondingly, in accordance with the above-declared binding force of the Management Plan, the autonomy of the communes is guaranteed at all times.

The overall goals apply above all to the area inside the perimeter (= World Heritage Site); however, they should be taken into consideration throughout the entire World Heritage Region.

1. The diversity, individual character and beauty of the World Heritage Site and the variety of natural and near-natural ecosystems and ecosystem complexes are to be preserved for current and future generations. Moderate and sustainable economic, cultural and recreational use and development is to be brought in line with this goal.
2. All species of wild fauna and flora native to the region, along with their biological communities, are to be conserved in populations viable in the long term, and are to be nurtured or utilised if necessary. Natural developments must be allowed to take their course whenever possible.
3. The various natural and cultural landscapes, together with their traditional cultural features, are to be preserved as far as possible, or developed with care.
4. Economic use is to be guided by market conditions, the social and cultural situation, and legal regulations, but also by the long-term carrying capacity of the natural systems as outlined in overall goals 1-3.
5. Man is welcome in the World Heritage Site as a visitor, actor and user who is mindful of the risks of natural hazards and pays due regard to the sensitivity and need for protection of the natural resources. Appropriate infrastructure is to be maintained and, if necessary, expanded in line with the capacity of the natural systems to tolerate use.
6. Local inhabitants and visitors are to be informed in a competent fashion and made aware of the value, uniqueness and beauty of the World Heritage Site. The resulting awareness will motivate them to interact with and experience the Site, and will provide a necessary basis for long-term preservation of the value of the Site.

3.2 Objectives for sustainable development

The objectives listed below are the result of a broad negotiation process. The discussion was based on the Charter of Konkordiaplatz, the Guidelines, and the Terms of Reference for the Management Plan (TRÄGERSCHAFT UNESCO-WELTNATURERBE JUNGFRAU-ALETSCHE-BIETSCHHORN 2001a, b, c; Annex 1.1). The aim of the negotiation process was not to define a systematic and self-contained set of objectives, but rather to set up a comprehensive collection of objectives representing the needs, wishes, and visions of the participating groups of people from the population and stakeholder representatives. Even though all conservation and development objectives listed below were approved by a clear majority during the participatory process, they are not free of contradictions. There was a deliberate attempt not to eliminate all conflicts over objectives, because innovative and broadly approved implementation processes only make sense if they evolve from a transparent starting point. This means that neither the objectives nor the related potential need for action (measures) were examined with regard to their viability. Only when developing the concrete design of individual projects within the fields of action (see Chapter 6 and Annex 2) is a goal's viability for implementation discussed and assessed.

The relevance of each objective was assessed for each of the following frames of reference:

- frame of reference inside the perimeter (ip)
- frame of reference outside the perimeter (op)
- “general” frame of reference x

The relevance of the individual objectives within the different frames of reference is indicated according to the following scale:

xxx	highly important, with binding obligation (for the Association) to address this objective
xx	very important
x	important

Target area: Natural and cultural landscapes



Rich contrasts between natural and cultural landscapes are one of the central qualities that account for a region's beauty in the eyes of human observers. Such contrasts are very pronounced in the World Heritage Site and the surrounding region. At the same time, cultural landscapes are considered to have a stabilising effect on alpine ecosystems. Agriculture plays a pivotal part in maintaining the cultural landscapes that have evolved over centuries. Many of the objectives in this regard are therefore listed under the target area of “Agriculture”.

Natural and cultural landscapes: Objectives	ip	op
1. The World Heritage Region is to be maintained as an attractive living space for its inhabitants and made accessible to external visitors with all its particularities and its beauty.	xxx	
2. The economic functionality of the World Heritage Region must be secured as a basis for its habitation.	xxx	
3. Planning cannot exclude further development undertaken in reasonable proportions.	xx	
4. Measures to minimise the risk of natural hazards must also remain possible inside the perimeter.	x	
5. New construction and alterations of existing structures must fit into the landscape and the local environment from an aesthetical point of view.	xxx	x

Legend: see page 48, top

Target area: Flora and fauna



Altitudinal differences of up to 3000 metres and the highly fragmented topography of the region are responsible for its extraordinary diversity in ecosystems and landscapes, which in turn provide ideal conditions for an extremely diverse flora and fauna. Climatic conditions in the region range from arctic to submediterranean, and altitudinal levels from colline to nival. The vegetation units corresponding to these levels are fully represented. This means, for example, that on a glacier one can find glacier fleas, while only a few hundred metres lower in a submediterranean rocky steppe one may come across a green lizard or saffron flowers, the latter being a cultural good.

Flora and fauna: Objectives	ip	op
6. All species of wild flora and fauna native to the region, along with their biological communities, are to be conserved in populations viable in the long term, and are to be nurtured or utilised if necessary. Natural developments must be allowed to take their course whenever possible. This applies analogously to migrant and formerly native species.	xxx	xx
7. Animals with a high sensitivity to human interference are to be granted larger habitats. Endangered animal and plant species are again to be found in more areas within the associated communes.	xxx	xx
8. For animal species that are harmful to domestic animals, an appropriate form of management is to be developed in line with federal and cantonal requirements and involving the people directly affected.		x

Legend: see page 48, top

Target area: Agriculture and forestry



Inside the perimeter of the World Heritage Site, agriculture and the use of mountain pastures occur only in marginal areas. On the territory of the associated communes outside the perimeter, however, agriculture and mountain pastures are of central importance. This is less due to their economic function – agriculture is of little significance from the point of view of domestic economy – than to the vital contribution of agriculture to preserving the cultural landscape (tourist attraction) and to its great importance for the cultural self-image of inhabitants. The region’s forests are important independent habitats which at the same time link other habitats; they provide protection from

natural hazards and function as recreational spaces. Forestry is of little significance in the region and is confined to the very margins. Wood processing often serves to meet the needs of the local population.

Agriculture and forestry: Objectives	ip	op
9. Agricultural use and related infrastructure (e.g. buildings, access infrastructure) are to be maintained and encouraged. Agricultural use is to be guided by the natural yield capacities.	xxx	xx
10. Agriculture is to guarantee sustainable use of the cultural landscape in the long term and contribute to biodiversity conservation as well as protection against erosion.	xxx	
11. Regional value added in agriculture is to be promoted. Based on a labelling concept for the associated communes, the marketing of regional products with a protected designation of origin (PDO) is to be developed and enhanced.	xxx	
12. The importance attributed to agriculture in economic terms as well as by the population, politicians, and visitors is to be increased.	xxx	
13. The intense manual labour involved in the use and maintenance of steep slopes and the conservation of areas with a rich biodiversity is to be adequately compensated.	xx	
14. Undesirable abandonment, shrub invasion (in accordance with spatial planning regulations) and wild growth on areas previously under agricultural use are to be prevented.	xx	
15. Production methods are to meet high ecological standards (keyword: organic farming).	xx	
16. In the event that the agricultural use of an area is abandoned, the possibility of introducing adequate landscape preservation in line with existing planning regulations must be investigated.	xx	
17. Forests are to be maintained and sustainably used, in a manner allowing them to fulfil their natural functions. The condition of the forests is to be natural and stable. Their protective function is to be given the highest priority. The necessary infrastructure is to be guaranteed.	xx	
18. The care of protective forests must be possible at all times (including forest protection) and is to be adequately compensated.	xx	
19. The use of wood as a resource (construction and energy sector) is to be enhanced, also with a view to promoting regional value added and PDO product marketing.	xx	
20. Proprietors must be financially compensated for additional restrictions (use, reserves) that exceed current regulations.	xx	x
21. The importance attributed to forestry in economic terms as well as by the population, politicians, and visitors is to be increased.	xxx	
22. Clearings in the forest are to be preserved and encouraged. Forest biotopes are to be maintained in collaboration with the gamekeeping authorities.	xx	x

Legend: see page 48, top

Target area: Hunting and fishing



Hunting (predominantly hoofed game) has a long tradition in the region and is sufficiently regulated. Regulations are guided by biological planning principles and oriented towards long-term sustainable use of game populations. Vast areas of the World Heritage Site are of no interest with regard to hunting, either because they are unsuitable as habitats for fair game, or because they are under protection as federal hunting reserves. Most of the streams inside the perimeter are valuable aquatic habitats, but are not categorised as fishing grounds. Attempts to conserve fish populations are made by means of artificial stocking. In the Canton of Berne, in addition to this there are numerous fishing reserves. Angling is regulated in cantonal laws and ordinances.

Hunting and fishing: Objectives	ip	op
23. In order to secure game populations, hunting regulations are to be based on biological planning principles. Species that are endangered within the World Heritage Region are not to be hunted.	xxx	xx
24. In protected areas (federal hunting reserves), targeted game population management – involving hunters where necessary – is to be facilitated.		xx
25. Game is to be protected by means of game sanctuaries, above all during the winter months. Damage caused by game to forestry and agriculture (game bite, fraying) is to be minimised by means of preventive measures.	xxx	xx
26. Fishing grounds, just like other water bodies, are to be preserved as aquatic habitats.	xxx	xx
27. Designated spawning areas are to be protected and encouraged around the mouths of river tributaries and in canals.		xx

Legend: see page 48, top

Target area: Industry, trade and commerce



Industry is of no significance inside the perimeter. However, the perimeter is directly bordered by several enterprises – such as Lonza (VS), Fritschi (BE), and Wandfluh (BE) – that are crucial to the region’s economic survival and employment security (for hydropower plants, see target area “Energy and transport”).

Trade and commerce represent an important source of income outside the perimeter. The promotion and revival of traditional crafts, in particular, can become increasingly important in terms of possible multi-sectoral cooperation and the development of a Natural Heritage identity.

Industry, trade and commerce: Objectives	ip	op
28. Employment in the industrial sector is to be promoted outside the perimeter. Negative impacts on the World Heritage Site are to be reduced as long as this is economically and socially acceptable.		x
29. Environmentally friendly industry in the region is to be promoted (no obstruction through regulations more restrictive than those currently in force).		x
30. Products and production processes that are in line with the philosophy of the UNESCO World Natural Heritage Site are to be promoted.	xx	
31. Enterprises are to strive to coordinate marketing based on a shared label.	xx	
32. Trade and commerce are to be preserved and fostered. In particular, local products and traditional crafts are to be promoted.	xx	
33. The further development of trade and commerce is not to be obstructed by more restrictive regulations than those currently in force.		x
34. Products and services that help to promote the World Heritage Site are to be encouraged. New products based on resources from the World Heritage Region are to receive targeted promotion and marketing.	xxx	
35. Mineral prospecting is to remain possible at current levels.		x

Legend: see page 48, top

Target area: Energy and transport



The use of hydropower plays a central role in mountain areas as an economic factor and a renewable source of energy. For example, the hydropower enterprise Kraftwerke Oberhasli KWO, which directly borders the perimeter, is one of the largest production sites on the Swiss electricity market and, correspondingly, an important employer (240 employees). By contrast, various regions in the Canton of Valais have consciously chosen to refrain from using hydropower; they give priority to

landscape conservation. Wood is little used as a source of energy. Apart from the two railways to the Trümmelbach Falls and the Jungfrauoch, both mostly running through tunnels inside the mountain, there are no public transport routes inside the perimeter. The borders of the World Heritage Site, and, correspondingly, many vantage points and starting points for hikes etc. can easily be reached by public transport. The World Heritage Site is overflowed by aircraft (sight-seeing and army), and alpine landing fields inside the perimeter are used by helicopters to supply alpine huts and serve the purposes of tourism. In future, increasing private traffic and related problems in the World Heritage Region will pose growing challenges to the inhabitants of the valleys and villages concerned.

Energy and transport: Objectives	ip	op
36. The use of local, renewable resources, including wood, is to be optimised and encouraged. Such use is not to take place at the expense of other target areas (e.g. agriculture, water quality, residual amount of water).	xx	
37. Compensation for the use of hydropower (Bernese Oberland) as well as for losses in hydropower generation (Valais) is to be improved beyond current compensation levels.	x	
38. Inside the perimeter, commercial use of hydropower is to be limited to existing sites. The energy efficiency of existing facilities is to be increased.	xx	
39. Regional energy cycles are to be strengthened through the promotion of locally available energies such as water, wood, solar and biological energy. Low-energy ("Minergie") buildings are to be promoted.	xx	
40. Aesthetic pollution from energy infrastructure (powerlines) is to be reduced.	xxx	x
41. Future increases in demand for energy are to be met to the greatest possible extent by renewable energy.	xx	
42. Access to the World Heritage Site is to be optimised in terms of transport. Special emphasis is to be given to access by public transport. Regional transport concepts are to take adequate account of the World Heritage Region.	xx	
43. Roads, paths, railways: Inside the perimeter, maintenance, renewal and establishment of transport infrastructure (including the network of hiking trails) are to be restricted as far as possible and must be in line with the goals and objectives of the World Heritage Site. Outside the perimeter, the development and maintenance of accessways is to remain possible. This also applies to accessways to mountain pastures and forests.	xxx	x

44. In accordance with the legal framework and federal licensing policy, no new transport facilities are to be built in the World Heritage Site (inside the perimeter). The renewal (including capacity enhancement) of existing tourist transport facilities is to remain possible. In the World Heritage Region (outside the perimeter), the establishment of regionally significant new facilities remains possible in accordance with the legal framework and federal licensing policy.	xxx	x
45. Infrastructure that is no longer in use or obsolete is to be dismantled whenever possible.	xx	x
46. Noise pollution from military and civil aviation is to be reduced as well as spatially and temporally channelled.	xxx	x
47. Acoustic disturbance and the disturbance of wildlife through tourist aviation is to be reduced by means of quiet zones (in compliance with the Federal Law on Civil Aviation). The possibility of relocating or suspending mountain airfields inside the perimeter is to be examined.	xx	x

Legend: see page 48, top

Target area: Tourism and visitor management



Tourism plays a vital role in the entire region. The area inside the perimeter is unsuitable for mass tourism facilities due to its difficult topographic conditions. For experienced summer and winter alpinists, however, it is extraordinarily well suited. A well-developed, adequately equipped support and supply network (predominantly mountain huts and several mountain hotels) exists inside the perimeter. Moreover, the importance of tourist aviation is not to be neglected. At particularly popular vantage points, erosion leads to habitat destruction. Visitor management is therefore important.

Tourism and visitor management: Objectives	ip	op
48. Emphasis is to be given to high-quality, nature-oriented tourism guided by conservation objectives. Both the need for quiet and silence and the need for activity are to be taken into account. Visitors are to be encouraged to actively experience and develop an understanding of nature, the landscape, and the local culture.	xxx	
49. Both the need for free access to the World Heritage Site and the needs of natural communities are to be taken into account. Particularly sensitive habitats are to be protected by means of clear visitor management measures. When possible, soft measures are to be applied.	xxx	x
50. Inside the perimeter, new facilities for outdoor activities are to be established with discretion, in accordance with the legal framework, and as an integral part of regional tourism planning.	xxx	
51. Value added in tourism is to be enhanced.	xx	
52. Tourist marketing activities and offers made to tourists are to be coordinated and linked across regions.	xx	

53. Holiday guests, day trippers and local residents are to be made aware of the values of nature and, thereby, of the World Natural Heritage.	XXX	
54. Spiritual experiences in the mountains are to be encouraged by means of appropriate offers made to tourists.	XX	
55. Tourism, landscape and nature are to be linked more closely, and agrotourism is to be encouraged.	XXX	
56. The tourist sector (particularly directly involved key players) is to also participate financially in sustainable development and implementation projects in the World Heritage Region – particularly projects concerned with cultural landscapes.	XX	
57. Tourism promoters are to advocate more strongly a reduction of disturbance to wildlife by tourists.	XXX	X
58. Efforts must be made to manage as many gastronomic enterprises and hotels as possible according to standards of quality and environmental friendliness.	XX	X
59. Inside the perimeter, accommodation capacities are to be kept more or less at the current level. A quality label is to be developed.	XX	

Legend: see page 48, top

Target area: Culture, education, information and research



Specific natural conditions influence local ways of life, which is why the relation between nature and culture, or nature and humans, is particularly important in the World Heritage Region (cultural landscape, land-use systems, natural hazards, etc.). This close relation is reflected in mentalities and religious concepts as well as myths, public holidays and traditions. Actively encouraged encounters of visitors with nature, the landscape and culture are an important feature of tourism which can also

contribute to value added for inhabitants. Moreover, knowledge and understanding of the region are important both for visitors and for the local population. A network of information centres is to be established in and around the Jungfrau-Aletsch-Bietschhorn World Heritage Site in order to convey in-depth knowledge of the region to inhabitants and visitors. The Dialog Center in Naters and an information centre in the Bernese Oberland will be the core elements of the information and education infrastructure in the World Heritage Site, aiming to convey a vivid understanding of nature, culture and the economy, as well as the related complex interlinkages, and arouse interest in and curiosity about this mountain landscape. The World Heritage Region is an object of research in different disciplines, to varying degrees. Research activities and the high-alpine research station on the Jungfraujoch have significantly enhanced the Region's renown and awareness of its natural and cultural values.

Culture, education, information and research: Objectives	ip	op
60. Awareness, education, and the conveying of specific information about the World Heritage Site are to be promoted by arranging cultural events.	XX	
61. The unique research station on the Jungfrauoch is to be preserved and supported for the purpose of scientific research at the international level. In addition to the work carried out there, environmentally relevant research in natural sciences and particularly also in socio-economy and sociology (history, language, culture) in the remaining World Heritage Region is desirable and is to be coordinated. Synergies with on-going projects, particularly projects related to the observation of the environment in the broadest sense, are to be tapped.	XXX	XX
62. The information network of the World Heritage Site is to become a centre for research and exchanges of experience concerning all aspects of life in the mountains. This applies to science as well as cultural and social life.	XXX	
63. The population of the Jungfrau-Aletsch-Bietschhorn Region is to have in-depth knowledge of its native region and be aware of the region's uniqueness and individual character, as well as its natural and cultural assets. Education and awareness-raising are to take place in a holistic fashion and at all levels.	XXX	
64. Along with environmental education and age- and target-group-oriented sensitisation, cultural memory is to be strengthened.	XX	
65. Education and sensitisation of locals and visitors is to result in emotional attachment to the region, sound knowledge, and actions and behaviour based thereupon.	XX	
66. Actors in the Region (particularly tourist enterprises) are to perceive themselves and act as ambassadors of the World Heritage Site and its goals and objectives.	XXX	
67. Students in the communes are to be more aware of environmental issues than the average student in the canton.	XX	
68. Information on the World Heritage Site is to be made available at every location that serves as an access point to the Site.	XXX	
69. The future Dialog Center (planned information centre in Naters) is to be a model project for environmentally friendly building.	XXX	

Legend: see page 48, top

4 Legal protection of the World Heritage Site

Chapter 4 elaborates the role of the legal framework described in Chapter 1 and in HAMMER (in prep.) with regard to World Heritage Site management, and gives an assessment of protection status and its implementation at the national and cantonal levels.

At the national level alone, there are 143 protected objects of national importance in the 26 associated communes (as of October 2004). Among these are 5 landscapes and natural monuments (BLN, Federal Inventory of Landscapes and Natural Monuments of National Importance), 19 alluvial zones and glacier forelands, 15 raised bogs and transitional mires, 20 fenlands, 9 amphibian spawning areas, 4 mire landscapes, 4 landscapes protected from hydropower use (VAEW, Ordinance Concerning Compensation for Losses in Hydropower Generation), 6 federal hunting reserves und 59 Swiss Heritage Sites (ISOS). Of the 143 protected objects, 9 are located entirely inside the perimeter, 15 partly inside the perimeter, and 117 outside the perimeter of the World Heritage Site (Hammer, in prep.). This shows that the World Heritage Site is embedded in a region where manifold forms of protection are already established.

The objectives and measures defined for the World Heritage Site with regard to implementation of current protection status (see Chapters 3 and 6) are examined and elaborated in concrete projects of the following fields of action: 1.4 Existing Laws and Ordinances, 1.1 Rich Biodiversity, 1.5 Regulated Outdoor Activities, etc. (see Chapters 5.3 and 6).

4.1 The legal and planning environment of the World Heritage Site

One of the central aims of the present Management Plan is to secure the World Natural Heritage Site in accordance with UNESCO criteria for inscription on the World Heritage List. To facilitate identification of the need for action in this regard, the protection status of the World Heritage Region and particularly of the area inside the perimeter was clarified: 94.4% of the area inside the perimeter is under national landscape protection. 41% of the area has at least one additional, overriding protection status, for example that of a biotope of national importance, a cantonal or a communal nature reserve, a federal hunting reserve, or others. Of the 5.6% of the area not under national landscape protection, another 2% is otherwise protected (see Map 2: Overview of all National and Cantonal Nature Reserves; and Annex 4: Statistical Data).

Protection status in the Jungfrau-Aletsch-Bietschhorn World Heritage Site

Based on the provisions in the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, inscription of a site on the World Heritage List does not override national legislation (UNESCO, 1972). Accordingly, in legal terms, inscription on the World Heritage List does not entail any changes in the previous protection status of an area. Inscription only confirms that the site deserves protection and recognition on an international level, and that being a part of the world natural heritage, it must be preserved for future generations. However, in accordance with the relevant UNESCO Convention, the UNESCO World Heritage Site label commits the Swiss Confederation to maintain existing protection of the area and to set up a management scheme for the Site.

For the **protection of the World Heritage Site**, the provisions of the Federal Law on the Protection of Nature and Cultural Heritage (NHG) and the provisions of the Federal Law on Spatial Planning (RPG) are of particular relevance with regard to building projects outside construction zones. Nature and landscape protection in the World Heritage Region is very complex due to the involvement of three levels of government – the communal, the cantonal, and the federal – in legislation. Protection

is based, among other things, on international agreements, as well as national and cantonal constitutional and legal frameworks. Correspondingly, protection through national reserves inside the perimeter of the World Heritage Site is further strengthened by existing cantonal and communal nature and landscape reserves, as well as by the provisions of legislation concerning agriculture, hunting, and forestry, among others. If it were not for the activities of private conservation organisations, many national and cantonal reserves and protected objects would not have been designated as such at all, or only at a later stage. Among other things, private organisations often take on the important function of advocating nature and landscape conservation and making sure that conservationist arguments are taken into consideration in spatially relevant decision-making processes.

The area inside the perimeter of the World Heritage Site is almost congruent with objects 1507 and 1710 of the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN), corresponding, respectively, to the northern and southern parts of the *Bernese High Alps and Aletsch-Bietschhorn Area* (see map on Federal Inventory of Landscapes and Natural Monuments of National Importance, Annex 3.6). As described above, these two objects cover around 94.4% of the World Heritage Site. Therefore, they are the most important instrument in terms of area. The declared aims of the Federal Inventory of Landscapes and Natural Monuments of National Importance demand that the objects listed be entirely preserved or conserved as far as possible. Departure from the demand for full preservation by the Confederation, cantons, or communes for the purpose of fulfilling a federal task may only be considered if this task serves certain interests of the same or greater national importance (qualified balance of interests). However, the Confederation, cantons and communes must adhere to the BLN regulations only with regard to federal tasks, but not when fulfilling cantonal and communal tasks – unless these are federal tasks to be fulfilled in a subsidiary capacity by cantons or communes. A substantial part of the World Heritage Site (43%) is covered by other overriding cantonal and national reserves with more restrictive and binding requirements in terms of landscape protection and species and habitat protection (see Map 2):

- With regard to **national landscape protection**, the Grimsel mire landscape and the 4 landscapes protected under the Ordinance Concerning Compensation for Losses in Hydropower Generation (VAEW) are, in terms of federal provisions, more strictly protected than the BLN areas.
- With regard to **national species and habitat protection**, the 6 federal hunting reserves and the alluvial zones are (again, in terms of federal provisions) more strictly protected than the BLN areas. The three raised bogs and transitional mires, as well as the two fenlands, all of national importance, are very strictly protected.
- In the 8 Bernese associated communes, the **Canton of Berne** designated 19 reserves as **cantonal nature reserves** (see Annex 4.6) through formal decisions of the Cantonal Council. Twelve of them are partly under national protection, such as the Grimsel and the Chaltenbrunnen-Wandelalp nature reserves, that are listed as mire landscapes of national importance, or the Upper Lauterbrunnen Valley and the Wengernalp nature reserves, that are protected as a raised bog and a fenland, respectively (and the latter additionally as an amphibian spawning area). The designation of cantonal nature reserves implies a substantial extension of the total area under nature protection.
- In the 18 associated communes of the **Canton of Valais**, 10 reserves have been placed under protection by governmental decisions. Six of these reflect implementation of federal provisions and can therefore not be referred to as cantonal reserves. Accordingly, **cantonal protected objects** in the Valaisian part of the World Heritage Region are the Aletsch forest, which has been under strict protection as an “absolute reserve” and “natural monument” since 1933; the area of Lake Märjelen, which has been under protection since 1938; and two objects under scenic landscape protection – the Burghügel in Raron (since 1963) and the Chapel of Bettmeralp (since 1970).

Overview of all National and Cantonal Nature Reserves

Legend

Landscape Protection

- Landscapes and natural monuments (BLN°)
- Ordinance concerning compensation for losses in hydropower generation (VAEW)
- Mire landscapes of particular beauty°
- Cantonal nature reserves (NSG)
- Swiss heritage sites (ISOS°)

Biotopes of National Importance

- Federal hunting reserve°
 - Raised bogs or transitional mires°
 - Fenlands°
 - Glacier foreland (alluvial zone°)
 - Alpine alluvial zones°
 - Watercourses (alluvial zone°)
 - Delta (alluvial zone°)
 - Amphibian spawning areas° (permanent)
 - Amphibian spawning areas° (migratory)
 - Reserves for waterbirds and migratory birds°°
- ° Federal Inventory of National Importance
°° Federal Inventory of International and National Importance

Legend detail

- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- Perimeter of the World Heritage Site, 2001

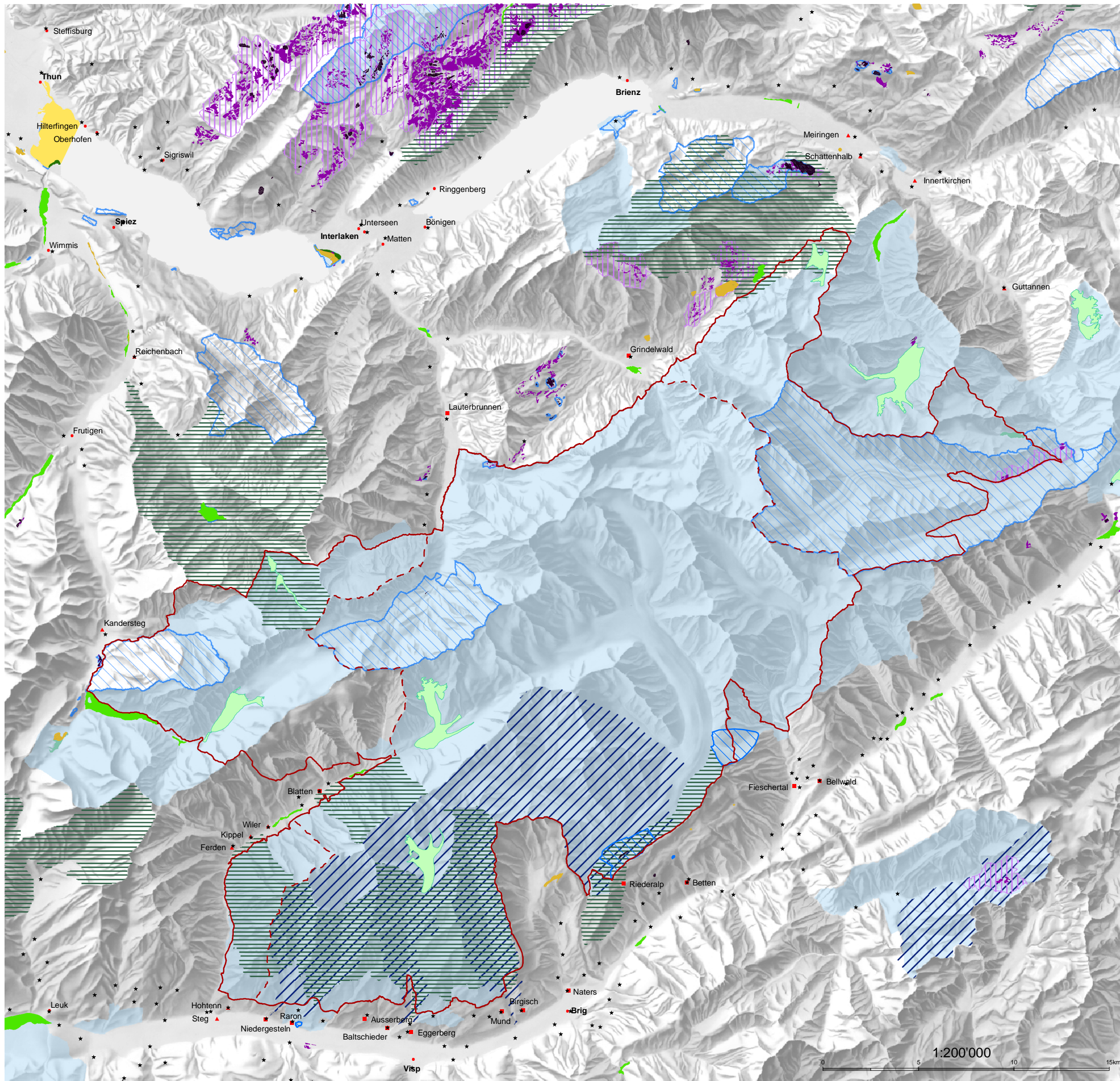


Sources of data:
 National borders, lakes, commune borders: GG25 © 2002
 Swiss Federal Office of Topography (DV002213)
 Main centres in communes: SWISSNAMES © 2004
 Swiss Federal Office of Topography (DV012687)
 Perimeter of the World Heritage Site, 2001 and 2005
 Swiss Agency for the Environment, Forests and Landscape
 Relief: PK100 © 1998 and PK500 © 1999
 Swiss Federal Office of Topography (DV 351.4)
 BLN, 2001, FOS GEOSTAT/SAEFL
 Inventory of Mire Landscapes, 2004,
 FOS GEOSTAT/SAEFL
 Areas covered by VAEW, 2004, SAEFL
 ISOS, 1994, SAEFL
 NSG, 2001, Canton of Bern
 NSG, 2005, Canton of Valais
 Raised bog Inventory, 2003, FOS GEOSTAT/SAEFL
 Fenland Inventory, 2004, FOS GEOSTAT/SAEFL
 Alluvial Zone Inventory, 2003, FOS GEOSTAT/SAEFL
 Amphibian Inventory, 2003, FOS GEOSTAT/SAEFL
 Reserves for Waterbirds and Migrants, 2001, FOS GEOSTAT/SAEFL
 Hunting Reserves, 2004, FOS GEOSTAT/SAEFL

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 Map compilation and cartography:
 CDE (Centre for Development and Environment), Institute of Geography, University of Berne,
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Naters, 11.2005



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 Jungfrau-Aletsch-Bietschhorn



Suggestions have been made to eventually inscribe the 3.6% of the area inside the perimeter that is currently not under protection – either through the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN) or any other of the above-mentioned instruments – on the BLN, since the areas in question are not used or only minimally used by humans (see Annex 3.6). Efforts will be directed towards adaptation of the boundaries of the BLN areas to the perimeter of the World Heritage Site at a later stage, upon request by the two cantons involved (HAMMER, in prep.).

On the **territory of the associated communes outside the perimeter of the World Heritage Site**, the most important protected areas in terms of area coverage are areas inscribed on the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN), mire landscapes of national importance (Bachsee, Chaltenbrunnen, Grosse Scheidegg), alluvial zones of national importance, and federal hunting reserves. Furthermore, the great majority of the most strictly protected objects of the World Heritage Region – raised

bogs, transitional mires, fenlands, and amphibian spawning areas – are situated outside the perimeter. The same is true for the heritage villages of national importance.

Assessment of protection status is intended to underline the fact that implementation of the objectives of the Jungfrau-Aletsch-Bietschhorn World Heritage Site is not primarily a question of administration and legal status, but requires a broad process that must be supported by as many groups of people from the population, economic sectors, and interested organisations as possible, as described in Chapter 5.

Nature and landscape protection as a trans-sectoral task

A distinction has to be made between nature and landscape protection based on international conventions and national and cantonal constitutional and legal frameworks on the one hand, and nature and landscape protection that has a transversal function and needs to be carried into and taken up by different areas of sectoral and issue-specific policy, such as spatial planning, spatial organisation, environmental protection, and agriculture, as well as forestry, hunting and fishing legislation, on the other hand. In these various areas of the law, the focus of attention is not on nature and landscape protection as such. Nevertheless, legislation processes in these areas include the formulation of different minimum requirements for nature and landscape protection with regard to resource management and, in particular, land management, as well as objectives and measures that are intended to have a positive effect with regard to nature and landscape protection. Concerns of nature and landscape protection were integrated into these various areas of the law with the aim of creating positive effects for nature and landscape protection. Correspondingly, the provisions in question are intended to have an indirect influence on the condition and development of nature and landscapes through the actions of the population concerned (HAMMER, in prep.).

In the policy sectors that are relevant with regard to achieving the goals of the Jungfrau-Aletsch-Bietschhorn World Heritage Site, the trend is towards increased support for innovative regional initiatives and concepts. This development is reflected in the Sustainable Development Strategy 2002 issued by the Swiss Federal Council, in spatial planning policy, regional policy, nature and cultural heritage protection policy, and agricultural policy, as well as in mildly introduced regionalisation of sectoral policies in general (HAMMER, in prep.).

Expansion of the perimeter

As explained in Chapter 1 in the section on “Perimeter, communes, and land use,” in-depth discussions with communes and land proprietors in the years 2001 through 2004 led to a proposal to expand the World Heritage Site area from the current 539 km² to 824 km², thereby increasing the number of associated communes from the original 15 to 26 (see Map 1: Perimeter and Borders of the

Associated Communes in the World Heritage Region). The areas involved in the proposed expansion consist of the Hasli Valley with the Grimsel in the Oberland East Region, the region of the Blüemlisalp in the Kander Valley Region, and the area of the Lötschen Valley and the Lötschberg south ramp in the Valais. The areas of proposed expansion are shown on the General Map (Annex 3.1) of the World Heritage Site at a scale of 1:100,000. The expansion primarily involves areas that are perceived as a meaningful addition to the World Heritage Site due to their geographical features. Unfortunately, not all desired areas could be included in the expansion due to objections by actors, predominantly from the traditional agricultural and tourism sectors.

4.2 Assessment of protection status and need for action

The World Heritage Region exists within an institutional environment and a legal framework that are characterised by complexity, as a result of Swiss federal structures. This complexity is reflected in nature and landscape protection in the narrowest sense, as well as in sectoral and issue-specific policies dealing with aspects of nature and landscape protection. In order to achieve efficient management of the World Heritage Site, it is therefore important that discussions on project implementation involve those actors who have the corresponding decision-making authority.

With regard to nature and landscape protection in the narrowest sense, according to current assessments, due to the great number of existing and partly overlapping protected areas and protective measures, the World Heritage Site is not in (any immediate) danger. Since December 2001, this assessment has twice been confirmed by the Swiss Federal Council in response to questions raised by members of the National Council (Question 04.1125 Teuscher and Simple Question 01.1150 Aeschbacher). The answers by the Federal Council can be summarised as follows: *“...The legal protection of the area was examined and assessed as sufficient during the nomination process. There is no need for a reassessment during the development of the Management Plan, since the facts remain unchanged. The Federal Council’s assessment of the legal framework for protection of the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site as sufficient is based on the following reasons: Since 1983, the entire area has been listed in the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN, SR 451.11) as a part of object 1507/1706, Bernese High Alps and Aletsch-Bietschhorn Area. Accordingly, for some time now international lists have been correctly listing it in category V, ‘Protected Landscape,’ as defined by the World Conservation Union (IUCN). In this regard there is no need for action. In addition to this, large portions of the area are federal or cantonal hunting reserves, alluvial zones or mire landscapes of national importance, or cantonal nature reserves. Several valleys on the Lötschberg south ramp have been protected by contract according to the Ordinance Concerning Compensation for Losses in Hydropower Generation (VAEW; SR 721.821) and designated as landscape reserves in the communal zoning plans.*

BLN impact evaluation studies commissioned by the Parliamentary Control of the Administration (PCA) did not include object 1507/1706, Bernese High Alps and Aletsch-Bietschhorn Area. The weaknesses, but also the strengths of the BLN have long been known. One strength has to do with federal tasks, such as the granting of concessions or building projects outside construction zones. Potential interventions in the World Heritage Site would fall in these categories. Inscription on the World Heritage List has increased awareness among the population that the area is unique and worthy of protection.

Furthermore, an effective and simple organisational structure has been built up in the meantime to guarantee the management of the Site and the elaboration of a Management Plan featuring concrete objectives and measures. This is primarily the task of the communes involved and the two cantons of

Berne and Valais, with logistic and financial support from the Confederation. The Federal Council welcomes the efforts that are underway and is willing to continue actively supporting them.” (Text available in German at <http://www.parlament.ch/su-curia-vista.htm>; full text search: Weltnaturerbe; site accessed on 20 October 2005.)

The World Heritage Site is naturally and additionally protected due to its topography and elevation, as well as the federal railway licensing policy. This practically excludes any interventions that pose a threat to the Site and do not fall under the provisions of the Federal Law on the Protection of Nature and Cultural Heritage (NHG) or other protective provisions. The existing frame conditions and protective measures that apply to the World Heritage Site and Region are embodied in laws and ordinances. Strengthening or weakening these (for example for infrastructure projects in areas protected under the VAEW) involves a long and complex political and societal process. Therefore, in decision-making processes, negative environmental impacts of human actions are considered over relatively large areas, and, for instance in agriculture, ecological aspects are increasingly upgraded.

As pointed out in the Federal Council’s answer (see above), the entire area of the World Heritage Site was listed on international lists of protected areas under IUCN management category V, “*Protected Landscape*,” already prior to its inscription on the World Heritage List. Parts of the Site, such as the Trümmelbach, the Rosenloui, and the Great Aletsch Glacier, could also be assigned to category III, “*Natural Monument*.” Other parts of the Site could be assigned to categories IV “*Habitat / Species Management Area*” (e.g. fenlands) or VI “*Managed Resource Protected Area*” (protected area managed mainly for the sustainable use of natural ecosystems; e.g. alpine meadows and hunting grounds situated above the upper boundaries of alpine pastures).

It is important to assess whether the current level of nature and landscape protection is sufficient for achieving the goals and objectives of the JAB World Heritage Site in the long term. At present, developments are underway on the national and cantonal levels that promise an improvement and upgrading of nature and landscape protection. However, due to the fact that the World Heritage Site involves 26 communes and 2 cantons, it is important that an overall evaluation of all existing regulations on protection take into consideration communal protected zones as well. With a view to implementation of the Management Plan and in order to provide a clearer overview of the legal situation, the communal protected areas are to be listed in an inventory and integrated into a GIS, and their status of protection is to be evaluated.

The binding force of the BLN and the role of the World Heritage Association in improving the impact of the BLN

Assessment of the status of protection shows that from a legal point of view, current protection is sufficient to secure the World Heritage Site (a total of 96.4% of its area is subject to at least one protection status). A need for action may exist with regard to implementation and monitoring of the various existing regulations on protection. This, in turn, would help to enhance and extend the impact of the BLN at the national level. Integration of the BLN into cantonal guiding plans and communal landscape planning could lead to enhancement of the BLN status of protection and to its being declared as binding at these levels. Since the associated communes have committed themselves in the Charter of Konkordiaplatz to preserve the World Heritage Site for future generations, this objective has to be further pursued.

As described above, demands for more protection for the World Heritage Site have been voiced at the national level on several occasions since inscription on the World Heritage List in the year 2001. These demands were based, among other things, on an assessment by the Control Committee of the National Council, which judges the BLN status of protection as insufficient. However, these demands disregard the fact that a large portion of the World Heritage Site is additionally protected through

other instruments of landscape and biotope protection. The World Heritage Site Association believes that there is little or no need for action in those areas inside the perimeter where additional protection as a biotope or landscape reserve currently already overlaps the BLN. With respect to monitoring, reports and data from national and cantonal protected areas and from evaluations must be analysed and integrated into the monitoring process. However, the Association intends to propose that the goals and objectives of the BLN be better established and made known by means of targeted information in the associated communes. A project launched by the Swiss Agency for the Environment, Forests and Landscape (SAEFL) at the end of 2004 pursues the goal of meeting these demands at the national level. The impact of the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN) is to be enhanced by means of more targeted conservation and upgrading the value of the listed landscapes.

In this regard, the World Heritage Site Association perceives itself as having a coordinating function between the cantons, the communes, and the Confederation. In view of the fact that the World Heritage Site covers parts of 2 cantons and 26 communes, it must be a goal to coordinate the process of identifying and defining objectives. In this way, BLN object 1507/1706, *Bernese High Alps and Aletsch-Bietschhorn Area*, as a whole, can be underpinned by a set of goals, and the population can be involved in this process in the course of the on-going participatory process of defining objectives for the World Heritage Site in general. Several of the fields of action defined in the forum process can contribute to concretising the goals of the BLN (see Chapters 5.3 and 6): 1.1 Rich Biodiversity, 1.2 Near-natural Forest, 1.4 Existing Laws and Ordinances, 1.5 Regulated Outdoor Activities, and 1.7 Regulated Air Traffic, from Area of action 1, *Nature and Habitat*; and 2.2 Tourist Transport Facilities from Area of action 2, *Economy and Culture*. In its recommendations, the Control Committee of the National Council defines the objectives of enhancing general awareness of the BLN and improving acceptance of implementation of its aims regarding protection and upgrades by means of information measures. In the World Heritage Site, these objectives can be attained through the fields of action defined in Area of action 3, *JAB-Organisation and -Communication*: 3.1 JAB Information Network, 3.4 Effective Lobbying for the JAB, 3.5 Local Residents as JAB Ambassadors, 3.6 Student Awareness, and 3.7 Public Awareness. Moreover, the World Heritage Association can take a leading role in raising awareness of, and providing information on, the various protected areas overlapping the perimeter and the territory of the associated communes outside the perimeter. The main goal will consist in familiarising the actors with protected areas and their objectives inside and outside the perimeter. Research can contribute significantly to achieving this goal by compiling and disseminating information.

5 Instruments and structures for implementation

Chapter 5 describes the role that the institutional frame conditions described in Chapters 1 and 2 play in World Heritage Site management, and outlines the instruments and structures used to implement the defined measures and objectives.

5.1 Institutional structure and funding

The Jungfrau-Aletsch-Bietschhorn World Heritage Site Association

The sponsors of the JAB World Heritage Site are organised under the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association (Association under the terms of Art. 60ff Civil Law Code, with registered office in Naters/VS; statutes dated 29 May 2002). Under the terms of Art. 7 of the Statutes (see Annex 1.2a), the regions Oberland East and Kander Valley on the Bernese side and the perimeter communes on the Valaisian side are represented. The association members designate delegates, who are equally represented in the Assembly of Delegates with the same number of votes per canton (24 persons per canton). The Assembly of Delegates, which includes representatives of several organisations (e.g. Swiss Alpine Club [SAC], the Association of Bernese Alpine Guides, Pro Natura Berner Oberland, BLS Lötschbergbahn AG, tourist organisations, alpine railways), appoints a Supervisory Board, also with equal representation (see Figure 12; Organisational Chart of the Jungfrau-Aletsch-Bietschhorn World Heritage Association).

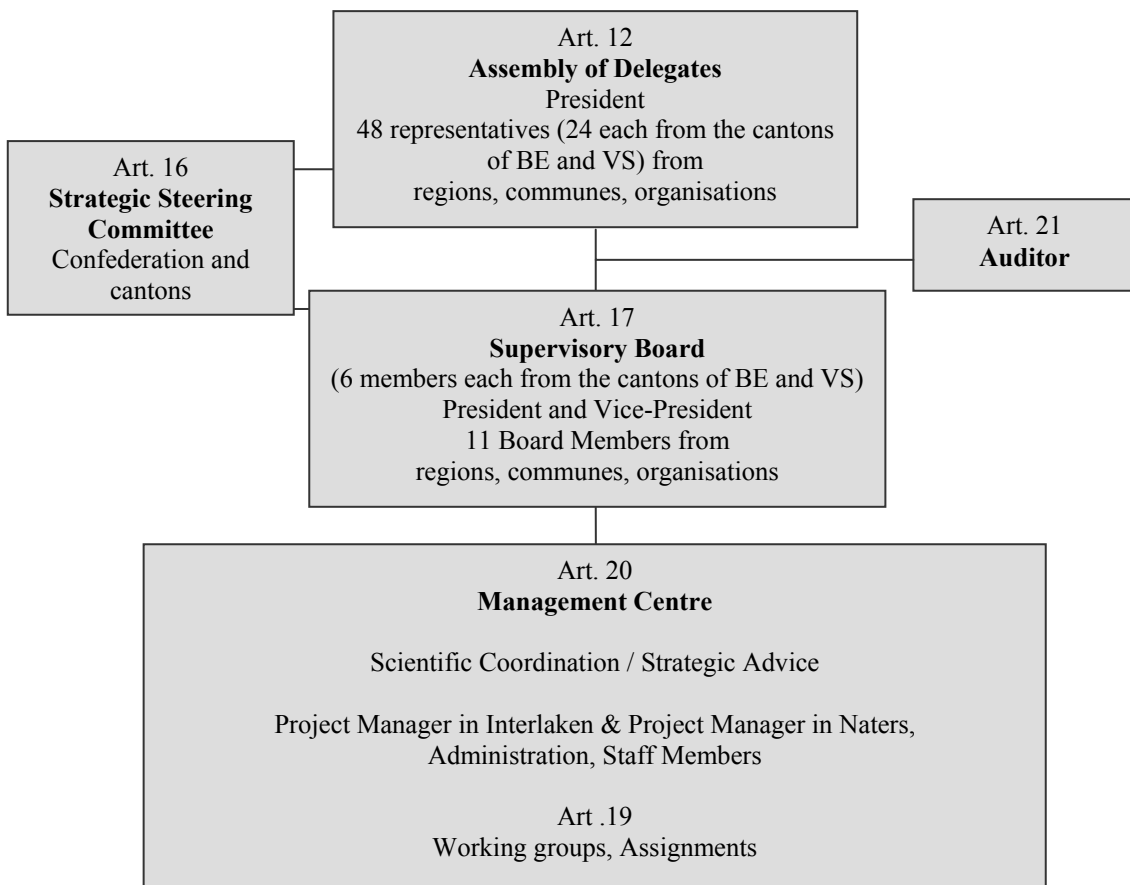


Figure 12: Organisational Chart of the Jungfrau-Aletsch-Bietschhorn World Heritage Association

The cantons of Berne and Valais are also members of the association but are not entitled to vote at the Assembly of Delegates. However, they have a seat on the Strategic Steering Committee (see Figure 12), which also includes Confederation representatives, the President and the Vice-President of the association. The task of the Strategic Steering Committee is to ensure “that the association’s objectives and activities comply with federal and cantonal laws and strategies” (Art. 16 of the association statutes).

On the Bernese side, the Jungfrau Railways and Pro Natura as well as four commune representatives have a seat on the Supervisory Board. On the Valaisian side, the Supervisory Board was exclusively made up of six commune representatives during the initialisation phase (2003-2005). The office of President is held for four years and alternates between Bernese and Valaisian representatives (thus Berne or Valais alternately have one more representative on the Board). A new configuration was created for the Valaisian side for the operational phase: Since the 2005 Assembly of Delegates, representatives of institutions and organisations, i.e. one from each of the sectors environment, economy and tourism, have also been assigned a seat on the Board.

Additional association members can be appointed to the Board as *non-voting sponsors*. The plan is therefore to create a sponsor association for the operational phase (from 2006), consisting of persons and institutions who identify with the World Heritage Site and its objectives and make a supporting contribution.

The Supervisory Board appoints the project managers/business centre(s) and approves the business regulations which define the competences and responsibility of the business centre(s) (= Management Centre) (Art. 20 of the association statutes).

The cantons and the Confederation can exert influence on the association activities, among other things through their representation on the Strategic Steering Committee.

Funding

The Jungfrau-Aletsch-Bietschhorn World Heritage Site is to be funded on a broad basis. Table 4 illustrates the principle of funding for the operational phase from 2006 (provisional budget). The related budgetary principle is based on “Public & Private Partnership,” which is reflected in the 50/50 public/private contributions (sponsoring, labelling, business groups). This budget does not show previously existing basic payments for controlling and monitoring services (e.g. gamekeeping, impact evaluation for mires and alluvial zones of national importance) or compensations (e.g. based on contracts under the Ordinance Concerning Compensation for Losses in Hydropower Generation) related to nature and landscape protection by the Confederation and cantons.

Table 4: Target funding model for the operational phase: Expenditures

Areas of Action	Fields of Action	Funding Requirement		
		Total Annual Budget	Publicly Funded	Privately Funded
Overall Coordination/ Management of JAB World Heritage Site	<ul style="list-style-type: none"> - Operation of WHS Management Centre - Communication / awareness-raising - Marketing - Participation and creating ownership - Cooperation / networks - Protection / legal aspects - Controlling / quality creation + assurance - Implementation strategies and projects - Agenda 21, implementation, support - Research coordination - Region monitoring - Knowledge management (GIS, databases) 	1,200,000	70%	30%
Project development and implementation in Nature and Habitat	<ul style="list-style-type: none"> - Rich biodiversity - Near-natural Forest - Traditional cultural landscape - Existing laws and ordinances - Regulated outdoor activities - Integrated transportation network - Regulated air traffic 	600,000	50%	50%
Project development and implementation in Economy and Culture	<ul style="list-style-type: none"> - Design of tourism products and services - Promotion of tourism - Agricultural products and services - Tourist transport facilities - Innovative enterprises - Environmentally friendly energy use - Cultural network 	600,000	20%	80%
Project development and implementation in JAB-Organisation and -Communication	<ul style="list-style-type: none"> - JAB information network - Effective lobbying for the JAB - Local Residents as JAB Ambassadors - Student awareness - Public awareness - Multi-sectoral JAB labelling - Balanced JAB funding 	600,000	50%	50%
Total		3,000,000	52%	48%

Overview of the target funding model according to the “Public & Private Partnership” principle: Income

Table 5: Target funding model for the operational phase: Income side
 * Smaller budget: Budget on which the association can exert direct influence and control (overall coordination of management including implementation of fields of action, headed by Management Centre).
 ** Extended budget: Cannot be directly influenced or controlled by the association.

	Amount	Share in %
Public funding		
- Confederation*	800,000	27%
- Public promotion instruments*	400,000	13%
- Cantons of Valais and Berne*	210,000	7%
- Association members (communes, regions, organisations)*	150,000	5%
	1,560,000	52%
Private funding		
- Sponsorship and labelling via Management Centre*	500,000	17%
- Contributions from private business groups**	940,000	31%
	1,440,000	48%
Total “Public & Private Partnership” funding	3,000,000	100%

Public contributions

- **Confederation:**

The Swiss Agency for Environment, Forests and Landscape (SAEFL) has announced contributions via the Federal Law on the Protection of Nature and Cultural Heritage (NHG). State Secretariat for Economic Affairs (seco) via the RegioPlus project (guaranteed until the end of 2006).

Other federal offices such as the Federal Office for Spatial Development, the Federal Office for Agriculture, and the Federal Office for Education and Science are also involved in financial planning. Federal contributions from the SAEFL can be granted for the operational phase towards activities and projects inside the perimeter, i.e. related to the NHG. Part of the overall coordination of the World Heritage Site is encompassed in a project according to Table 4; for individual NHG-relevant projects in the areas of action, a funding application must be made to SAEFL. For additional projects, applications for financial assistance must be made to the relevant federal agencies within the framework of regional development instruments.

- **Cantons of Berne and Valais:**

The cantons of Berne and Valais each contribute CHF 75,000.- per year to the World Heritage Site. Total CHF 150,000.- per year.

This contribution must be reviewed for the operational phase, as well as in terms of the new financial equalisation between the federal and cantonal governments that will enter into force as of 2008 (particularly for project-related funds).

- **Association members (communes, regions, organisations)**

Article 4 of the Regulations (see Annex 1.2.b) governs members’ contributions.

The communes in the association (BE: via regions; VS: directly via communes) each contribute a total of CHF 75,000.- per year to the costs. Total CHF 150,000.- per year.

This contribution will remain valid for the operational phase.

Private contributions

- **Private, third-party sponsorship:**

The search for sponsors (at the regional and national levels) will be stepped up for the operational phase and from 2005 onwards. To this end, a sponsorship concept has been drawn up. Negotiations with reputable companies and organisations are underway. Funds can also be acquired in the form of a sponsor association to be established. Income from the sale of labels as well as merchandising will also provide a source of funds for the operational phase.

In the build-up phase, the Confederation shared the annual total costs of the project on a 50/50 basis with cantons, communes, sponsors, and private individuals or organisations. Under the terms of the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, each State Party is committed to the unconditional preservation of the world heritage sites situated on its territory and to the creation of a suitable management structure for the territory. In line with this principle, a balanced long-term funding concept for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site must be formulated in the near future in collaboration with federal and cantonal authorities and the associated communes. To this end the association has formed a group with representatives of the Supervisory Board, regional planning associations, and the management.

Management Centre

On 1 January 2003 the UNESCO World Natural Heritage Management Centre opened offices in Naters near Brig (VS) and in Interlaken (BE), and appointed a manager to act as project manager for the World Heritage Site on a 70% employment basis. A scientific manager from the University of Berne's Institute of Geography is affiliated to the Management Centre to act as strategical lead (see Fig. 12).

The main office in Naters is responsible for administration, with a full-time equivalent (FTE) of 130%. Administrative personnel also work in the Interlaken office as and when required. To minimise the need for face-to-face meetings and postal exchanges, the two offices are connected via a computer network.

Certain other services such as financial management, IT support, administration of the Geographic Information System (GIS) and databases, are outsourced to third parties on a mandate basis and coordinated by the project managers. Work related to the Geographic Information System (GIS management and the preparation of map material) is performed by the University of Berne, to some extent on a sponsorship basis.

The task areas and responsibilities of the two project managers, who share equal authority, and of the scientific manager are governed by a simple organisational structure within which persons perform a lead function but are not solely responsible for any task areas.

One important task of the Management Centre is to act as cooperation partner, mediator and "catalyst" for project implementation.

The following main task areas were defined for the operational phase:

Operation of the Management Centre	<ul style="list-style-type: none"> • Personnel, administration, infrastructures • Organisation and running of the association • Controlling / quality assurance for the association and Management Centre (project controlling)
Cooperation / networks	<ul style="list-style-type: none"> • Entering into and promoting cooperative ventures related to the World Heritage Site • Promotion/support of the Agenda 21 process (perimeter communes)
Protection / legal aspects	<ul style="list-style-type: none"> • Evaluation and implementation of protective regulations • Raising awareness of regulations governing the protection of biotopes and landscape (incl. BLN)
Participation	<ul style="list-style-type: none"> • Promotion of ownership creation (making the regional population aware of its shared heritage) • Assurance of continuity in the participation process in terms of the evaluation and definition of goals and implementation
Implementation strategies	<ul style="list-style-type: none"> • Operation of core groups as an instrument for implementation • Incentive for innovation and development
Communication / information / marketing	<ul style="list-style-type: none"> • Broadly based information/awareness campaign on natural habitats and on projects and regions associated with the World Heritage Site • Specific marketing activities (in principle these are the responsibility of tourist organisations) • Provision of services to interested parties (information services, information kits on the region, etc.)
Research / knowledge management	<ul style="list-style-type: none"> • Coordination of research in the World Heritage Region • Operation/coordination of the JAB research platform as a network incl. research planning • Cooperation in (inter)national networks • Inventory of research in the World Heritage Region • Setting up and operating the Geographical Information System (GIS) • Recording, compilation, preparation, modelling of (spatial) information and placing it at the public's disposal (JAB World Heritage database on Internet and JAB World Heritage library) • Services (e.g. creation and preparation of map material for book publications, educational trails, schools, etc.)
Regional monitoring / controlling	<ul style="list-style-type: none"> • Setting up and operating a monitoring and controlling system incorporating national and regional instruments

5.2 Management instruments and the role of cooperative ventures

Unlike world *cultural* heritage sites, which usually belong to one regional body, the management of world *natural* heritage sites is often dependent on cooperation among a wide range of different political bodies and interest groups. Due to Switzerland's federal system, communes and cantons enjoy a marked degree of autonomy, which adds to the complexity of cooperation in a region like the Jungfrau-Aletsch-Bietschhorn World Heritage Site, which is large by Swiss standards (1,629 km²). Such regions can therefore make a key contribution and provide important examples of successful regional policy, and it therefore behoves them to be able to perform this role at the national level with all potential financial consequences. This requirement is underscored by Switzerland's ratification on 17 September 1975 of the Convention Concerning the Protection of the World Cultural and Natural Heritage adopted by UNESCO on 16 November 1972, thereby taking on major responsibility for world heritage sites of such dimensions.

Site management

Management of the Jungfrau-Aletsch-Bietschhorn World Heritage Site is founded on as broad a base as possible since, as described in the section entitled "A multi-faceted institutional environment" (see Chapter 2), the Jungfrau-Aletsch-Bietschhorn World Heritage Site associated communes (26 in all) are incorporated in a diverse network of institutions and organisations (including five regional planning associations, more than 20 alpine farming associations, a large number of tourist offices, and seven tourism marketing organisations). The main reason for this is that the region and area inside the perimeter of the WHS was already under protection and subject to various protective measures and restrictions on use and development prior to its nomination as a UNESCO World Heritage Site. Management of the UNESCO-listed site is the responsibility of the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association (see below). However, as discussed below and in Chapter 1, the actual implementation of projects, objectives, and measures is highly dependent on the political will and the initiative of the population as well as organisations and institutions.

Cooperation and participation

As explained above, one of the Management Centre's most important tasks, particularly in terms of participation and creating ownership (making the local population aware of its shared heritage), is to foster and enter into cooperative ventures with local, regional and national partners. The participation process involves, *inter alia*, persons from the following areas: agriculture and forestry (landowners), hunting, wildlife protection, tourism, hotel sector, alpine railways and cableways, transport, commerce, business, natural and environmental conservation, culture, education, social services, administration (canton, communes), planning, and institutions for the promotion of regional and local development. The aim during the operational phase is to intensify cooperation through additional ventures that support the implementation of objectives and measures and are able to leverage the World Heritage Site to add value to their own products and services on offer. Here financial involvement must be examined.

The following table lists the most important trans-regional organisations, communities of interest, and official agencies with which some cooperative venture or collaboration exists, in addition to the association organs.

Federal Offices

- Swiss Agency for the Environment, Forests and Landscape (SAEFL)
- State Secretariat for Economic Affairs (seco)
- Federal Office of Topography (swisstopo)
- Federal Office for Water and Geology

Cantonal Offices	<ul style="list-style-type: none"> • Canton of Berne: <ul style="list-style-type: none"> - Office for Communes and Zoning (AGR) - Office for Agriculture and Nature (LaNat) - Office for Geographical Information (AGI) • Valais: <ul style="list-style-type: none"> - Forest and Landscape Service - Surveyor's Office
Regional Offices	<ul style="list-style-type: none"> • Collaboration and information exchange
JAB Marketing Group	<ul style="list-style-type: none"> • Marketing of all World Heritage Region destinations including Interlaken. Every sub-region (Aletsch, Jungfrau region with Alpenregion Meiringen Hasliberg, Lötschberg including environs of Visp) is assigned one representative. Joint marketing activities: shared marketing pool
Research	<ul style="list-style-type: none"> • Participation of more than 25 institutions in the joint coordination and definition of JAB research • Collaboration with various institutions with a view to knowledge management • Participation in the ScNat national research network for protected areas
Swiss UNESCO Committee platform group for World Heritage and Biosphere Reserves	<ul style="list-style-type: none"> • Information exchange with national committees: Swiss UNESCO Committee, SAEFL, and Federal Office for Culture (FOC)
World Heritage Switzerland Community of Interests	<ul style="list-style-type: none"> • Umbrella organisation for Swiss UNESCO World Cultural and Natural Heritage Sites. Joint marketing activities (cooperation agreement with Switzerland Tourism)
Environmental Organisations	<ul style="list-style-type: none"> • National and regional environmental organisations with an interest in world heritage • Cooperation in compiling an inventory of environmental data (local knowledge) • Participation in the international Alpine Network of Protected Areas (AlpArc)
Dialog Center Foundation, Naters	<ul style="list-style-type: none"> • Foundation established to create an information service and centre of competence in Naters (VS) • Agreement between World Heritage Site Association and foundation. Cooperation in communications and in designing a network of information centres
Other Institutions and Organisations	<ul style="list-style-type: none"> • SAC • Bernese and Valaisian hiking trails • Alpine farming associations • Etc.

Knowledge management and the Geographic Information System (GIS)

It is essential to build up an in-depth knowledge management system for management of the World Heritage Region. On the one hand, it provides a basis for the coordination and exchange of information and data concerning the World Heritage Site between interested parties, researchers, and the JAB Management Centre. On the other hand, it provides interested members of the public with a simple means of accessing information on various JAB-specific themes. In addition, related products aimed at communication and awareness-raising can be set up on a well-informed basis and made available to the public at large.

The documentation and GIS database created in 2004, which is accessible to parties and institutions interested in obtaining the latest information on the World Natural Heritage Site, comprises a library at both Management Centre locations in Naters and Interlaken as well as the University of Berne's Centre for Development and Environment (CDE), and an electronic database which can be viewed online (www.weltnaturerbe.ch/docu). The database, which also provides the platform for the Geographic Information System (GIS), combines literature (books, conference reports, maps, newspaper articles, etc.), spatial data, statistics, tables, and photographs on the World Natural Heritage Site and related topics in a single instrument, and is continually being updated and expanded through collaboration between researchers, organisations, and other interest groups. The longer-term aim is to provide an increasing amount of information over the Internet.

Using the database, the Management Centre can offer individual services tailored to clients' individual needs. For example, thematic maps can be created and specific information compiled and issued. Furthermore, the GIS data represent an important management instrument which can be used, for example, to visualise the perimeter, existing protected areas (see maps in Annex 3), or for implementation planning.

Research coordination

As discussed in Chapter 2.3, research in Switzerland is decentralised. Consequently, various institutions conduct research projects in a wide range of disciplines. Inside the perimeter of the WHS, the priorities are primarily in the field of natural science with a largely disciplinary focus. Due to the diversity of research activities, it is important for the purposes of regional management that the association establishes an effective system for coordination of the various research activities and institutions in the World Heritage Region. To this end the Management Centre must provide support for coordination of research and monitoring in the World Natural Heritage Region, with a view to ensuring not only excellent disciplinary research but also enhancing the quality of integrated inter- and trans-disciplinary as well as application-oriented research activities.

Research platform

In order to coordinate research in the World Natural Heritage Region, the Management Centre created a research platform open to all interested institutions for the exchange and communication of research results and data. This also helps to reduce overlaps in order to achieve a more targeted research approach. The research platform is managed by the scientific head of the Management Centre. In a first step, research scientists were actively involved in drawing up Chapter 2 of this Management Plan and in setting up the literature and spatial database. The Management Centre itself will not conduct any research. Rather, its task is to compile information on current research work as well as completed research projects, in order to identify research gaps and enable the evaluation of research requirements in conjunction with research institutions. In addition, synergy effects can thus be leveraged.

Long-term research focuses on five main objectives:

- The Jungfrau-Aletsch-Bietschhorn World Heritage Site as a global benchmark (reference value) in the field of high alpine research (e.g. Jungfraujoch);
- Inventory management and monitoring (primarily inside the perimeter of the WHS);
- Regional development (in the entire Region);
- Research support for concrete projects;
- Additional objectives – e.g. the importance of the JAB WHS in the international debate on sustainability.

Currently the following institutions participate in the research platform: Botanical Institute, University of Basel; Federal Institute for Snow and Avalanche Research, Davos; Research Institute for Leisure and Tourism, University of Berne; Research Institute for the History of the Alps, Brig; Jungfraujoch Research Station; Institute of Geography, University of Berne; Institute of Geography, University of Zurich; Institute for Geology, University of Berne; Kurt Boesch University Institute, Sion; Interacademic Commission for Alpine Studies, Berne; Interfaculty Coordination Office for General Ecology, University of Berne; Aletsch Pro Natura Centre; Swiss Tourism College, Sierre; Zoological Institute, University of Berne (see Figure 13). The participation of additional institutions is welcomed.



Figure 13: Institutions participating in the research platform 2004/2005

Participation of the Jungfrau-Aletsch-Bietschhorn World Heritage Site in other research networks

Recognition of the region as a UNESCO World Heritage Site also entails a commitment to research and education under the terms of the Convention Concerning the Protection of the World Cultural and Natural Heritage.

Research Network for Protected Regions: The Swiss Academy of Sciences (ScNat) promotes a nationally coordinated strategy on protected regions pursuant to the Nievergelt report (2002). To this end it aims to establish a research network in protected regions. The Management Centre is already pursuing its stated aim of participation in the JAB World Heritage research platform within this research network.

Interacademic Commission on Alpine Research / ICAS: The Interacademic Commission on Swiss Alpine Studies (ICAS) is a joint commission of the Swiss Academy of Sciences (ScNat) and the Swiss Academy of Humanities and Social Sciences (SAGW). The declared goal of the ICAS is to establish a platform for inter- and trans-disciplinary cooperation in the field of Alpine studies (Interacademic Commission on Swiss Alpine Studies, 2005). The Management Centre is already pursuing its stated aim of participation in the JAB World Heritage research platform within this research network (see <http://www.alpinestudies.ch>.)

5.3 Implementation of objectives and measures through fields of action

This Management Plan commits the association to set the implementation process in motion and ensure its coordination. As already mentioned above, the actual implementation of projects is heavily dependent on the political will as well as on the initiative of the core groups and lead management. At all times the autonomy of the communes is guaranteed. By signing the Charter of Konkordiaplatz, however, the 26 communes have undertaken to become involved in the “Local Agenda 21” process and, in the long term, to develop action plans designed to promote sustainability. The 21 fields of action provide the main content and elementary building blocks for the design and implementation of sustainable development measures as defined by a local Agenda 21 for the Jungfrau-Aletsch-Bietschhorn World Heritage Site.

Implementation activities in the individual fields of action are planned and initiated in accordance with a phase plan which, in particular, ensures that the individual groups adopt a cohesive methodology in formulating individual projects within the core groups:

The aim of the **kickoff phase** (= forum process) was to develop a vision for the World Heritage Site. The kickoff phase involved a participative process in which objectives, measures, and 21 fields of action were defined for the World Heritage Site. Accordingly, in August 2004 the Jungfrau-Aletsch-Bietschhorn Supervisory Board approved the 21 fields of action (for details, see Chapter 6) prioritised by the general forum.

In the **definition phase**, concrete projects and activities are defined on the basis of the fields of action, and the related implementation measures drawn up (see Annex 2). To this end the target groups are identified and the objectives drawn up and refined at the project level. At the project level, newly defined project aims must match the objectives formulated by the forums, and their contribution to the overall goals of the Jungfrau-Aletsch-Bietschhorn World Heritage Site must be evaluated. With this in mind, the Supervisory Board appoints a core group of 5-7 members per field of action as well as a core group leader. The definition phase is completed when the overall plans for defined projects have been reviewed and revised by the core groups.

In the **planning phase**, the projects drafted in the definition phase are structured, processes defined, costs evaluated, and recommendations made for funding. Furthermore, a risk analysis as well as related plans of action for the individual projects are drawn up and proposed. These identify the sponsors of each project (implementation responsibility, funding). The planning phase is completed when the core groups have exchanged views and the plans have been drawn up in detail within the framework of the extended core group. The planned projects are presented to a plenary forum which convenes on an annual basis.

This is followed by the **project implementation phase**, in which projects are implemented by the respective project sponsors via the related networks and organisations. Depending on the individual project objectives, the projects may be implemented at the level of the overall World Heritage Region, the World Heritage Site, or merely at the level of a sub-region.

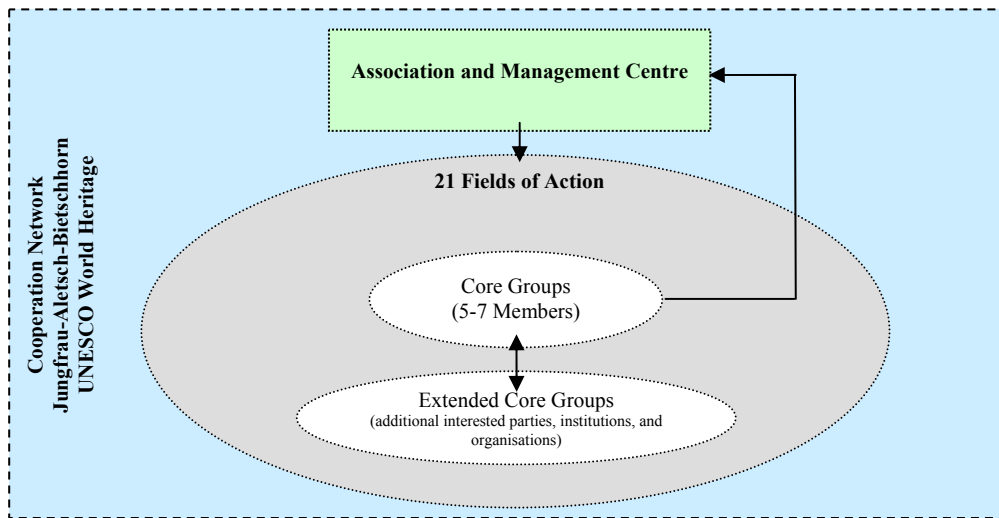


Figure 14: Structure and organisation for implementation of the 21 fields of action in the JAB World Heritage Region

Content prioritisation

The following diagram illustrates the importance and urgency of the individual fields of action in the corresponding areas of action (prioritised at the plenary forum held in June 2004):

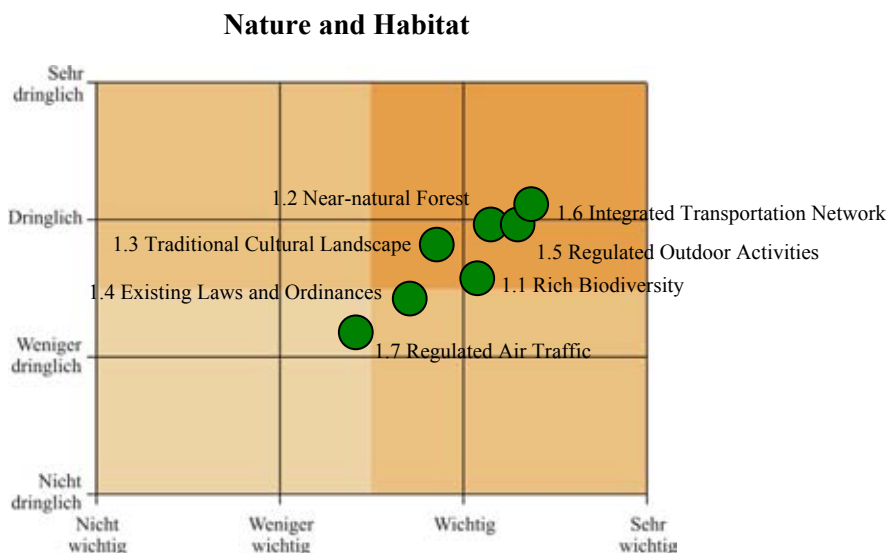


Figure 15: Fields of action for Nature and Habitat

Legend: vertical: Very Urgent, Urgent, Less Urgent, Non-Urgent
horizontal: Unimportant, Less Important, Important, Very Important

Economy and Culture

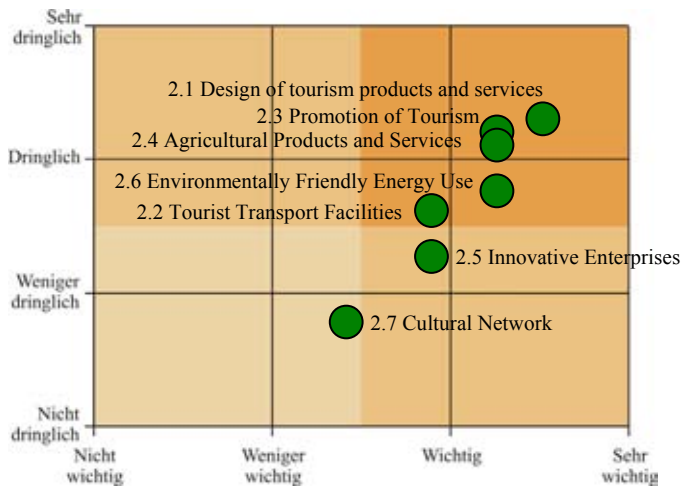


Figure 16: Fields of action for Economy and Culture

Legend: vertical: Very Urgent, Urgent, Less Urgent, Non-Urgent
horizontal: Unimportant, Less Important, Important, Very Important

Organisation and Communication

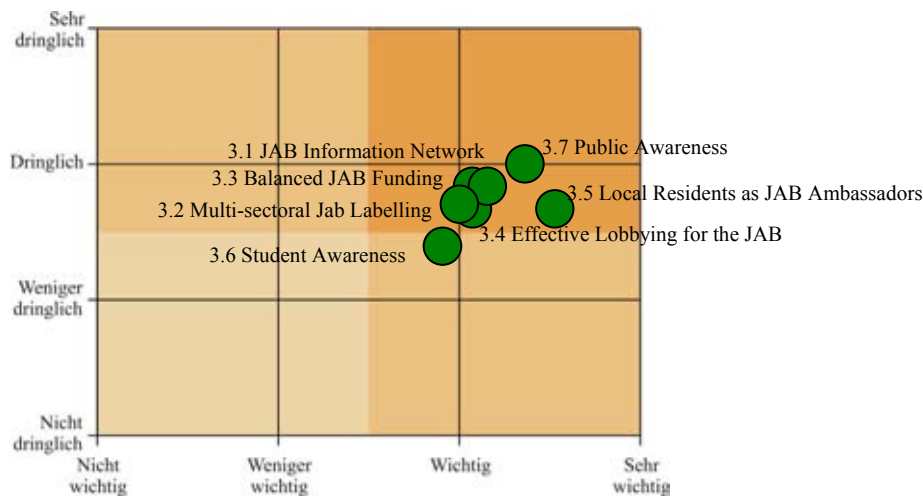


Figure 17: Fields of action for JAB-Organisation and -Communication

Legend: vertical: Very Urgent, Urgent, Less Urgent, Non-Urgent
horizontal: Unimportant, Less Important, Important, Very Important

The 21 fields of action are launched in order of the above priorities. Accordingly, the association has defined the overall planning for the start of each field of action as shown below. The schedules of individual project phases within the fields of action vary depending on complexity and scope. Reports on the results of first-priority fields of action for which the definition phase has already been completed are contained in Annex 2 (as at August 2005).

Prioritisation of fields of action

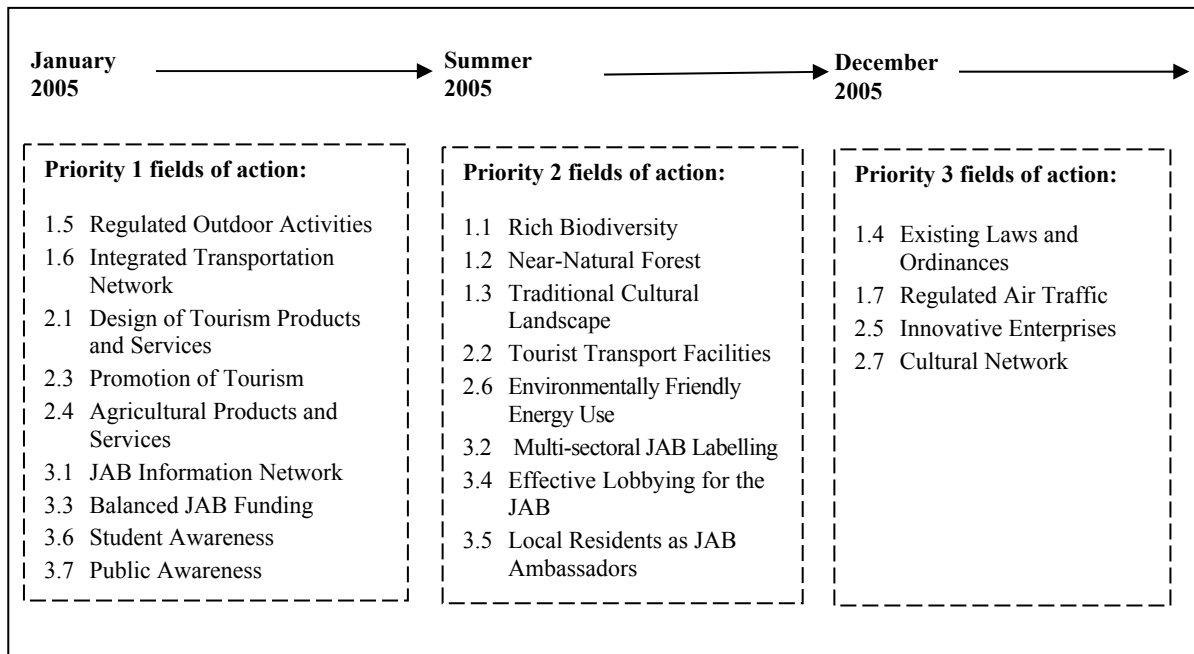


Figure 18: Prioritisation of fields of action

6 Implementation of areas of action

Chapter 6 describes how the existing potential in the World Heritage Region (see Chapter 2) should be leveraged on the basis of the defined objectives and measures.

The overall result of the forum process produced 69 objectives (Chapter 3), on the basis of which 226 measures were defined, evaluated and prioritised. As explained in Chapter 3, this is achieved through a broadly based negotiation process. Rather than striving to define systematic, self-contained objectives, the process drew up a comprehensive list of objectives that address the needs, wishes and visions of the participating groups of people from the population and stakeholder representatives. Although all the protection and development objectives defined in the participation process were approved by a clear majority, they are not totally free of contradictions. In a deliberate move, not all conflicts were resolved since innovative, broadly based implementation processes are possible only if based on transparency from the outset.

The objectives and measures are summarised in 86 project lines which provide the content for the 21 fields of action described below and are assigned to the three areas of action (1) Nature and Habitat, (2) Economy and Culture, and (3) Organisation and Communication. The fields of action provide the main content and elementary building blocks for the design and implementation of sustainable development measures as defined by a local Agenda 21 for the Jungfrau-Aletsch-Bietschhorn World Heritage Site (see also Chapter 5.3, Content Prioritisation). The following section describes the individual fields of action in detail as well as the actors recommended for implementation of the individual areas.

Due to partly overlapping fields of action, not all objectives could be clearly assigned to a single field of action. For this reason, the objectives in question appear in several fields of action. On the other hand, the measures based on the individual objectives are assigned to a single field of action only.

Core groups define concrete projects and recommend related activities for each field of action. The relevance of the priorities of these projects may vary:

Relevance for the World Heritage Site:

The activities within a project are of relevance for the World Heritage Site in the narrower sense of the term, i.e. for the area and actors inside the WHS perimeter.

Relevance for the World Heritage Site is represented by the symbol 


Relevance for the World Heritage Region:

The activities within a project are relevant for the World Heritage Region and its actors.

Relevance for the World Heritage Region is represented by the symbol 

Relevance for the public:

The activities of a project are relevant for the general public (ranging from inhabitants or tourists up to and including national or international policy areas).

Relevance for the general public is represented by the symbol 

The creative work of the core groups determines the relevance of the priorities in a field of action. The following section lists the areas within which these focal areas fall. This is an initial estimate which can be modified in the course of the implementation process (see Chapters 6.1 - 6.3).



The focal area of the activities is graded as follows:

Triple symbols (, , or )

indicate the expected relevance of the focal area of activities within a field of action.

Double symbols (, , or )

indicate the areas in which additional activities within a field of action are expected to be performed.









































A single symbol (, , or )

indicates the areas in which supporting and supplementary activities within a field of action are expected to be performed.

As already explained, the fields are not implemented simultaneously but according to the priorities set (see Figure 18). The duration and scheduling of the phases will vary depending on complexity and scope. Reports on the results of Priority 1 fields of action which have completed the definition phase are contained in Annex 2 (as at August 2005).

6.1 Area of action 1: Nature and Habitat

Nature and Habitat covers the following fields of action:

Field of Action	Relevance for the World Heritage Site	Relevance for the World Heritage Region	Relevance for the Public
1.1 Rich Biodiversity	 	  	
1.2 Near-natural Forest	 	  	
1.3 Traditional Cultural Landscape	 	  	
1.4 Existing Laws and Ordinances	  	 	 
1.5 Regulated Outdoor Activities	  	 	
1.6 Integrated Transportation Network		 	
1.7 Regulated Air Traffic	  		

Field of action 1.1: Rich Biodiversity (Priority 2)

A planned inventory of endangered species of fauna and flora in the region as well as wildlife planning principles and wildlife stocks provides the basis for development of the project lines in the “Rich Biodiversity” field of action.

Supporting measures and protection concepts for habitats and animal and plant communities in the World Heritage Region are formulated in the “Rich Biodiversity” field of action.

Anticipated focal areas of activity



Legend: See p. 79f.

Objectives (see Chapter 3: no. 7, 23)

All wild plant and animal species, including their communities, are preserved in quantities that ensure their long-term survival, and are encouraged or utilised where necessary. Wherever possible, natural developments are permitted. This also applies to natural migrations and species that formerly existed in the region. More living space must be made available for animals which are sensitive to human interference. More space must be set aside in perimeter communes to restore the habitats of endangered animal and plant species. To ensure future stocks of wildlife and game, hunting must be based on wildlife planning principles. The regional frame conditions must be taken into account when implementing such principles. The hunting of endangered animal species in the World Heritage Region must be prohibited.

Measures

Special protection concepts and supporting measures must be formulated for endangered animal and plant species (including forests). In particular, habitat networking projects must be drawn up in conjunction with farmers. It is essential to create measures for the care and protection of the designated protection zones. In terms of game hunting, wildlife planning principles must be incorporated more effectively in the ordinances on hunting. Animal stocks must continue to be monitored.

Priority

The plenary forum prioritised the “Rich Biodiversity” field of action as urgent and rated it important to very important.

Project lines within the “Rich Biodiversity” field of action

Target Area	Project Line	Recommended Actors*
Fauna and Flora	Promotion of biodiversity	Community of Interests of Environmental Organisations in the JAB (IG NGO), IHG regions, cantonal offices, science, tourism, agriculture, agricultural colleges, forestry
Game Hunting	Monitoring of animal stocks	None yet recommended
	More effective incorporation of wildlife planning principles	None yet recommended

* Lead: In bold typeface

Field of action 1.2: Near-natural Forest (Priority 2)

Forestry data such as surface area, condition, and ownership relations form the basis for the near-natural forest field of action. The legal regulations, concepts for the creation of near-natural forests, as well as regional forestry planning and reserve concepts are incorporated.

As part of the “Near-natural Forest” field of action, the aim is to plan and implement measures for the conservation and use of natural mountain forests in the interests of nature and humankind.

Anticipated focal areas of activity



Legend: See p. 79f

Objectives (see Chapter 3: no. 17, 18, 20, 22)

The condition of the forests is natural and stable. Measures for their sustainable use and care are designed to ensure that they perform their natural functions, while the highest priority must at all times be assigned to the protective function of forests and to the care of protective forests (including forest protection) with the relevant funding assurance. Glades (clearings) must be preserved and promoted and forest biotopes cared for in cooperation with gamekeeping authorities. An appropriate infrastructure must be established for forest conservation and use. Forest owners must be financially compensated for additional restrictions under the current law.

Measures

The principles of near-natural forest establishment must be implemented in regions where they have not yet been adopted. The aim is to implement the regional forestry plan/reserve concept. The priority function of the forest must be defined in the regional forestry plan. Where practical and permissible, reserves must be designated or natural development enabled. The World Heritage Site communes must create near-natural forest reserves and increase the surface area of existing reserves. If additional restrictions are required, compensation or usufruct agreements must be drawn up for the relevant owners. Service agreements governing the care of the protected forest must be drawn up between the forestry service and the Confederation/canton. Minimum conservation measures for the protected forest must be formulated and implemented in line with local priorities. Additional forestry conservation measures include the creation of clearings by the forestry service as well as annual biotope conservation measures in collaboration with hunters.

Priority

The plenary forum prioritised the “Near-natural Forest” field of action as urgent to very urgent and rated it important to very important.

Project lines within the “Near-natural Forest” field of action

Target Area	Project Line	Recommended Actors*
Forestry	Implementation of principles for promoting near-natural forest	Canton (legislator), regional forest rangers, district forest rangers, forest owners
	Ensuring the conservation of protected forests, including service agreements	Cantons, communes , forestry services, forest owners
	Forestry planning	Cantons, regional forest rangers , district forest rangers, forest owners
	Annual biotope conservation measures in collaboration with hunters	Hunters and forest rangers , forest owners

* Lead: In bold typeface

Field of action 1.3: Traditional Cultural Landscape (Priority 2)

This field of action is concerned with spatial planning and zoning plans, inventories of illegally constructed buildings and installations, and improved waterways inside the perimeter of the WHS. It also addresses current agricultural use, existing compensation measures, and networking projects.

The project lines of the “Traditional Cultural Landscape” field of action serve to ensure the rich variety of traditional landscapes and settlements through a system of networking and compensation.

Anticipated focal areas of activity



Legend: See p. 79f.

Objectives (see Chapter 3: no. 3, 5, 9, 10, 13, 14, 16, 19, 26)

The rich variety of traditional landscapes and settlements must be ensured without compromising the region’s further development. New buildings and conversions must blend aesthetically into the landscape and local architecture. Sustainable management of the cultural landscape based on its natural earning potential will ensure long-term preservation and development, helping to conserve biodiversity as well as protect against damage from erosion. Agricultural use and related infrastructure (buildings, roads) must be preserved and, where necessary, promoted. The costly manual labour involved in the use and care of steep slopes and the conservation of areas of rich biodiversity must be appropriately compensated. If there is a need to refrain from agricultural use, forms of substitution through landscape care must be examined. Measures will be taken to prevent undesirable land abandonment and scrub encroachment (according to the current spatial planning targets) and the ingrowth of former farming land. Furthermore, fishing waters will be conserved as aquatic habitats.

Measures

Compensation must be offered to farmers in order to ensure the sustainable management of the cultural landscape. Political lobbying must be pursued in order to safeguard against any detrimental effect of direct payments on alpine pasture use and to ensure an increase in compensation for farming on slopes. Additional compensation for special regions and objects designated by the communes themselves must also be taken into account. It is important to provide special compensation for the costly manual labour involved in the care/usage and preservation of areas rich in biodiversity.

Ecological networking projects are recommended with a view to preserving biodiversity. A special networking project for the conservation of forest perimeters must be designed and implemented jointly with forestry services as well as associations for the protection of nature and birds. In the event of undesirable land abandonment and scrub encroachment, ingrowth must be removed. Land owners must take on more responsibility in this regard. Courses on the care of hedgerows must be offered. Plans must be drawn up for sheep pastures in order to meet the requirements of the ordinance on summering contributions for mountain grazing.

Settlements within and outside the construction zones must be incorporated in the Traditional Cultural Landscape field of action. Planning and evaluation approaches must be modified. Inside the perimeter of the WHS it is important to preserve buildings that harmonise with the landscape, while illegally constructed installations and buildings must be gradually broken up or dismantled. Renaturation options for built-up waterways inside the perimeter of the WHS must be examined,

with due consideration to the safety aspect. No new buildings or installations will be permitted on exposed landscapes in the border area of the perimeter. Over the next ten years, only half as much ground as between 1991 and 2000 will be set aside for new buildings and installations. In the case of regulations which require new buildings and renovations/conversions to blend into the landscape and local architecture, it is necessary to clarify the issue of compensation. Another measure will require perimeter communes to incorporate a provision in their construction regulations laying down the percentage of wood from the region in question to be used in the construction of new buildings or conversions.

Community work days, for example, will be reactivated with a view to preserving the system of irrigation channels (“bisses”). The length of intact, functioning bisses constructed in the traditional manner should be increased by five kilometres over the next ten years.

Priority

The plenary forum prioritised the “Traditional Cultural Landscape” field of action as important and urgent.

Project lines within the “Traditional Cultural Landscape” field of action

Target area	Project line	Recommended actors*
Agriculture	Compensation	Swiss Coalition for Alpine Regions (SAB) or agricultural associations , Federal Office for Agriculture, cantonal tourist boards, communes, non-governmental organisations (NGOs), UNESCO World Heritage Association, Upper Valais Chamber of Agriculture
	Networking projects	Cantons (VS: Cantonal Department of Agriculture), regional planning departments, communes , farmers, conservationists
	Prevention of undesirable land abandonment / scrub encroachment	Associations (agricultural and forestry) , communes, owners, conservation associations
	Planning of sheep pastures	Federal Office for Agriculture , sheep breeders, landowners
Habitat, natural and cultural landscape, settlement	Regulations governing settlements, buildings and installations	Confederation
	Other ideas within the “Habitat, natural and cultural landscape, settlement” target area	None yet recommended
Fishing	Examination of renaturation options for waterways already built up, with due consideration of the safety aspect	Cantons , communes, nature conservation organisations

* Lead: In bold typeface

Field of action 1.4: Existing Laws and Ordinances (Priority 3)

The current laws and related ordinances (e.g. summering ordinance, eco-quality ordinance) as well as (protective) regulations inside the perimeter of the WHS and in the World Heritage Region as a whole (e.g. Federal Inventory of Landscapes and Monuments of National Importance [BLN]) form the basis of the “Existing Laws and Ordinances” field of action. Laws and ordinances governing flora and fauna as well as predatory animal management must also be taken into account.

The “Existing Laws and Ordinances” field of action includes a summary of project lines aimed at more effective implementation of the current laws, regulations and plans in order to achieve the JAB World Heritage objectives.

In view of the objectives covered by this field of action, it must be regarded as more generally applicable since it encompasses all the objectives of other fields of action and supports their implementation. For example, it overlaps strongly with field of action 1.1 “Rich Biodiversity”.

Anticipated focal areas of activity



Legend: See p. 79f

Objectives (see Chapter 3: no. 1, 2, 3, 5, 7, 8, 26)

The characteristics and beauty of the World Heritage Region will be preserved for the resident population and made accessible to external visitors. New buildings and conversions will blend aesthetically into the landscape and local architecture. It is necessary to ensure the economic viability of the World Heritage Region in order to ensure the continuation of human settlement. Targeted measures for an appropriate form of further development will be planned.

Animals which are sensitive to human interference must be provided with more extensive habitats. Fishing waters must be preserved as aquatic habitats. More space is to be set aside in perimeter communes to restore the habitats of endangered animal and plant species. In the case of animals that pose a threat to livestock, an appropriate management system will be developed within the framework of federal and cantonal regulations as well as with the involvement of those directly affected.

Measures

Existing protective regulations must be more effectively implemented in order to preserve the Region’s special characteristics. Laws and ordinances must be consistently applied. This calls for a stronger political will to implement protective measures. Predatory animals must be managed in accordance with the provisions laid down by the Swiss Agency for the Environment, Forests and Landscape (SAEFL). Persons at direct risk of damage from predatory animals must be involved in the development of measures to protect them against such damage within the framework of existing regulations. In addition to existing regulations governing fauna and flora, genetically modified animals and plants must be prohibited in the World Heritage Region. Waterways must be included in the environmental monitoring system. Wherever possible, new construction projects for waterways must be prohibited (subject to legal provisions and safety aspects).

To ensure that the Region continues to develop in an appropriate manner, existing planning instruments must be examined to verify their compatibility with the Jungfrau-Aletsch-Bietschhorn World Heritage objectives. The eco-quality ordinance and the new summering ordinance must be implemented for economic activities inside the perimeter and region of the World Heritage Site. The

use of hazardous materials for construction and installations inside the perimeter of the World Heritage Site must be avoided, and sources of hazardous materials reduced wherever possible.

Priority

The plenary forum prioritised the “Existing Laws and Ordinances” field of action as important and rated it less urgent to urgent.

Project lines within the “Existing Laws and Ordinances” field of action

Target area	Project line	Recommended actors*
Fishing	Inclusion of waterways in environmental monitoring	None yet recommended
	Ban on new construction projects for waterways (subject to the safety aspect and existing laws)	Canton
Habitat, natural and cultural landscape, settlement	Enforcement and examination of laws and existing planning regulations	JAB Management Centre as initiator , cantons, communes, regional planning departments, Inforama Hondrich, Upper Valais Chamber of Agriculture, regional associations, environmental organisations (NGOs)
Fauna and flora	Management of predatory animals	Cantons , Confederation
	Genetically modified organisms (GMOs)	Cantons , Confederation

* Lead: In bold typeface

Field of action 1.5: Regulated Outdoor Activities

(Priority 1. Report on results, see Annex 2)

Environmentally friendly activities in the World Heritage Site and Region, hiking trails, data on habitats (fauna and flora) provide the basis for the project lines within this field of action.

As part of the “Regulated Outdoor Activities” field of action, ecological concepts for outdoor sports, leisure, and recreation must be designed, negotiated, and implemented.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 7, 25, 43, 48, 49, 50, 57)

The main aim is to ensure high-quality, green tourism based on the protection objectives and addressing the need for peace and quiet as well as exercise, with a view to promoting visitors’ active interaction with nature, landscape, and culture and enhancing their understanding. The need for free access to the World Heritage Site as well as the requirements of natural communities of species must be addressed. In particular, effective means of controlling visitor activities will safeguard sensitive habitats. If possible, “soft” measures will be implemented to this end.

More living space will be made available for animals which are sensitive to human interference. Endangered plant and animal species will be provided with more space for habitats in the perimeter communes. Tourism operators will step up measures to reduce interference with game through tourism. In addition, wildlife will be protected by designating game reserve zones, particularly in the winter months. Damage caused to farmland and forests by game (browsing, fraying) must be minimised through appropriate preventive measures.

Inside the perimeter of the WHS and subject to current regulations, the maintenance, renovation and construction of transport infrastructures (roads, paths including hiking trail network, rail tracks) must be kept to the minimum necessary and in keeping with the World Heritage Site objectives. Outside the perimeter of the WHS, the further expansion and renovation of transport routes must be enabled. This also applies to the construction of accessways to alpine pastures and forests.

Restraint must be exercised when planning new facilities for outdoor activities as part of a regional tourism concept inside the perimeter of the WHS, subject to the legal frame conditions.

Measures

It is important for the Management Plan to examine and determine the areas in which visitor controls are required. Measures must be implemented to ensure the protection of fauna and flora. If possible, “soft” measures will be implemented to this end. “Hard” measures (in particular rules to be observed for hiking trails) must be reserved for sensitive habitats under severe pressure from tourism. The possibility of drawing up special regulations governing individual sports and leisure activities must also be examined. In particular, clearly defined trails must be designated for snowshoeing. To reduce interference with game/wildlife, regulations or a code of honour must be drawn up between the various interest groups and a controlling system set up. Furthermore, it is necessary to draw up a conflict map showing the impact of leisure activities on humans and nature for incorporation in tourism planning. Well-defined zones (rest zone, hiking zone, etc.) must be designated for all activities that impact the landscape. The existing network of hiking trails must be reviewed with a view to drawing up jointly coordinated hiking trail plans for the JAB World Heritage. A concept must be worked out for new outdoor activity facilities.

Priority

The plenary forum prioritised the “Regulated Outdoor Activities” field of action as urgent to very urgent and rated it important to very important.

Project lines within the “Regulated Outdoor Activities” field of action

Target area	Project line	Recommended actors*
Tourism	Outdoor activity concept and visitor controls to minimise the impact on nature	JAB Management Centre , communes, providers, railways, providers of outdoor activities, conflict parties
	Review of hiking trails and hiking trail concept	Swiss hiking trails , communes, JAB Management Centre, Swiss Alpine Club (SAC), marketing pool
Hunting	Designation of well-defined zones for all activities that impact the landscape (rest zone, hiking zone, etc.)	Cantons , nature conservation organisations (NGOs), land owners, tourism, hunters

* Lead: In bold typeface

Field of action 1.6: Integrated Transportation Network (Priority 1)

The public transportation network, collaboration between the transport and tourism sectors as well as existing luggage transport facilities form the basis for this field of action. Timetables and connections as well as planned new connections, transport routes within and outside the World Heritage Site (including any conflicts of use) must be addressed. Supplementary to this field of action is the “Tourist Transport Facilities” field of action, which specifically addresses the expansion of existing transport facilities and construction of new ones. Due to the topical nature of new transport connections in the World Heritage Site, the forums rated this field of action as important.

Within the “Integrated Transportation Network” field of action, approaches and concepts for viable road and rail transportation for access to the Jungfrau-Aletsch-Bietschhorn World Heritage Site must be formulated and supported.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 42, 43, 52)

Transport to and from the World Heritage Region must be optimised with the emphasis on travel by public transport. The World Heritage Site and Region will be given due consideration in regional transport planning. Plans must be drawn up for an inter-regional coordination and networking concept for marketing and public transport services.

Inside the perimeter of the WHS and subject to current regulations, the maintenance, renovation and construction of transport infrastructures (roads, paths including hiking trail network, rail tracks) should be kept to the minimum necessary and in keeping with the World Heritage Site objectives. Outside the perimeter of the WHS, the further expansion and renovation of transport routes must be enabled. This also applies to the construction of accessways to alpine pastures and forests.

Measures

A general concept for access and transportation must be drawn up, including a fare structure. Travel to the WHS access points must be integrated in this concept. Local mobility must also be integrated: consistent parking space management; contractual planning of roadways; car sharing, taxis, etc. The aim is to introduce a cohesive fare system in the Region (also in conjunction with the BLS and SBB). Access and transport must be incorporated in destination marketing measures. Concrete measures must be drawn up to promote the use of public transport. To encourage people to switch to public transport, price incentives must be included in tourist arrangements. Public transport services in remote areas must be maintained. Luggage transport must be improved (similar to the RegioPlus project SpediBeo in the Bernese Oberland). The BLS luggage transport system must be retained. Timetables must be better coordinated and the involvement of the tourist sector in drawing up timetables must be stepped up. A regional pass (or a “World Heritage Pass”) must be designed for public transport passengers. A general transport concept must be designed for road and rail inside and outside the WHS perimeter as well as for railways and cableways/ski lifts outside the WHS perimeter, including an explicit, differentiated spatial concept for the maintenance, renovation and construction of transport infrastructures. Measures to resolve existing conflicts of use must be drawn up and guidelines formulated for future projects. In addition, the ban on driving on forest roads must be enforced in accordance with the federal law on forests, and the number of forest and alpine roads accessible to private vehicles must be reduced.

Priority

The plenary forum prioritised the “Integrated Transportation Network” field of action as very urgent and very important.

Project lines within the “Integrated Transportation Network” field of action

Target area	Project line	Recommended actors*
Tourism	Public transport in the service of tourism	Regional Transportation Conference (RVK) , transport operators, public transport authorities, destinations, Transport Club of Switzerland (VCS)
Transport	General transport concept for access and connections, including fare structure and marketing	Canton, Federal Office for Transport (BAV) , nature conservation organisations (NGOs), Regional Transportation Conference (RVK)
	Integrated road network, including implementation	JAB Management Centre (coordination) , communes, working groups, forestry services, nature conservation organisations (NGOs)

* Lead: In bold typeface

Field of action 1.7: Regulated Air Traffic (Priority 3)

The basis for this field of action is the law on air traffic, existing time-related and functional restrictions, as well as existing alpine landing fields, military activities and facilities in the Region (anti-aircraft artillery range, overflights) and the associated noise pollution.

The aim of the “Regulated Air Traffic” field of action is to negotiate and implement integrated measures to reduce conflicts of objectives between intact, tranquil nature and air space.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 46, 47)

Noise pollution from military and civil air traffic will be reduced and restricted to specific air corridors and times. In particular, quiet zones (under the terms of the law on air traffic) will be implemented to reduce noise and disturbance to wildlife caused by tourist air traffic.

Measures

An integrated concept for air traffic (including eco-light aircraft) within the JAB World Heritage must be drawn up. It is important to verify how much noise is produced, where, when, and by what, and to identify existing conflicts (in terms of space and time). JAB World Heritage guidelines (types of aircraft, quiet zones, altitudes) must be drawn up to serve as recommendations. In addition, measures must be drawn up to reduce disturbance from military activities. In particular, anti-aircraft artillery exercises and military aircraft must be banned from the JAB World Heritage Site or permitted only at off-peak times (designated season and hours). Existing restrictions governing the time and function of civil air traffic must be tightened, and quiet zones (defined spaces and times) must be designated including minimum flying altitude. Pilots from outside the Region must be informed and made aware of these restrictions. Regulations governing ultralight aircraft must be examined and drawn up in good time. At the same time, the possibility of transferring or closing alpine landing fields inside the WHS perimeter must be examined. The Jungfrauoch landing strip (incl. Mönchsloch) must be closed. The Air Traffic Infrastructure (ATI) plan must be reactivated with due consideration given to the JAB World Heritage concerns.

Priority

The plenary forum prioritised the “Regulated Air Traffic” field of action as less urgent and rated it less important to important.





































Project lines within the “Regulated Air Traffic” field of action

Target area	Project line	Recommended actors*
Transport	Integrated air traffic concept in the JAB, including implementation	Federal Office for Civil Aviation (FOCA) , pilots, tourist operators, alpine railways and cableways, Swiss Alpine Club (SAC), JAB Management Centre, Federal Office for Defence and Civil Protection (DCP), Mountain Wilderness (MW), cantons

* Lead: In bold typeface

6.2 Area of action 2: Economy and Culture

Economy and Culture covers the following fields of action:

Field of Action	Relevance for the World Heritage Site	Relevance for the World Heritage Region	Relevance for the Public
2.1 Design of tourism products and services	 	  	
2.2 Tourist Transport Facilities		  	
2.3 Promotion of Tourism		 	  
2.4 Agricultural products and services		  	
2.5 Innovative Enterprises		 	
2.6 Environmentally Friendly Energy Use	 	 	
2.7 Cultural Network		 	 

Field of action 2.1: Design of tourism products and services (Priority 1)

The basis for this field of action is existing services in the fields of tourism, agriculture and forestry, nature and culture, as well as planning documentation for a cohesive WHS corporate design.

The aim of the “Design of tourism products and services” field of action is to design a high-quality, universal, nature-friendly range of products and services to enhance value and raise awareness of the World Heritage Site. Measures must focus in particular on ensuring a better seasonal distribution of visitors and a more balanced load on the infrastructure.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 12, 41, 48, 51, 53, 54, 55)

Services will be designed with a view to ensuring a high-quality, nature-oriented form of tourism that addresses the protection objectives and helps to add value. This will encourage visitors to take an active interest in nature, landscape and culture and increase their understanding of these fields. Holiday guests, day-trippers and locals will become more aware of the values of nature and hence of the World Heritage Site. The range of services will enhance the relationship between tourism, agriculture and nature and promote agro-tourism. Services will be designed with a view to boosting the status of forestry in the eyes of the local population, the business sector, politicians, and visitors. The aim is to design programmes that encourage feelings of spirituality amidst the mountains.

Measures

Targeted information services must be created for visitors and day-trippers, and information centres must be set up to this end. In particular, a special forest information centre should be established. A concept must be drawn up and implemented to standardise signposting in the WHS. In addition, themed trails and educational forest trails must be laid out to raise awareness among visitors. Special environmental education services must be devised for schools and groups in order to promote educational tourism in the region. Measures must also be drawn up to increase the focus on the World Heritage Site in school curricula.

In principle, nature-friendly tourist services must be promoted. Bookable arrangements must be designed to increase the length of stays in the region and achieve a better seasonal distribution of visitors as well as a more balanced load on the infrastructure. Moreover, special offers must be designed to address the need for “slow” tourism among individual visitors and small groups. An inventory of art in the World Heritage Region must be drawn up as a basis for a special tourist arrangement. Existing sporting and cultural events in the region must be developed and new events designed. The possibility of mountain bike tours must be examined. Feelings of spirituality amidst the mountains must be encouraged by, for example, designing special “Zen-type” programmes. Incentives for visits to specific “energy sites” must also be created. In the catering sector, the range of menus featuring regional products (label) must be extended. Agro-tourism (e.g. “spend the night in an alpine hut”) must be promoted and a closer relationship between tourism, agriculture and nature encouraged to this end.

Priority

The plenary forum prioritised the “Design of tourism products and services” field of action as very urgent and very important.

Project lines within the “Design of tourism products and services” field of action

Target area	Project line	Recommended actors*
Forestry	Creation of forestry information services	District forest rangers , communes, forest owners, Management Centre
Tourism	Design of products and services	JAB Management Centre , destinations, Bernese Oberland Chamber of Commerce (VWK)
	Joint arrangements offered by the agricultural and tourist sectors	Collaboration between the catering and agricultural sectors , JAB Management Centre
	Visitor information and PR	JAB Management Centre, destinations , marketing pool, farmers
	Educational tourism	Providers , JAB Management Centre, nature conservation associations(WWF, Pro Natura), university / institutes of education, school boards, Department of Education, teachers

* Lead: In bold typeface

Field of action 2.2: Tourist Transport Facilities (Priority 2)

The basis is determined by existing and planned transport facilities as well as networks and connections, with due consideration given to existing legal principles and ordinances (Federal Inventory, Regulation Concerning Compensation for Losses in Hydropower Generation, etc.) as well as the federal policy on licences. The “Tourist Transport Facilities” field of action must be viewed as supplementary to field of action 1.6 Integrated Transportation Network, which addresses transportation in the World Heritage Region in general. Due to the topical nature of new transport connections in the World Heritage Site, the forums rated this field of action important.

The “Tourist Transport Facilities” field of action aims to draw up concrete visions for the development, interconnection and restriction of tourist transport facilities and ensure appropriate policies and planning in this field.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no 44, 45)

Based on the legal framework and the federal policy on licences, no additional transport facilities will be established inside the WHS perimeter, but upgrading (including increased capacity) of tourist transport facilities should be enabled.

Outside the WHS perimeter, new facilities of regional importance are not excluded. Where possible, infrastructures which are either no longer required or outdated should be dismantled.

Measures

A concept for tourist transport facilities must be drawn up for each destination, detailing visions on ways of developing, interconnecting and restricting such facilities. This must be supported by appropriate policies and plans. In principle, no new ski areas should be opened. With regard to the upgrading of tourist transport facilities, the affected facilities must be designated and conflicts identified.

Priority

The plenary forum prioritised the “Tourist Transport Facilities” field of action as less urgent to urgent and rated it important.

Project lines within the “Tourist Transport Facilities” field of action

Target area	Project line	Recommended actors*
Transport	Concept for tourist transport facilities	JAB Management Centre , destinations, alpine railways and cableways, environmental associations, cantons

* Lead: In bold typeface

Field of action 2.3: Promotion of Tourism (Priority 1)

The basis of the “Promotion of Tourism” field of action is provided by existing marketing organisations and existing cooperative ventures within the destination.

A joint tourism marketing concept must be developed for universal application in the regions and cantons involved.

Anticipated focal areas of activity

Legend: See p. 79f

**Objectives** (see Chapter 3: no 52)

Tourist marketing activities and offers must be universally coordinated and harmonised.

Measures

Where possible, existing marketing efforts in the affected regions must be integrated. A JAB World Heritage marketing pool (for joint promotional activities) must be formed. It is important to ensure mutual cooperation and a joint Internet presence. The possibility of cooperation and a joint JAB World Heritage marketing concept with regional nature reserves (e.g. Binntal-Veglia and Devero) as well as the Matterhorn and Aletsch regions must be examined. In addition, inter-regional arrangements must be designed and promoted, and inter-regional media trips organised.

Priority

The plenary forum prioritised the “Promotion of Tourism” field of action as urgent and very important.

Project lines within the “Promotion of Tourism” field of action

Target area	Project line	Recommended actors*
Tourism	Marketing	UNESCO World Heritage marketing group (association of tourist destinations in the JAB), tourism organisations

* Lead: In bold typeface

Field of action 2.4: Agricultural Products and Services (Priority 1)

Agricultural organisations in the region, existing labels and designations of origin, as well as services provide a clear basis for this field of action.

The “Agricultural Products and Services” field of action aims to add value to regional agriculture and forestry through innovative products and services, labelling, and cooperation with the tourism sector.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 9, 11, 12, 19, 55, 29)

Agriculture and the related infrastructure will be maintained and encouraged, with the emphasis on natural earnings potential. It is necessary to enhance the value of the regional agriculture. A system for the promotion of regional products with designated origins must be established and built up, based on an appropriate labelling concept, for communes adjoining the perimeter. As a resource, wood must also be included alongside agricultural products and its use encouraged in the construction and energy sectors with a view to adding regional value. Environmentally friendly production facilities outside the WHS perimeter must be encouraged, and the negative impact on natural spaces (including the World Heritage Site) must be reduced as far as economically possible and socially acceptable. A closer relationship between tourism, agriculture and nature must be promoted, and agro-tourism expanded. The status of agriculture must be enhanced in the eyes of the population, the business sector, politicians, and visitors.

Measures

Potential avenues of cooperation with other sectors of the economy must be evaluated in detail with a view to enhancing and promoting regional value. A “round table” is to be set up for providers and actors representing various sectors. An integrated marketing concept for agricultural products and tourism must be implemented through the promotion of regional and local markets, in particular at locations with tourist facilities such as cable car stations. Direct sales of agricultural produce must be stepped up. Reactivation of the Valais LaNaTour project (agriculture, nature, tourism) will encourage closer cooperation between agriculture and tourism. Incentives must also be created to encourage the use of wood from the WHS region. Zoning plans must be revised to enable the construction of larger production facilities (such as a show cheese dairy in the agricultural zone). Sponsorships should be agreed with communes outside the JAB World Heritage Region in order to contribute to the retention and promotion of agriculture.

The Management Centre must draw up a communication concept to raise awareness and enhance the status of agriculture. To enhance the value of regional traditions, agriculture should be increasingly integrated in tourist arrangements. Packages offering schools and associations the opportunity to help out on a farm must be created and promoted. Another idea is the publication of an illustrated JAB cookbook which should also incorporate cultural information.

Priority

The plenary forum prioritised the “Agricultural Products and Services” field of action as very urgent and very important.

Project lines within the “Agricultural Products and Services” field of action

Target area	Project line	Recommended actors*
Agriculture	Marketing	Agricultural associations , Upper Valais Chamber of Agriculture (OLK), Bernese Oberland Chamber of Commerce, cantons, communes, wholesale distributors, processors, hotels, restaurants, producers, consumer organisations, JAB Management Centre, individual initiatives
	Special offers	Agricultural associations , destinations, farming holidays, farmers, Bernese Oberland Chamber of Commerce, teachers, youth organisations (scouts), Pro Natura, Aletsch Centre, JAB Management Centre, cultural associations, interest groups, clubs
Forestry	Create incentives to encourage the use of wood from the JAB World Heritage	None yet recommended
Tourism	Round table for tourism/agriculture	JAB Management Centre , directly affected parties
Industry, commerce, trade	Revision of zoning plans to create larger production facilities, e.g. show cheese dairy in the agricultural zone	Cantons , communes, producers

* Lead: in bold typeface

Field of action 2.5: Innovative Enterprises (Priority 3)

This field of action is based on commerce and industry in the World Heritage Region as well as resources in the World Heritage Site which are suitable for use in products with the JAB label.

The “Innovative Enterprises” field of action aims to promote cooperation between trading and commercial enterprises in order to create and market JAB products and JAB product ranges.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 29, 30, 32, 34, 35)

Support will be provided for products and services that contribute to the preservation and promotion of the JAB World Heritage. In particular, local products and traditional handicrafts will be promoted as well as products and production processes that reflect the JAB World Heritage philosophy. Special emphasis must be placed on promoting and marketing products made from resources from the World Heritage Region (e.g. cheeses from alpine pastures, wood products). Industry must be encouraged in the Region as a means of employment, and the negative impact on natural spaces (including the World Heritage Site) must be reduced as far as economically possible and socially acceptable. Crystal prospecting will be permitted to continue at the present level.

Measures

A joint concept must be set up for marketing products and services from the World Heritage Site, and an advertising pool must be formed. The aim is to encourage the exchange of information and ideas for the development and marketing of new products. A competition will be held to support the preservation and promotion of the JAB. New product ideas such as a range of souvenir articles from the World Heritage Region, new forms of woodworking (e.g. “moon timber”), new value chains (Aletsch water, organic tea from alpine meadows, etc.) as well as new product lines (e.g. furniture) from the World Heritage Site should be developed and marketed. The promotion of JAB products will create new incentives for participation at regional trade fairs, special sections in retail and wholesale outlets, and opportunities to tour JAB-certified production facilities. In future, cantonal offices for trade promotion must increase efforts to promote environmentally friendly industries with a view to creating new employment opportunities. The SVSM code (Swiss Association of Searchers of Minerals and Fossils) must be consistently observed for crystal prospecting. Traditional arts and crafts must also be encouraged and apprenticeships introduced for such businesses.

Priority

The plenary forum prioritised the “Innovative Enterprises” field of action as less urgent but nevertheless important.

Project lines within the “Innovative Enterprises” field of action

Target area	Project line	Recommended actors*
Industry	Cantonal trade promotion office supports the implementation of objective 1; Industry**	Chambers of commerce , confederation, cantons, communes, trade promotion offices
	Development and marketing of new value chains (e.g. Aletsch water, organic tea from alpine meadows, moon timber, etc.)	Regional businesses in the wood sector , JAB Management Centre (JAB label)
Trade and commerce	Participation at regional trade fairs to promote JAB products	Sectoral initiatives (dealers, producers), tourism, JAB Management Centre: awareness campaign, coordination
	Opportunities to tour JAB-certified production facilities (cheese dairies, butchers, etc.)	Production companies , tourism, trade associations, JAB Management Centre: awareness and information campaign
	Design and targeted promotion of a range of souvenir articles from the World Heritage Region	Retailers including kiosks , JAB Management Centre: information and awareness campaign
	Set up special sections for JAB products on retailer and wholesaler premises	Chambers of commerce , business: retailers, wholesalers, producers
	Product competition	Commerce , JAB Management Centre
	Joint marketing and creation of an advertising pool	Trade associations , JAB Management Centre, external consultants
	Creation of product lines, e.g. furniture, featuring JAB products	Trade associations , JAB Management Centre: information and awareness campaign
	Encourage the exchange of information and ideas	Commerce , JAB Management Centre inputs
	Consistent application of the crystal prospecting code (SVSM)	Swiss Association of Searchers of Minerals and Fossils (SVSM) , crystal prospecting clubs
	Promotion of traditional arts and crafts including apprenticeships	Local trade associations , Bernese Oberland Chamber of Commerce

* Lead: In bold typeface

** Objective 1; Industry: Industry must be promoted outside the WHS perimeter as a source of employment. Negative impact on the perimeter must be kept within economically viable and socially acceptable limits.

Field of action 2.6: Environmentally Friendly Energy Use (Priority 2)

This field of action is based on resources in the World Heritage Region as well as hydroelectric plants and their consumption of water. It also addresses the use of timber, low-energy construction according to the “Minergie” standard, as well as other innovative products and production processes that reflect the JAB World Heritage philosophy.

The “Environmentally Friendly Energy Use” field of action aims to encourage the efficient, environmentally friendly use of energy and set up regional cycles through show projects, models, and information dissemination.

Anticipated focal areas of activity



Legend: See p. 79f

Objectives (see Chapter 3: no. 19, 30, 36, 37, 38, 39, 40, 41)

The increased requirement for energy in future will be met by renewable resources. Local renewable resources, including timber, will be optimally utilised and promoted, while their consumption must not be at the cost of other factors such as landscape, water quality, residual water volumes, etc. Existing negative aesthetic effects of power stations will be reduced. Regional energy cycles will be stepped up by promoting local energy resources such as water, timber, sunlight, biomass and natural gas. It is also necessary to encourage low-energy construction in accordance with the “Minergie” standard as well as products and production processes that reflect the JAB World Heritage philosophy. Consumption of hydroelectricity inside the WHS perimeter will continue to be limited to existing plants, where measures to increase energy efficiency will be introduced. Better compensation must be provided for the consumption of hydroelectricity (in the case of the Bernese Oberland) or for refraining from its consumption (in the case of the Valais).

Measures

An analysis must be conducted to determine the potential inherent in the consumption of local renewable resources. With regard to water as a resource, ownerships must be identified and, if necessary, proposals submitted for a restructuring of these relationships. At least part of the revenue from water rates must be used for World Heritage purposes. The technical savings potential of energy production facilities must be determined with a view to enhancing the efficiency of large-scale hydroelectricity consumption. In future the construction of small-scale power plants must continue to be possible. Moreover, an inventory of the negative aesthetic impact of power plants in the World Heritage Region must be drawn up.

It is also important to examine the possibility of introducing innovative energy pricing models (energy mix) in the Region. Innovative ideas for energy production and consumption must be promoted. In particular, new ways of using timber as an energy resource must be identified. Incentives must be created to encourage woodchip heating in the WHS communes. The project for gas-powered piste-grooming vehicles must be implemented.

Priority

The plenary forum prioritised the “Environmentally Friendly Energy Use” field of action as urgent and rated it important to very important.

Project lines within the “Environmentally Friendly Energy Use” field of action

Target area	Project line	Recommended actors*
Forestry	Encouragement of woodchip heating in the World Heritage Region	Communes , cantons, forest owners, Oberland East energy advice office
Energy	Promotion of innovations in the field of energy	JAB Management Centre for coordination and impetus , Oberland East energy advice office
	Additional objectives in the energy area	Oberland East energy advice office
Industry	Implementation of the project for gas-powered piste-grooming vehicles	Alpine railways and cableways , industry

* Lead: In bold typeface

Field of action 2.7: Cultural Network (Priority 3)

Artists in the Valais and Bernese Oberland, cultural associations, organisations, and groups as well as museums and potential venues for exhibitions form the basis for this field of action.

The “Cultural Network” field of action aims to enhance and expand awareness of the JAB World Heritage through the medium of culture and cross-border cultural programmes.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 60)

The aim is to enlist the support of artists to raise awareness of the World Heritage Site. Cultural activities and programmes will transcend borders and highlight the close relationship between the Bernese Oberland and the Valais. Awareness, education, and the dissemination of World Heritage Site-specific content will be promoted through cultural events.

Measures

A cultural policy must be defined for the World Heritage Site, and strategies developed to incorporate the World Heritage Site in cultural programmes. The Alpine barrier must be transcended by initiating an exchange between cultural actors and highlighting the ties between the Bernese Oberland and the Valais.

Existing museums must be upgraded and expanded with a view to promoting culture in conjunction with the World Heritage Site. Exhibitions should be organised in existing infrastructures (hotels, Ballenberg Open Air Museum). In addition, efforts must be made to set up a group of “artists for the Jungfrau-Aletsch-Bietschhorn World Heritage Site,” which should incorporate the KIK (Kunst in Kandersteg [Art in Kandersteg]) group. The Guild of Swiss Alpine Painters should be expanded to international level, to create a worldwide “Guild of Alpine Painters.” Collections of Alpine paintings and art from all over the world should be built up.

An annual Jungfrau-Aletsch-Bietschhorn World Heritage festival of culture should be launched, with the venue alternating between the Valais and the Bernese Oberland. The emphasis would be on concerts, featuring above all groups from the Region and covering all musical genres. Young people must also be addressed. The festival should be accompanied by workshops, markets, and exhibitions. Visitors from other world heritage sites or from biosphere reserves should be invited in order to underscore the international resonance and relevance of World Heritage. Such an event would increase cultural self-awareness among the regional population and increase their motivation to be more creative.

Priority

The plenary forum prioritised the “Cultural Network” field of action as less urgent and rated it less important to important.






















Project lines within the “Cultural Network” field of action

Target area	Project line	Recommended actors*
Cultural aspects	A special cultural policy for the JAB World Heritage	Cultural Committee of the Bernese Oberland Chamber of Commerce / Cantonal Cultural Commission , cultural representatives (e.g. Kunst in Kandersteg [KIK], l'art pour l'aar, art societies in Thun and Interlaken, musical festivals, folk culture, Guild of Alpine Painters)
	Organisation of a festival of culture	JAB Management Centre, actors (membership of organising committee: artists, cultural associations, sponsors, e.g. Migros, responsible cantonal offices), Lotterie Romand, SEVA, agency mandate (Kultur Consult)
	Culture in the JAB World Heritage Region with the declared aim of breaking down barriers	JAB Management Centre providing the impetus, cultural institutions (Ballenberg, museums, adult education centres, hotels, artists' associations, galleries)

* Lead: In bold typeface

6.3 Area of action 3: Organisation and Communication

Organisation and Communication covers the following fields of action:

Field of Action	Relevance for the World Heritage Site	Relevance for the World Heritage Region	Relevance for the Public
3.1 JAB Information Network			
3.2 Multi-sectoral Labelling			
3.3 Balanced Funding			
3.4 Effective Lobbying for the JAB			
3.5 Local Residents as JAB Ambassadors			
3.6 Student Awareness			
3.7 Public Awareness			

Field of action 3.1: JAB Information Network (Priority 1. Report on results, see Annex 2)

The “JAB Information Network” field of action is based on the communication concept formulated for this area, the research platform, the JAB documentation centre, and the Dialog Center Foundation in Naters. It also includes existing information and awareness-raising channels (e.g. the Pro Natura Centre on the Riederfurka) in the World Heritage Region.

The aim is to set up a centre of information and competence with a network of information offices and satellites in order to record and compile knowledge on the World Heritage Site and disseminate it to all interested groups.

Anticipated focal areas of activity

Legend: See p. 79f

Objectives (see Chapter 3: no. 29, 51, 61, 62, 63, 68, 69)

The aim is to provide the local population with in-depth knowledge about their region and raise awareness of the area’s unique characteristics as well as its natural and cultural values. Comprehensive education and awareness campaigns will be conducted at all levels. Information will be provided at every point of departure with access to the World Heritage Site.

The World Heritage Site information network will be set up as an information and competence centre and evolve to become a centre for research and information exchange on all aspects of mountain life, in the interests of the scientific community as well as cultural and social life. In the field of research, the Jungfrauoch will be retained and promoted as a site for international scientific studies; at the same time, environmentally relevant research activities in the fields of natural science, social science and socio-economics would be encouraged and coordinated elsewhere in the World Heritage Region. Synergies with current projects will be leveraged, with particular emphasis on environmental monitoring in the widest sense of the term. The future Dialog Center (information centre planned by the Dialog Center Foundation in Naters) will act as a show project for environmentally friendly construction. Environmentally friendly industries and production facilities outside the WHS perimeter must be encouraged, and the negative impact on natural spaces (including the World Heritage Site) must be reduced as far as economically possible and socially acceptable.

Measures

The global aspect of mountains and alpine populations must be emphasised and a centre for information on mountain life established (information centre/database) for research purposes and as a forum for the exchange of ideas and experiences. The tasks of the JAB information network also cover the recording and compilation of available knowledge and the principles governing the JAB World Heritage, with a view to their further dissemination at all target group levels. This includes setting up a database, designing teaching aids, and organising courses, workshops, and public events. The Management Centre will provide communes with support and advice on their own Agenda 21 projects. In terms of research, the Management Centre must promote and coordinate in particular applied scientific and socio-economic research at university level, encourage the exchange of information among scientists, and promote the dissemination of research results among the general public. An inventory of all existing regional, national and international research institutions must be drawn up in order to facilitate cooperation and optimise the exploitation of synergies. The JAB Management Centre also aims to organise scientific seminars and conferences, launch global initiatives/networks, and offer an international platform for collaboration. In addition, it is important

to examine the possibility of establishing a museum and research centre for glaciology in Oberhasli as well as an institute for research into regional resources.

In order to ensure the provision of information on the World Heritage Site at every point of departure with access to the World Heritage Site, actors from the Valais and the Bernese Oberland must be invited to collaborate on the implementation of an integrated concept for information centres of various sizes and importance (e.g. Information Centre, satellites, information corner, and information pillars). This will facilitate and improve networking and the use of existing institutions. The core element of the infrastructure will be the Dialog Center to be established by the Dialog Center Foundation in Naters. Possible locations for a main information centre in the Bernese Oberland must also be examined.

The Dialog Center will be the head office of the World Heritage Site management and the main gateway in the Valais to the World Heritage Site. The Center will present compelling information on the nature, culture and economy of the World Heritage Region, and promote the transfer of knowledge in close collaboration with universities and other institutions. The compiled information will be made available to all affiliated information centres throughout the World Heritage Region over the JAB information network. Information offices offering information kits should be set up in existing institutions and facilities such as the Pro Natura Centre on the Riederfurka, the Jungfraujoch, regional tourist offices, and marketing organisations. Information should also be made available in Swiss Alpine Club (SAC) huts. Visitor information must be well structured and of a high quality in order to appeal to visitors.

From the planning to implementation stages, appropriate precautions must be taken when building the Dialog Center in order to ensure its status as a show project for environmentally friendly construction.

Priority

The plenary forum prioritised the “JAB Information Network” field of action as urgent to very urgent and rated it important to very important.

Project lines within the “JAB Information Network” field of action

Target area	Project line	Recommended actors*
Environmental education, awareness, and research	JAB Centre of Competence for knowledge management, knowledge transfer, education, and research	Steering group (approx. 10 representatives of: JAB Management Centre, Dialog Center Foundation, research sector, universities, schools, tourism, cultural sector, political organs). Experts from the Region will assume responsibility and perform content-related tasks (honorary office or mandate basis)
Information centres	Integrated concept for information centres	JAB World Heritage Association , Dialog Center Foundation, all actors in BE and VS
	Every alpine hut in the JAB World Heritage Site will acquire a small information centre	JAB Management Centre , Swiss Alpine Club (SAC), warden sections
Industry	Examine the possibility of setting up a research institute for studies into local resources	Confederation, cantons, communes, trade promotion offices, universities

* Lead: In bold typeface

Field of action 3.2: Multi-sectoral JAB Labelling (Priority 2)

The basis for this field of action, which aims to formulate a multi-sectoral product labelling concept, is provided by sectors of the economy and trade associations, existing label and declaration of origin designations in the affected sectors, and the communication concept formulated by the association featuring the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage brand (≠ product and quality label). Use of the JAB UNESCO World Heritage brand is subject to the regulations of the Swiss UNESCO Commission on the Use of the UNESCO World Heritage Brand, and to the brand policy of the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site Association.

These brand logos are to be used for information and communication purposes by commercial (left) and non-commercial (right) partners and organisations.



The aim of this field of action is to create a multi-sectoral labelling concept for the JAB World Heritage Region in order to designate high product quality, raise awareness of the World Heritage Site, and encourage close collaboration between sectors.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 11, 12, 15, 19, 31, 32, 34, 58, 59, 66)

Regional value will be enhanced and promoted in the tourism, agricultural, and forestry sectors. Specifically, the idea is to design regional and local products for communes partly bordering the WHS perimeter, with a labelling concept (seal of quality) designating the origin of these products. As many restaurants and hotels as possible will operate according to the precepts of a quality and environmental management system (QMS and EMS). Accommodation capacity inside the WHS perimeter must largely be kept at the current level, and efforts should be made to establish a quality label for such accommodation. Agricultural production methods must meet rigorous ecological standards (organic farming).

Trade and commerce must be retained and encouraged in the World Heritage Region as well as inside the WHS perimeter (where applicable), with special emphasis on local products and traditional crafts. Support will be provided for products and services that contribute to the preservation and promotion of the World Heritage Site. Special attention must also be given to promoting and marketing products made from resources from the World Heritage Region. The status of agriculture must be enhanced in the eyes of the population, the business sector, politicians, and visitors. Wood must increasingly be used as a resource in order to promote regional added value and declaration-of-origin product marketing. Industrial concerns must endeavour to coordinate their marketing activities with a view to creating a joint label (JAB Management Centre and Industry). All actors in the region (in this case,

representatives of the various sectors) must see themselves as ambassadors for the World Heritage Site, and formulate their objectives and actions with this in mind.

Measures

The introduction of a JAB World Heritage label must be aimed for in all sectors and areas. It is important to determine the extent to which local and regional products can be labelled in the various sectors. Criteria and requirements governing the use of the label must be drawn up, and an appropriate labelling concept with controls must be formulated. The agricultural sector must step up collaboration with trade associations. Moreover, members of the trade and commerce sectors must be encouraged to enter into cooperative ventures within their sector as well as cross-sectoral cooperation ventures, and coordination with trade promotion offices must be stepped up.

In consideration of the environment, organic farming and the sale of organic products must be promoted. A regular exchange of ideas and experiences should be organised among tourist enterprises which follow a quality and environmental management system, and they must be encouraged to collaborate with the “Energy and Environment” project. The emphasis must be on improving quality rather than increasing quantity (such as increasing accommodation capacity). In the trade and commerce sectors, it is important to encourage the use of construction materials with high levels of environmental compatibility and to support traditional construction methods (e.g. shingle roofs) through subsidies and preferential terms for building insurance.

A catalogue of criteria for use of a JAB World Heritage label must be drawn up for industrial concerns to serve as a basis for a concept. Labelling must be coordinated with other World Heritage regions and biosphere reserves.

An appropriate label management system must be designed to raise awareness of the JAB World Heritage Site concerns among actors in the various sectors and act as an economic incentive.

Priority

The “Multi-sectoral JAB Labelling” field of action was rated urgent and important.

Project lines within the “Multi-sectoral JAB Labelling” field of action

Target area	Project line	Recommended actors*
Tourism	Creation of a JAB quality label	JAB Management Centre or UNESCO World Heritage marketing group (an association of tourist destinations in the JAB), Bernese Oberland Chamber of Commerce, producers, label experts
	Improvement in the quality of accommodation inside the WHS perimeter	Swiss Alpine Club (SAC) , JAB Management Centre, “label donors,” destination
	QMS and EMS for hotels and restaurants	Energy Agency for the Economy (Enaw) , businesses
Agriculture	Labelling	JAB Management Centre , cantons, commerce, tourism, professional associations, professional consultants, Association of Valais Farmers (VWL), Upper Valais Chamber of Agriculture (OLK)
	Promotion of organic farming	Organic farming organisations , agricultural organisations, farmers, wholesalers, catering industry
	Increased collaboration with trade associations	None yet recommended
Environmental education, awareness and research	Label to raise awareness	None yet recommended
Commerce/trade	Closer coordination with the cantonal economic development agencies	JAB Management Centre , Confederation (seco), cantons
Industry, commerce and trade	Labelling	JAB Management Centre , cantonal and regional business organisations in the agricultural and tourism sectors, trade promotion offices, University of Valais
Forestry	Definition of criteria/requirements for a JAB label	None yet recommended

* Lead: In bold typeface

Field of action 3.3: Balanced JAB Funding (Priority 1)

The basis for this field of action is provided by current funding methods for regional management and the projects for the World Heritage Site and Region (see Chapter 4.2), potential funding partners, and the possibilities of sponsorship.

The “Balanced JAB Funding” field of action aims to work out new ways of funding World Heritage projects by involving the tourism sector and other partners.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 56)

New ways of funding World Heritage projects must be sought by enlisting the tourism sector and other partners. Tourism (and direct tourist service providers in particular) must also make a financial contribution to sustainable development and implementation projects in the World Heritage Region, particularly to projects that involve the cultural landscapes.

Measures

Tourism and tourist service providers must help to fund sustainable development and implementation projects in the World Heritage Region; this must be achieved, among other things, by designing tourist arrangements which bear the JAB World Heritage Site label and make a financial contribution towards the World Heritage Site. Part of the revenues from tourism must also be channelled into a fund for projects related to the World Heritage Site. Moreover, economic partnerships must be forged in order to obtain sponsor contributions towards the JAB World Heritage. Efforts should be made to introduce a tax in the perimeter communes towards the preservation and care of natural and cultural values in the World Heritage Site.

Priority

The plenary forum prioritised the “Balanced JAB Funding” field of action as important to very important and urgent to very urgent.

Project lines within the “Balanced JAB Funding” field of action

Target area	Project line	Recommended actors*
Tourism	Funding concept to achieve JAB objectives	JAB Management Centre , communes, beneficiary logo, destinations, tourist operators

* Lead: In bold typeface

Field of action 3.4: Effective Lobbying for the JAB (Priority 2)

The objectives of the World Heritage Site, the 21 fields of action and existing institutional structures, the current situation in all (political) areas affecting the World Heritage Site (including agriculture and forestry, transport, nature conservation, and environmental protection), and JAB funding (field of action 3.3) provide the basis for this field of action.

The aim of this field of action is to involve all actors actively in the objectives of the JAB World Heritage Site and associated projects, and integrate these objectives and projects in the actors' networks in a transversal fashion.

In view of the objectives covered by this field of action, it must be regarded as more generally applicable since it encompasses all the objectives of other areas and supports their implementation. For example, it overlaps strongly with field of action 3.3 Balanced Funding. Lobbying is thus viewed as an interdisciplinary task which must be accorded higher status, particularly in the case of measures on whose implementation the JAB WHS Association has little or no influence.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 9, 10, 12, 13, 18, 20, 30, 42, 52, 56)

All actors must be actively involved in efforts to achieve the World Heritage Site objectives and must incorporate these objectives in their networks as a transversal principle.

Tourism (and direct tourist service providers in particular) must make a financial contribution to sustainable development and implementation projects in the World Heritage Region – above all when cultural landscapes are involved. Tourist marketing activities and programmes must be universally coordinated and harmonised. Transport to and from the World Heritage Region must be optimised with the emphasis on travel by public transport. The World Heritage Site and Region will be given due consideration in regional transport planning.

The status of agriculture will be enhanced in the eyes of the population, business sector, politicians, and visitors (here it is also important to apply the EU agricultural policy and the WTO policy on the agricultural market as the driving forces, since these are virtually unavoidable for Switzerland and can also have an impact on the cultural landscape). Agriculture (including the related infrastructure) will be retained and promoted. The costly manual labour involved in the use and care of steep slopes and in efforts to conserve areas rich in biodiversity must be appropriately compensated. Ecological forestry management must be possible at all times and appropriately compensated. Restrictions over and above the current legal provisions must be accompanied by appropriate compensation for land owners. Products and production processes which reflect the JAB World Heritage philosophy will be encouraged and promoted.

Measures

The Management Centre and “JAB ambassadors” must raise awareness among trade associations as well as politicians and influential opinion leaders to increase support for the JAB World Heritage objectives and to encourage local, regional and national decision-making bodies to give these objectives due consideration.

This includes the support of, and lobbying for, measures whose implementation comes under other fields of action. For example:

-
- Financial contributions from tourism (and direct tourist service providers in particular) towards sustainable development and JAB projects (see fields of action 3.3, 2.3).
 - Raising awareness among representatives of the business world to encourage partnerships with the JAB World Heritage Site and obtain sponsorship funding for the JAB World Heritage (see also field of action 3.3).
 - Lobbying in the relevant communes for the introduction of a tax for the preservation and care of natural and cultural values in the World Heritage Site (see also field of action 3.3).
 - Measures to promote the use of public transport (see field of action 1.6).
 - Political lobbying to enhance the status and image of agriculture and forestry in the eyes of the population, business sector, politicians, and visitors. Measures to ensure that direct payments are not adjusted to the detriment of alpine pasture use. Compensation for costly manual labour involved in the care and use of steep slopes (increasing the compensation for farming on slopes) and the preservation of areas rich in biodiversity (see also fields of action 1.1, 1.2, 1.3, 2.4, 2.5). Incorporation of EU agricultural policy and the WTO policy on the agricultural market.
 - Raising awareness of promotional measures aimed at stepping up cooperation between the agricultural sector and other trade associations (see also fields of action 2.2, 2.5).
 - Lobbying for the regulation of ecological forestry management through service agreements (between the forestry service and the Confederation/canton) (see field of action 1.2).
 - Lobbying for environmentally friendly technologies (see also fields of action 2.5, 2.6).

Priority

The plenary forum prioritised the “Effective Lobbying for the JAB” for the JAB field of action as urgent and important to very important.

Project lines within the “Effective Lobbying for the JAB” field of action

Target area	Project line	Recommended actors*
Tourism	Funding concept for the tourism sector to achieve JAB objectives	JAB Management Centre , communes, beneficiaries, destinations, tourism sector
	Public transport for tourism	Regional Transport Conference (RVK) , transport operators, public transport authorities, service providers, destinations, Transport Club of Switzerland (VCS)
Agriculture	Compensation	Swiss Centre for Mountain Regions (SAB) , cantons, communes, agricultural associations, Federal Office for Agriculture, tourist boards, non-governmental organisations (NGOs), UNESCO World Heritage Association, Upper Valais Chamber of Agriculture
	Increased collaboration with trade associations	None yet recommended
Forestry	Ensure ecological forestry management including service agreements	Cantons , communes, forestry services, forest owners
Industry	Awareness campaign by Management Centre aimed at trade associations, to encourage the use of environmentally friendly technologies	JAB Management Centre , trade associations
Transport	General transport concept for access and connections, including fare structure and marketing	Regional Transport Conference (RVK) , transport operators, public transport authorities, service providers, destinations, Transport Club of Switzerland (VCS)

* Lead: In bold typeface

Field of action 3.5: Local Residents as JAB Ambassadors (Priority 2)

The communication concept, Management Plan, and documentation centre currently being set up by the Management Centre (physical library and databases) form the basis for this field of action. The objectives of fields of action 3.6 and 3.7 must also be addressed.

The aim is to provide actors in the Region with further training in order to increase the population's understanding of the JAB World Heritage and ensure the transfer of knowledge to visitors.

Anticipated focal areas of activity



Legend: See p. 79f

Objectives (see Chapter 3: no. 30, 64, 65, 66)

The aim is to provide local residents with in-depth knowledge about the JAB World Heritage Region and raise awareness of the area's unique characteristics as well as its natural and cultural values. Comprehensive education and awareness campaigns will be conducted at all levels. This will strengthen local residents' and visitors' emotional ties with the Region and provide a solid knowledge base for actions and conduct. Cultural memory must also be strengthened among specific age and target groups as part of the environmental education campaign. Actors in the Region (tourist service providers in particular) must regard themselves as ambassadors of the World Heritage Site and formulate their objectives and actions with this in mind. Products and production processes which reflect the JAB World Heritage philosophy will be encouraged and promoted.

Measures

Education and awareness will be tailored to specific age and target groups in order to enhance local residents' knowledge of their home region. Knowledge will be disseminated among and made accessible to children, young people (see also field of action 3.6), and adults. To this end, for example, textbooks must be written and courses as well as public events organised. Knowledge transfer must be relevant, emotional and experience-driven in order to create emotional ties and inspire enthusiasm. Old customs and handicrafts should also be highlighted and their revival encouraged.

Further education possibilities must be created for all actors in the tourism industry in order to boost the dissemination of general and local knowledge. This will ensure the continuing education of such actors. Local tourism experts, mountain and hiking guides must receive special training so that they can effectively convey the unique characteristics and beauty of the landscape to visitors. A new profession of general guides (i.e. guides to the entire Region) must be developed. Tourists and hobby sports enthusiasts should also be offered JAB World Heritage educational courses. It is also important to raise awareness among trade associations in order to encourage the use of environmentally friendly technologies. Visitors as well as local residents must be made aware of innovative processes in the World Heritage Region.

Priority

The plenary forum prioritised the "Local Residents as JAB Ambassadors" field of action as urgent and important to very important.

Project lines within the “Local Residents as JAB Ambassadors” field of action

Target area	Project line	Recommended actors*
Environmental education, awareness and research	Education and training for tourism actors	Tourism Colleges and interested experts , alpine guides and instructors, JAB Management Centre, environmental associations (NGOs), other experts in the field of environment (hiking instructor training)
Industry	Awareness campaign by Management Centre aimed at trade associations, to encourage the use of environmentally friendly technologies	JAB Management Centre , trade associations

* Lead: In bold typeface

Field of action 3.6: Student Awareness (Priority 1. Report on results, see Annex 2)

Existing educational services form the basis for the “Student Awareness” field of action. The objectives of fields of action 3.5 and 3.6 must also be addressed.

This field of action aims to establish a range of educational products and services (practical and theoretical) for students within and outside the World Heritage Region.

Anticipated focal areas of activity



Legend: See p. 79f



Objectives (see Chapter 3: no. 63, 67)

The aim is to provide local residents with in-depth knowledge about the JAB World Heritage Region and raise awareness of the area’s unique characteristics as well as its natural and cultural values. Comprehensive education and awareness campaigns will be conducted at all levels. Educational programmes and opportunities to experience nature will be designed and offered to schools, thereby rendering them more knowledgeable about environmental issues than other students in their cantons.

Measures

Schoolchildren will be given instruction in order to enhance knowledge of their home region. The aim is to create emotional ties and inspire enthusiasm through hands-on methods of instruction. For instance, project weeks can be designed for use also by schools outside the World Heritage Region. To increase the involvement of schools, it is necessary to establish a coordination centre for issues related to sustainability (general and JAB World Heritage Site-specific) and for raising awareness in schools. The topics formulated by this centre must be incorporated in existing curricula in conjunction with the cantonal departments of education.

Priority

The plenary forum prioritised the “Student Awareness” field of action as less urgent to urgent and rated it important.

Project lines within the “Student Awareness” field of action

Target area	Project line	Recommended actors*
Environmental education, awareness and research	JAB targeting schools	Professional core team with JAB Management Centre: JAB (BE-VS) , school director, schools

* Lead: In bold typeface

Field of action 3.7: Public Awareness (Priority 1. Report on results, see Annex 2)

The existing communication concept as well as the documentation centre currently being set up by the Management Centre (physical library as well as databases on literature and the area) form the basis for this field of action. Existing arrangements for excursions, existing exhibitions and premises for exhibitions and presentations are also included. The local and regional media, journalists and the www.welterbe.ch website serve as channels for raising public awareness. The objectives of fields of action 3.5 and 3.6 must also be addressed.

This field of action aims to make the JAB World Heritage Site more widely known and raise awareness of JAB World Heritage Site concerns at home and abroad by means of a broadly based publicity campaign.

Anticipated focal areas of activity



Legend: See p. 79f

Objectives (see Chapter 3: no. 21, 38, 63)

By raising awareness and enhancing knowledge through a broadly based publicity campaign, the JAB World Heritage Site will become more widely known and awareness of JAB World Heritage Site concerns raised both at home and abroad. In particular, local residents will gain in-depth knowledge about the World Heritage Region and become more aware of the area's unique characteristics as well as its natural and cultural values.

Measures

The aim is to design a communication concept aimed at local residents as well as visitors. Detailed plans must be drawn up for regular events, a platform or forum in the media (e.g. monthly article in a daily newspaper), and publication of a monthly JAB World Heritage magazine or bulletin. In-depth information must be published on the Internet. A series of presentations, excursions and exhibitions must also be organised. In addition, information pillars about the World Heritage Site must be designed along the lines of the "Infokiosk Grindelwald." Moreover, it is important to raise awareness of specific areas such as forestry, energy and water through targeted information and publicity campaigns (information kits, excursions, exhibitions, and the organisation of, e.g., forest days).

Priority

The plenary forum prioritised the "Public Awareness" field of action as very urgent and very important.

Project lines within the "Public Awareness" field of action

Target area	Project line	Recommended actors*
Environmental education, awareness and research	Raising awareness and disseminating knowledge through publicity campaigns	JAB Management Centre, and at a later stage JAB ambassadors , communes, media networks, tourism
Forestry	Raising awareness through publicity campaigns	Forestry service , forest owners, JAB Management Centre
Energy	Targeted information on energy and water for tourists and day-trippers	UNESCO World Heritage marketing group (association of JAB tourist destinations)

* Lead: In bold typeface

7 Monitoring and controlling

Monitoring and controlling instruments are essential for assessing and understanding both the effectiveness of the objectives and measures designed for the JAB World Heritage and changes in the natural, social, and economic environments.

7.1 Monitoring: long-term observation of change

Databases compiled by national and international measurement networks are a valuable starting point for monitoring in the World Heritage Site. A survey of existing measurement networks must be made, and their continued operation as well as the use of new networks must be planned, in cooperation with the research platform. It is very important to include the World Heritage Site in national and international measurement networks, as this makes it possible to carry out comparative analyses and to consider the situation within the Site in a broader context. Monitoring within the Site must be supported by regional measurement networks, however, as they are of key importance in providing a more precise analysis of both the World Heritage Site and the World Heritage Region.

Different social, institutional, and environmental indicators will also be of key importance, as not only areas inside the perimeter but the entire World Heritage Region will be included in research and monitoring. The following initial directions are proposed for monitoring:

- Social monitoring: Methods of monitoring economic, social and cultural indicators are still being developed. Biosphere Reserve Integrated Monitoring could be a useful instrument to apply in the World Heritage Site. Preliminary indications of the importance of social monitoring – in terms of methods, indicators and execution for this type of monitoring – are available (LASS and REUSSWIG, 2002).
- Landscape development: MaB monitoring carried out on the Great Aletsch Glacier between 1984 and 1989 (MEESSEN and MESSERLI, 1991; MEESSEN, 1984) focused on nature and landscape protection “from the bottom up.” Starting at the commune level, changes in land use and ecological risks were analysed and evaluated, and forecasts were made. Particularly worthwhile in this regard was the reintroduction of photomonitoring, as a comprehensive photo databank from these years is now available.
- Landscape assessment: In the MaB study site at Grindelwald, a zoological landscape evaluation was carried out in 1988, based on mapping of the distribution of animal groups with indicator value (hares, grouse, amphibians, lepidoptera, dragonflies, locusts; overall, a total of approximately 200 species were surveyed) (SCHIESS, 1988). Subsequent monitoring of these animal groups could provide important indications of changes in the Grindelwald region.
- Key indicators: Proposals for key indicators are made in the dossier submitted for candidacy. These are divided into biological, ecosystem, sociocultural and planning indicators, and can be incorporated as a point of departure for a discussion of coordinated monitoring.

The monitoring situation involving existing federal inventories, as well as cantonal, communal and private protected areas, needs to be clarified with respect to the development of monitoring for the Jungfrau-Aletsch-Bietschhorn World Heritage Site. This is particularly important for areas inside the perimeter of the Site. “Controlling the progress of mire protection is now operational. Mires of national importance within the area are taken into account, particularly the mire in the Aletsch Forest. [...] Mechanisms for controlling the progress of fenland protection and of hay meadows and pastures of national importance are now under development. The Federal Inventory of Landscapes and

Natural Monuments of National Importance (BLN) will be revised in the coming years with the aim of making it more effective in protecting all objects. In this context mechanisms to control success will be designed and implemented for all objects, but also with specific reference to the area of the UNESCO World Heritage Site. Sectoral controlling is operational in federal hunting reserves” (Küttel et al, 2000: 38). In the Canton of Berne monitoring related to spatial observation is being developed, which will focus primarily on landscape change (aesthetic value of the landscape). This involves testing the extent to which locations within the World Heritage Site could be developed.

Box 6: Swiss federal and international measurement networks

A key point relating to observation networks operated by the Confederation and the cantons is the issue of clarification and monitoring of certain environmentally relevant parameters at the regional and supra-regional levels. Such observation networks are usually designed with reference to spatial dimensions. Priority in observation is given to large-scale, national-level behaviour of the parameters observed (GROLIMUND and PETER, 1994: 123).

The following national measurement networks are important to the World Heritage Site:

- **MeteoSchweiz:** MeteoSchweiz is the federal weather service. As such, it undertakes tasks that benefit the population, the economy, and public institutions. All important meteorological and climatological parameters are measured. Within the World Heritage Site and the surrounding Region (communes on the perimeter), there are measurement network stations on the Jungfrauoch (ANETZ), the Grimsel (ANETZ), the Männlichen (ENET), the Eggishorn (ENET), and in Blatten (Lötschen) (KLIMA). Precipitation (NIME) is measured additionally in Fieschertal, Grindelwald, Guttannen, Kandersteg, Kleine Scheidegg, Lauterbrunnen, Meiringen, Mürren, and Ried (Lötschen) (METEOSCHWEIZ, 2004).
- **National Air Pollution Monitoring Network (NABEL):** This network measures air pollution at 16 typical sites distributed throughout Switzerland. Within the World Heritage Site there is a measurement station on the Jungfrauoch, where the following pollutants are measured: the gases NO, NO₂, NO_x, O₃, SO₂, and VOC; the suspended dusts TSP, Pb, Cd; and sulphur (BUWAL, 2004a).
- **Swiss Soil Monitoring Network (NABO):** The national soil monitoring network is an instrument for early detection and control of progress in soil protection (BUWAL, 2004b). Total content of the following 8 heavy metals is measured: lead, copper, cadmium, zinc, nickel, chromium, cobalt, and mercury. The existing NABO network consists of 105 permanent observation sites. One of this is located within the World Heritage Site, in Grindelwald (BUWAL 2004b).
- **Swiss National Hydrology Measurement Network:** The national hydrology network operates over 400 stations that measure both the quantity and the quality of surface water and groundwater (FOWG, 2004). Runoff is measured within the World Heritage Site in the Lonza (Blatten), the Massa (Blatten near Naters), and the White Lütschine (Zweilütschinen) (BWG 2004).
- **Swiss Glacier Measurement Network:** The Swiss Glacier Measurement Network conducts long-term research on glacial change in the Swiss Alps. Glacial fluctuations are one of the best indicators of climate change. In the World Heritage Site, changes in the lengths of the Blüemlisalp Glacier, the Upper and Lower Aar glaciers, the Upper and Lower Grindelwald glaciers, the Rosenlauri Glacier, the Gamchi Glacier, the Tschingel Firn, the Alpetli (Kander Firn), the Eiger Glacier, the Great Aletsch Glacier, the Lang Glacier, the Fiescher Glacier, and the Middle and Upper Aletsch glaciers are measured, as well as the masses of the Aletsch and the Lower Aar glaciers (Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW), 2004).
- **Federal Data on Biological and Cultural Protection:** Federal biological and cultural data are compiled from national inventories, red lists, atlases, and catalogues. There are three categories for protection of inventoried objects: (1) they must be preserved undiminished; (2) they should be preserved undiminished; (3) they deserve to be preserved undiminished.
- **Inventory of Historic Traffic Routes in Switzerland (IVS):** The IVS is legally embedded in the Federal Law on the Protection of Nature and Cultural Heritage. The IVS contains detailed information on traffic routes of national importance that are worthy of protection, while also depicting the history and structure of historic regional and local traffic routes (SWISS FEDERAL ROADS AUTHORITY, 2005; VIASTORIA, 2005). For the World Heritage Site, the historic traffic routes over the Lötschen, Gemmi, and Grimsel passes are of particular importance (BUNDESAMT FÜR STRASSEN, 2003). Scientific foundations for the Inventory of Historic Traffic Routes in Switzerland have been available since the end of 2003.
- **Red Lists:** Red lists are important instruments for species protection. They include listings of all threatened species (e.g. the Red List of Mosses).

- **Federal Biodiversity Monitoring:** Specialists who monitor biodiversity regularly enumerate plants and animals on many designated areas in a landscape. Two measurement networks have been established throughout Switzerland, with approximately 520 test areas each and measuring one-quarter square kilometre each, and with about 1600 small measuring points (BUWAL 2005). With few exceptions, one or more such measuring points or test areas are found in each commune on the perimeter of the World Heritage Site.
- **Official Statistics:** Official statistics contain data on population and employment, the economy and prices, space economy, society, and education. With reference to space economy, statistics on land cover and land use, farms, forestry, livestock populations, and demand and supply in the tourist sector are of particular interest to the World Heritage Site (BUNDESAMT FÜR STATISTIK (BFS), 2005).
- **General Administrative Data (structural data):** In addition to the work of official statistical and environmental offices in Switzerland, a virtually incomprehensible amount of environmental data and information is compiled and maintained by offices at the federal, cantonal and communal levels in the course of their work (GROLIMUND and PETER, 1994: 184ff).

The following international measurement networks are important to the World Heritage Site:

- **Global Research Initiative in Alpine Environments (GLORIA)** is a world-wide, long-term observation network that compiles data on vegetation and temperature change and trends in alpine ecosystems, with the aim of detecting threats to these fragile landscapes. In Switzerland, observations are currently being made on four mountain summits in the western Alps of the Valais-Entremont (GLORIA, 2005a/2005b).
- The **Jungfrauoch Research Station** participates in many international networks, including the Network for the Detection of Stratospheric Change (NDSC), Global Atmosphere Watch (GAW), System for Observation of Halogenated Greenhouse Gases in Europe (SOGE), Airborne European Regional Observations of the Carbon Balance (AEROCARB), and the European Aerosol Research Lidar Network (EARLINET).
- The **Global Terrestrial Network for Permafrost (GTN-P)** was founded by the International Permafrost Association in order to link up world-wide permafrost research for the purpose of more broadly based monitoring and prediction of climate change. Within the World Heritage Region, there is a measuring point for this purpose on the Schilthorn, in the commune of Lauterbrunnen.

7.2 Controlling: instruments to control progress

Monitoring objectives (are the proper objectives being pursued?) and attainment of objectives (have measures and projects led to attainment of objectives?) is an important management instrument for the World Heritage Site.

Periodic control of the progress of sustainable development

The methodology of the project evaluation scheme presented below is based on THIERSTEIN and WALSER (2000). This methodological framework allows for simple evaluation that focuses on sustainable development in projects and activities in the fields of action. It provides for evaluation of projects and activities that have been realised or are in the process of realisation, using five questions that focus on strengths and opportunities, as well as weaknesses and threats, in the ecological, social and economic spheres (see Box 7). Projects are thus assessed with respect to the sustainability of their objectives in all areas, with positive and negative evaluations. Evaluations of the three dimensions are summarised, and sustainability values are determined for strengths and opportunities, as well as for weaknesses and threats. The greater the difference between strengths and opportunities and weaknesses and threats, the more sustainable the project.

Box 7: Project evaluation focusing on sustainable development

Ecological evaluation	
<p>Strengths/opportunities from an ecological perspective?</p> <ul style="list-style-type: none"> • The project employs quantifiable ecological criteria. • The project has high-quality ecological aims. • The project permits concrete ecological activity. • Actors from the ecological spectrum participate in implementation. • The project helps to create ecological awareness. 	<p>Weaknesses/threats from an ecological perspective?</p> <ul style="list-style-type: none"> • The project consumes high amounts of energy (including transport). • The project requires great use of space. • The project uses high amounts of raw materials (especially non-renewable resources). • The project has high risk potential or risks are difficult to assess. • The project's impact would be impaired by a consistent environmental policy.
Social evaluation	
<p>Strengths/opportunities from a social perspective?</p> <ul style="list-style-type: none"> • The project focuses on life-long learning. • The project makes sustainable time structures possible. • The project demands use of knowledge gained from experience. • Actors from the social spectrum participate in implementation. • The project contributes to equitable distribution of wealth. 	<p>Weaknesses/threats from a social perspective?</p> <ul style="list-style-type: none"> • The project may have negative impacts on individual health. • The project does not take account of the security needs of certain groups. • The project leads to concentration on material well-being. • The project has considerable potential for social conflict. • The project only takes account of selected interests.
Economic evaluation	
<p>Strengths/opportunities from an economic perspective?</p> <ul style="list-style-type: none"> • The project aims to produce economic benefits. • The project improves existing economic structures. • The projects fosters innovation (in processes and production) and diversification. • The project enhances use of resources of all types. • The project aims to have a positive impact on the labour market. 	<p>Weaknesses/threats from an economic perspective?</p> <ul style="list-style-type: none"> • The project depends on subsidies. • The project requires high investment and/or personnel costs. • The project objectives are threatened by economic trends or social motives. • The project consumes scarce resources. • The objectives are limited to a certain branch or economic sector.

Note: Each question is rated on a scale of 1-4. See the key below.

Key for strengths/opportunities

- 1 = Unintended impact
- 2 = Assumed side effect
- 3 = Secondary objective of project
- 4 = Primary objective of project

Key for weaknesses/threats

- 1 = Unintended impact
- 2 = Unavoidable impact
- 3 = Impact accepted as inevitable
- 4 = Impact intended/assumed

Figure 19: Project evaluation of strengths/opportunities and weaknesses/threats with a focus on sustainable development (Source: THIERSTEIN and WALSER, 2000: 230)

Projects are also evaluated in accordance with the four so-called principles of order of sustainable development (diversity, subsidiarity, partnership/networks, participation), with a catalogue of four

questions to be answered for each principle, on a scale of 1-4. A mean value is assigned on the basis of the evaluation.

Finally, the impacts of individual projects are assessed. The following questions, among others, are then answered in a discourse that is as broadly based as possible: Is there equity between individuals? Is there equity between regions? Is there equity between generations?

An independent reporting body

Every two to four years the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association subjects sustainability policy to monitoring of progress focusing on implementation of fields of action and the status of sustainable development within the World Heritage Region. An independent body is employed for this purpose, consisting of seven to nine specialists in research, environmental issues, economics, and social issues, as well as people from various associations. Interdisciplinarity is a main criterion in this process. The World Heritage Site Association supports this body and coordinates implementation of the monitoring of progress. This independent body has a budget to cover the expenditures it incurs.

Periodically monitoring progress, this body prepares status reports every two to four years. These reports also reflect on the status of development in the World Heritage Site, by means of a simple system of indicators. This easy-to-apply and easy-to-understand system of indicators is formulated by the independent body. It should be comparable to and correlate with international action plans and undertakings. In addition, it must describe the ecological, social and economic situation. As the selection of indicators in the present case depends on the local context and on local value systems, it cannot meet the demand for objectivity.

It is suggested that the results of monitoring progress by IDARio (the RIO interdepartmental committee) be critiqued. This will produce further proposals to the World Heritage Site Association regarding additional procedures.

The system of indicators, the status reports, and the recommendations of the independent body are made available to inform and motivate the public, thereby promoting dialogue.

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Bundesgesetz über die Landwirtschaft; SR 910.1

Bundesgesetz über die Raumplanung; SR 700

Bundesgesetz über Investitionshilfe im Berggebiet; SR 901.1

Übereinkommen zum Schutze des Kultur- und Naturerbes der Welt; SR 0.451.41

Verordnung über Bundesinventar der schützenswerten Ortsbilder der Schweiz; SR 451.12

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Verordnung über den Schutz der Auengebieten von nationaler Bedeutung; SR 451.31

Verordnung über den Schutz der Flachmoore von nationaler Bedeutung; SR 451.33

Verordnung über den Schutz der Hoch- und Übergangsmoore von nationaler Bedeutung; ;SR 451.32

Verordnung über den Schutz der Moorlandschaften von besonderer Schönheit und nationaler Bedeutung; SR 451.35

Verordnung über die Abgeltung von Einbussen bei der Wasserkraftnutzung; SR 721.821

Verordnung über die Direktzahlungen an die Landwirtschaft; SR 910.13

Verordnung über die eidgenössischen Jagdbanngebiete; SR 922.31

Verordnung über die regionale Förderung der Qualität und der Vernetzung von ökologischen Ausgleichsflächen in der Landwirtschaft; SR 910.14

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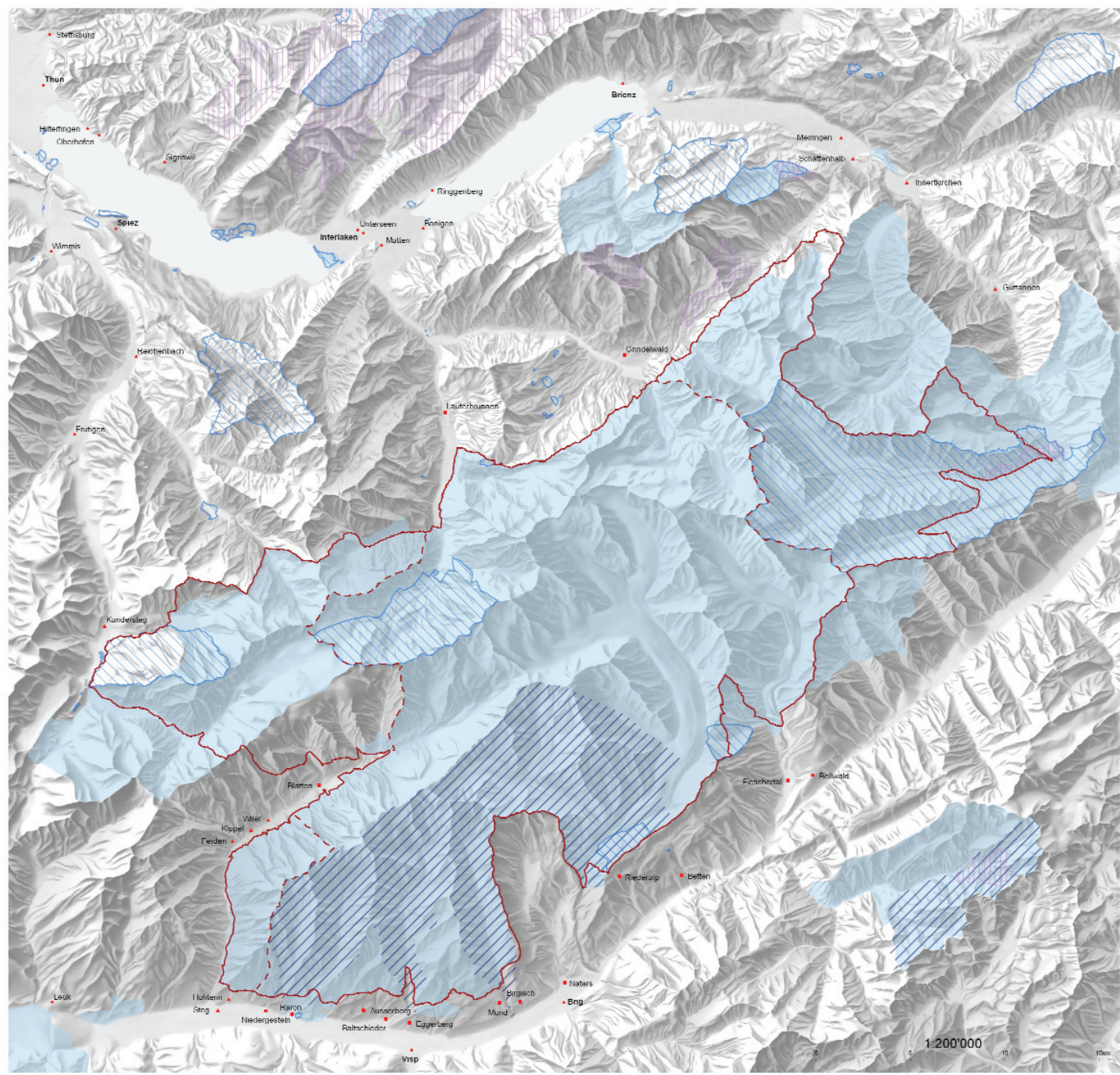
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National and Cantonal Landscape Protection



Legend

- Landscapes and natural monuments (BLN)*
- Ordinance concerning compensation for losses in hydropower generation (VAEW)
- Mire landscapes of particular beauty*
- Cantonal nature reserves (NSG)

* Federal Inventory of National Importance

Legend detail

- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- Perimeter of the World Heritage Site, 2001

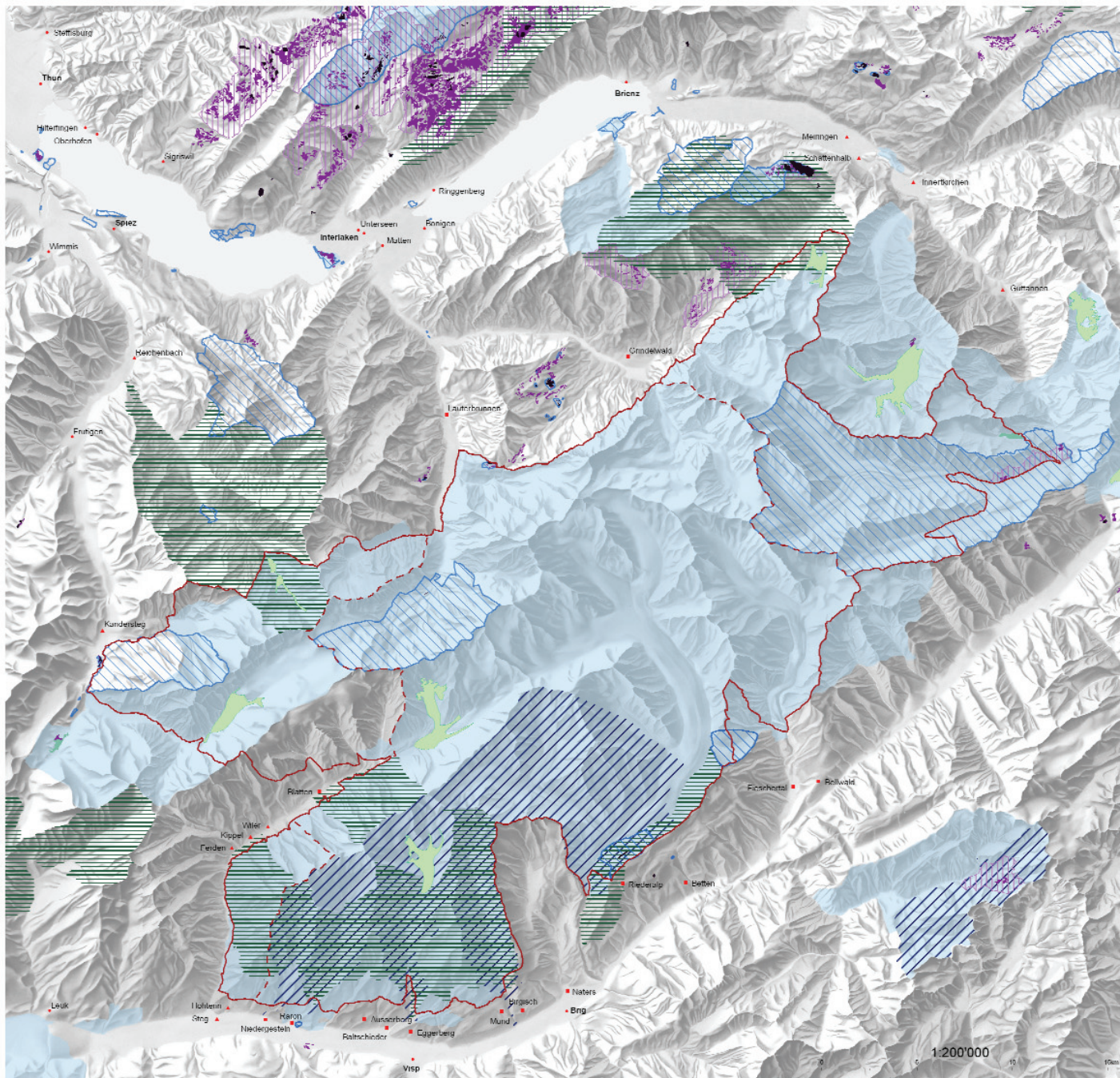


Source of data:
 Federal Inventory of National Importance (FINI) (2010)
 Swiss Federal Office of Topography (2010/2011)
 Main centres in communes: SUISSE/MES (2004)
 Swiss Federal Office of Topography (2010/2011)
 Perimeter of the World Heritage Site, 2001 and 2005
 Swiss Federal Office for the Environment, Forests and Landscape (2001) (2010) (2011) (2012) (2013) (2014)
 BULI 2011: FOS GEOSTATIS/MEPL
 Inventory of Mire Landscapes, 2004
 FOS GEOSTATIS/MEPL
 Annex covered by VAI No. 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
 Cantonal Nature Reserves, 2001, Canton of Bern
 Cantonal Nature Reserves, 2000, Canton of Valais
 Digital map data (PM 00), reproduced by permission of swisstopo (B-1007389)

Map compilation and cartography:
 CDE (Centre for Development and Environment, Institute of Geography, University of Bern)
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Fribourg, 11/2023



Overview of all National and Cantonal Nature Reserves



Legend

Landscape Protection

- Landscapes and natural monuments (BLN*)
- Ordinance concerning compensation for losses in hydropower generation (VAEW)
- Mire landscapes of particular beauty*
- Cantonal nature reserves (NSG)

Biotopes of National Importance

- Federal hunting reserve*
 - Raised bogs or transitional mires*
 - Fenlands*
 - Glacier foreland (alluvial zone)*
 - Alpine alluvial zones*
- * Federal Inventory of National Importance

Legend detail

- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- Perimeter of the World Heritage Site 2001



Overview of data:
 National borders: Swiss, commune borders: CH2011 (2011)
 Swiss Federal Office of Topography (VD03223)
 Main centres in Switzerland: SWISS/ANES v. 2004
 Swiss Federal Office of Topography (VD032837)
 Perimeter of the World Heritage Site, 2001 and 2005
 (Scale: 1:100,000 - 1:100,000 and 1:100,000 - 1:100,000)
 Joint agency for the management, research and landscape
 Swiss Federal Office of Topography (VD0314)
 BUN 2001, FOS/GEOSTATIS/EFPL
 Inventory of Mire Landscapes, 2004
 FOS/GEOSTATIS/EFPL
 Areas covered by VAW: VAW 1981, 1981, 1981
 2005, 1981, 1981
 NSG 2001, Canton of Bern
 NSG 2005, Canton of Valais
 Ramsar List Inventory, 2003, FOS/GEOSTATIS/EFPL
 Federal Inventory, 1981, 1981, 1981
 Alluvial Zone Inventory, 2003, FOS/GEOSTATIS/EFPL
 Amphibian Inventory, 2003, FOS/GEOSTATIS/EFPL
 Reserves for Mires and Mire, 2001, FOS/GEOSTATIS/EFPL
 Hunting Reserves, 2004, FOS/GEOSTATIS/EFPL
 Digital map data: PH100, reproduced by permission of swisscom (84057305)

Map compilation and cartography:
 ZOE (Centre for Environmental and Environmental, Institute of Geography, University of Bern,
 In cooperation with the Jungfrau Aletsch Bietschhorn World Heritage Site Association, Interlaken and Naters, 11.2009



Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site

Geological map 1:200,000

Toni P. Labhart

Railway tunnels
LST Lötschberg-Scheiteltunnel
LBT Lötschberg Base Tunnel

Sedimentary synform

(Mo)(Pb)(U) Ore deposits

Glaciers and quaternary, mainly glacial deposits

Helvetic Sedimentary Unit
(Mesozoic and Early Tertiary)

Higher Helvetic Nappes (Gällihorn Nappe, Wildhorn Nappe, Axen Drusberg Nappe)

Doldenhorn Nappe

Autochthonous sediments

Parautochthonous sediments

Permo-Carboniferous sediments

Aar Massif

Polymetamorphic basement ('Altkristallin')

biotite gneiss and biotite schist, at green-schist to amphibolite facies metamorphic conditions, frequently migmatitic

Amphibolite

Banded amphibolite

Serpentinite

Calcsilicate

Muscovite gneiss

Augen gneiss

Erstfeld Gneiss Complex

Granitoids of unknown age

Granite, granodiorite, tonalite
Ba: Baltschieder granite

Ordovician migmatite

Innertkirchen / Lauterbrunnen crystalline

Variscan magmatites

Volcanic rocks

Volcano-sedimentary series in the Lötschental (L) and the Oberaar area

Rhyolitic sills (quartz porphyry)

Plutonic rocks

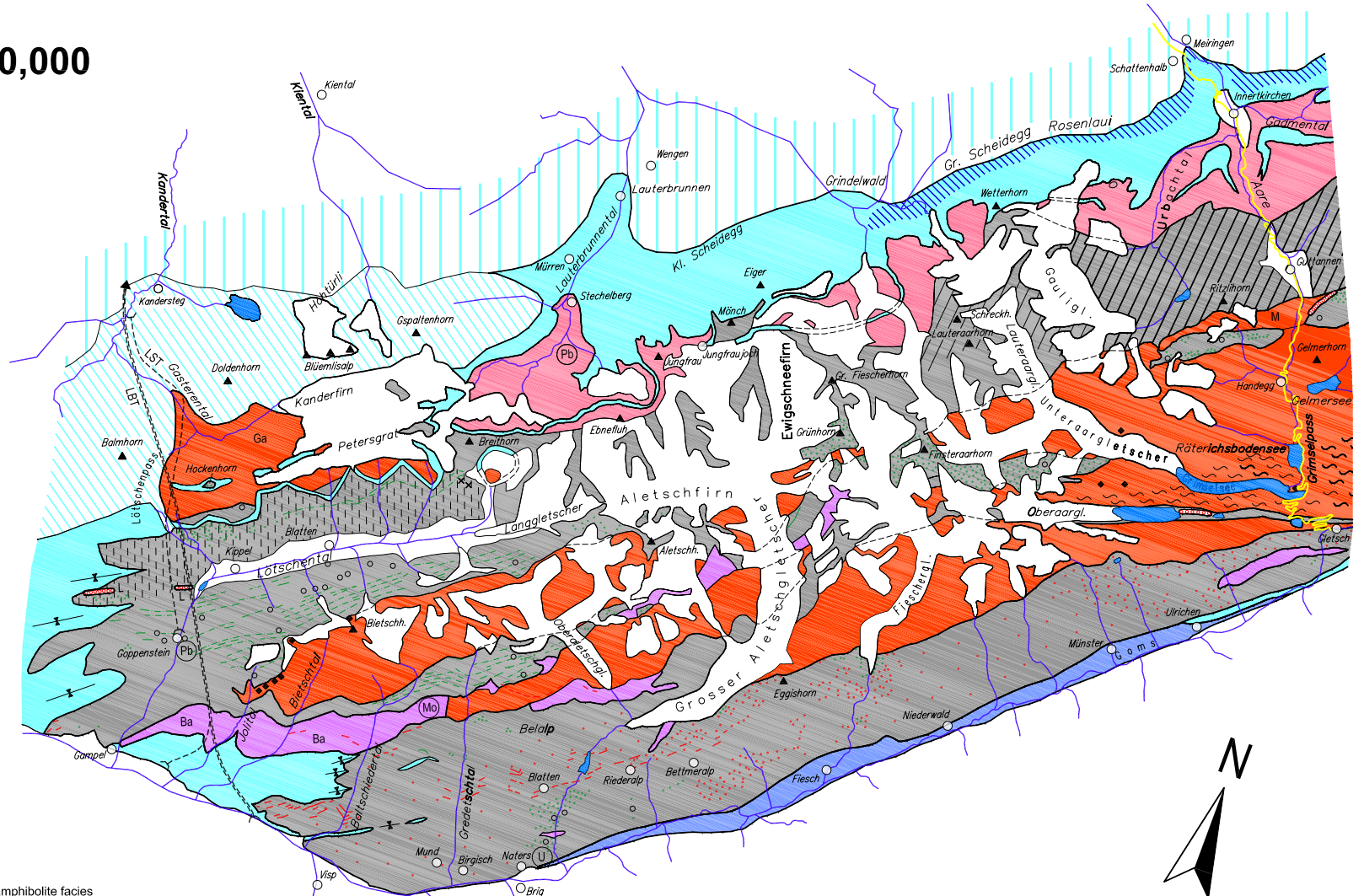
Ga: Gastern granite

Central Aare granite

Xenoliths of country rocks

Mittagfluh granite

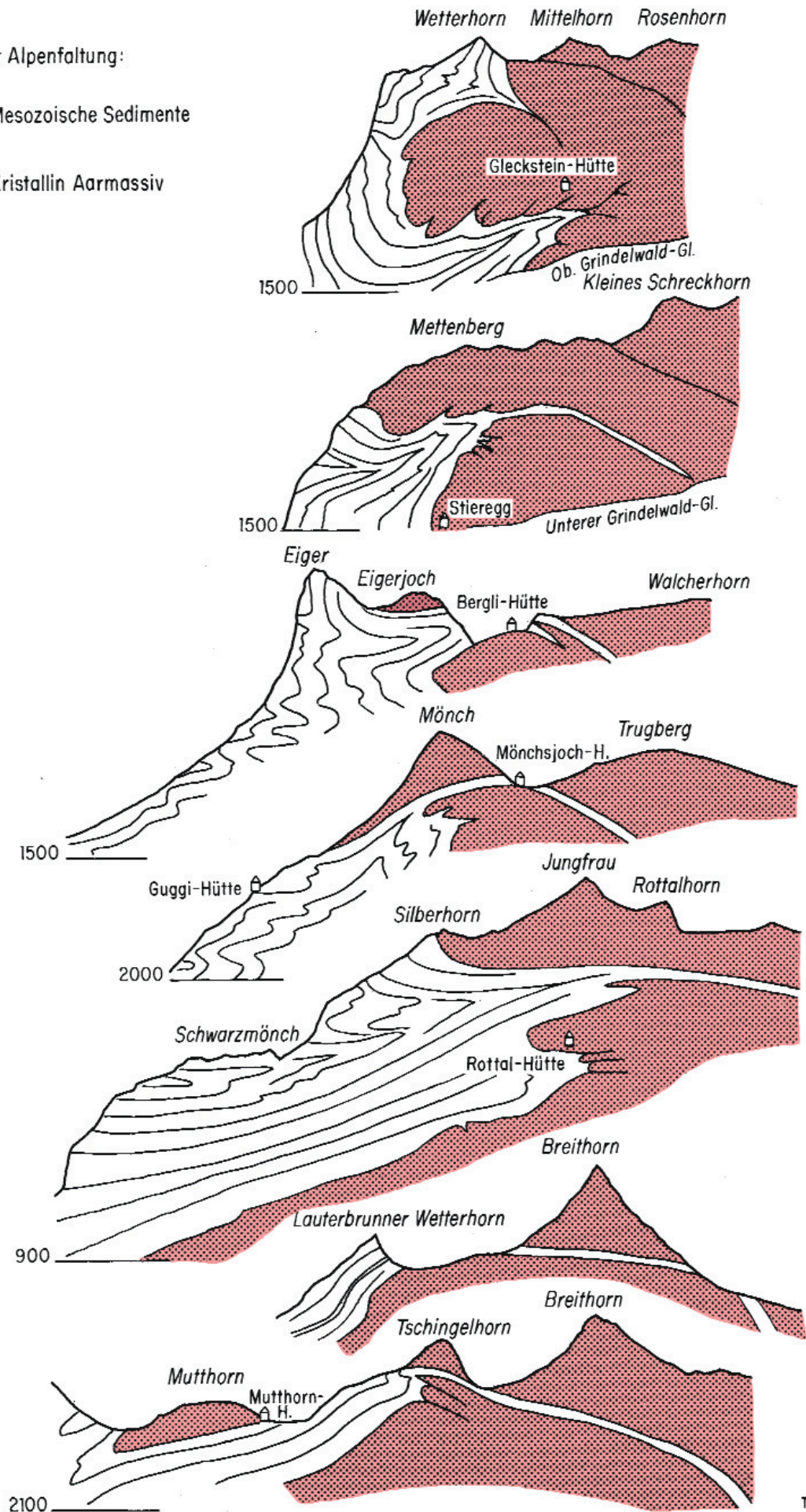
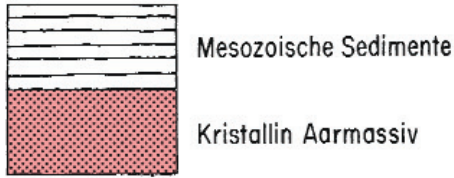
Grimsel granodiorit



From: T. Labhart (1999): Geologisch-tektonische Übersichtskarte Aarmassiv, Gotthardmassiv und Tavetscher Zwischenmassiv. Modified April 2005.

Processing: B. Dräyer

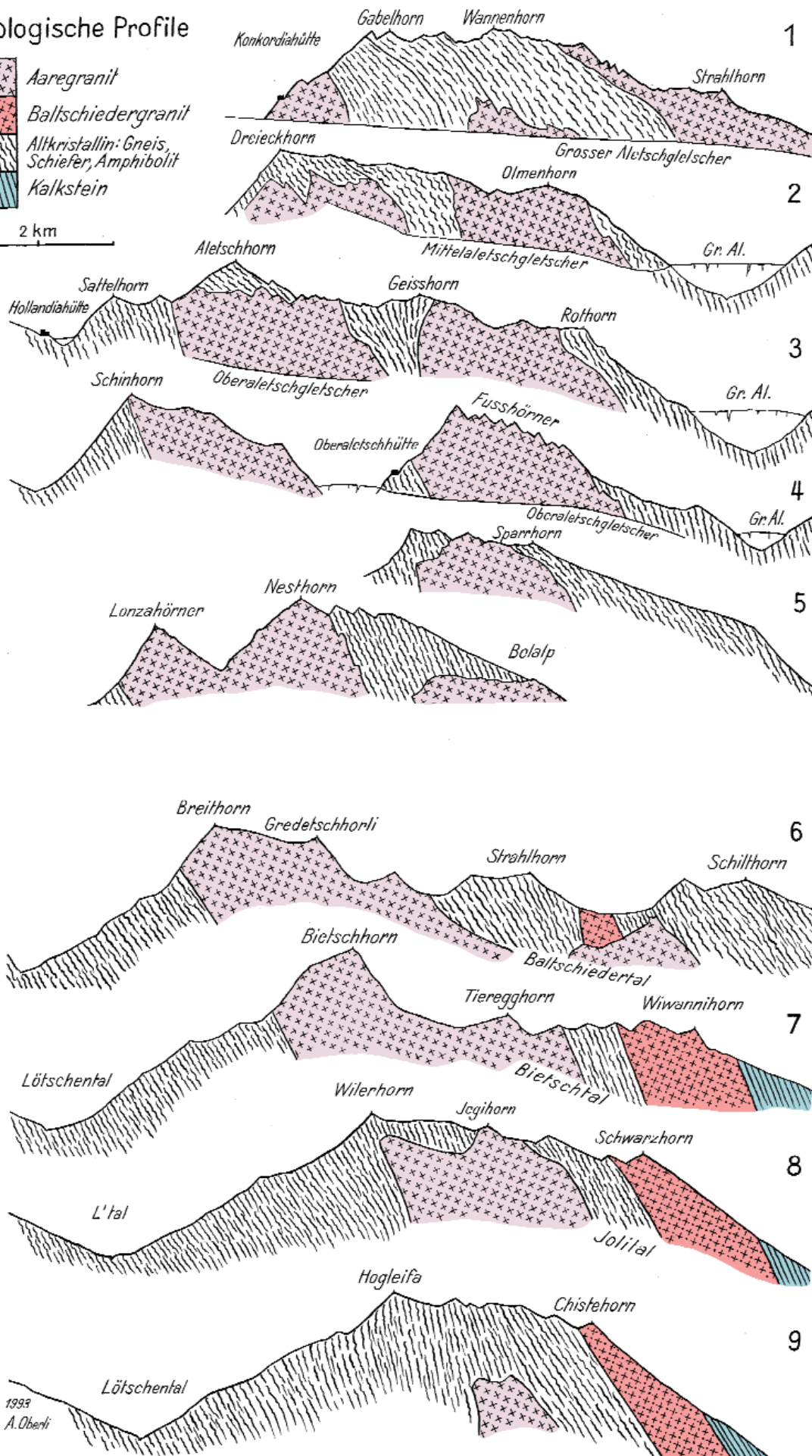
Anordnung vor der Alpenfaltung:



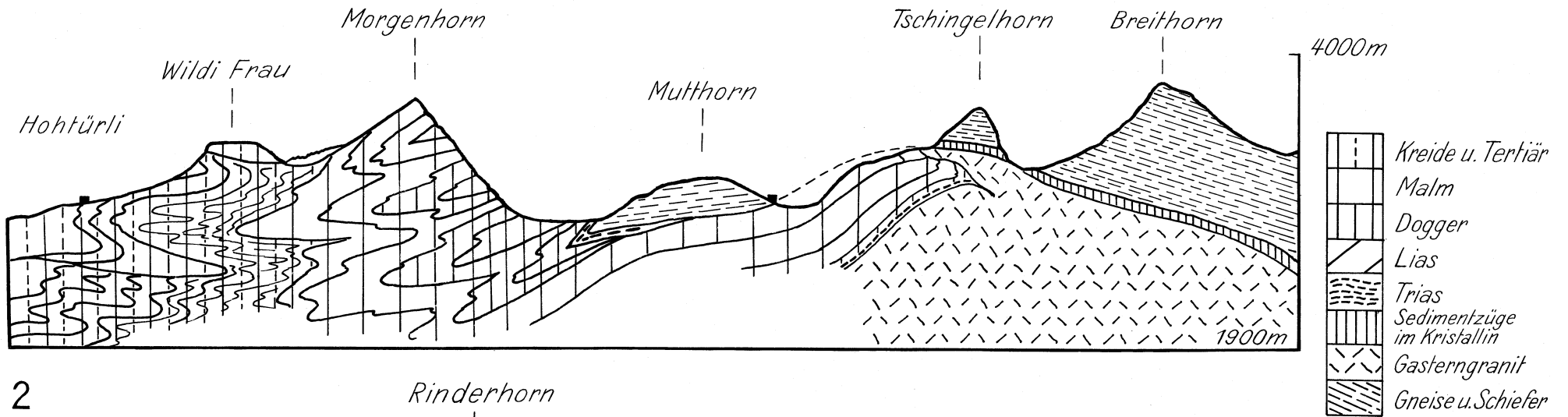
Geologische Profile



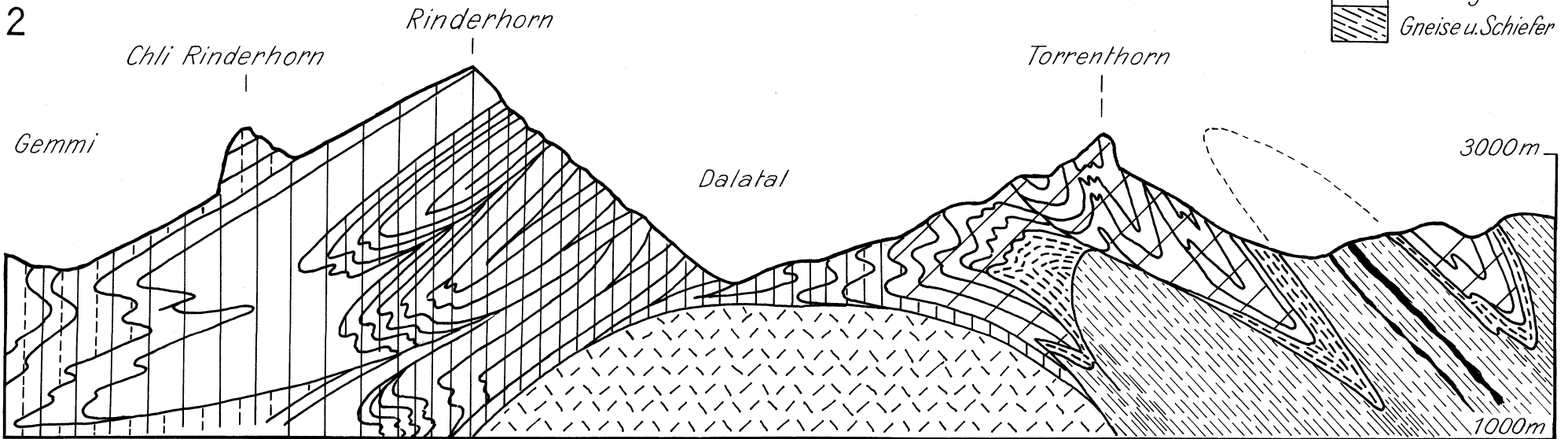
2 km



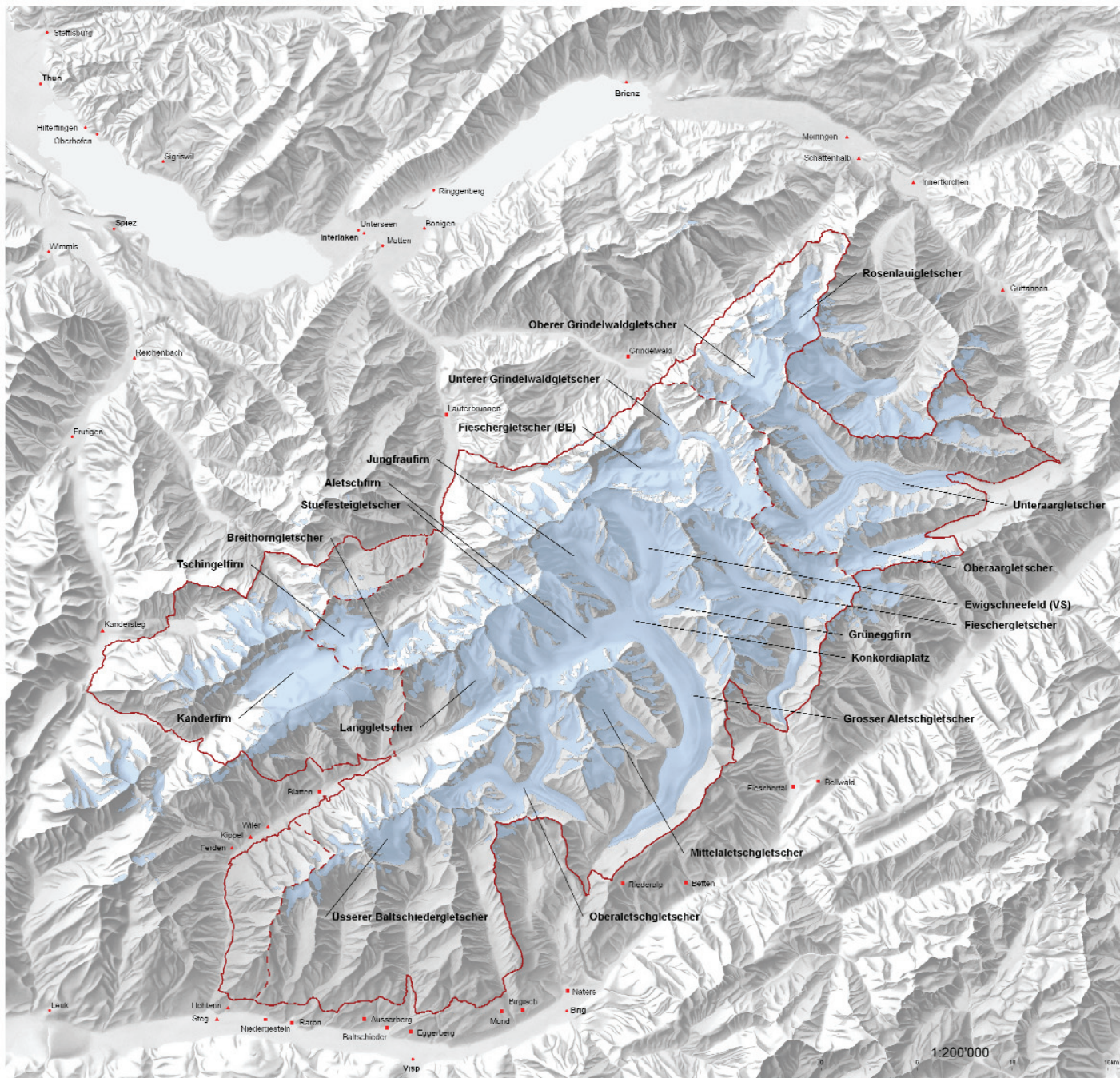
1









2



Glaciation as of 1973



Legend

-  Glacier (as of 1973)
- Legend detail**
-  Centre of associated commune with land inside the perimeter
-  Centre of associated commune with land inside the proposed extension
-  Centre of commune with more than 2,000 inhabitants
-  Perimeter of the World Heritage Site (including extension proposed to UNESCO)
-  Perimeter of the World Heritage Site, 2001



Sources of data:
 National borders, lakes, cantonal borders: 05/20 v. 2002
 Swiss Federal Office of Topography (0101213)
 Main waters in communes: 01/01/2004
 Swiss Federal Office of Topography (01/01/2007)
 Perimeter of the World Heritage Site, 2001 and 2005
 State agency for the environment, forests and landscape
 Policy: PK100 v. 1998 and PK200 v. 1998
 Swiss Federal Office of Topography (01/3514)
 Climate, Air and Noise: 1975, Institute for Cartography,
 Swiss Federal Institute of Technology, Zurich
 Digital map data P14100, reproduced by permission of swisstopo (B/007386)

Map compilation and cartography:
 COE Centre for Development and Environment, Institute of Geography, University of Bern,
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Thun, 11/2005



Habitats per km² (maximum of 4)

Legend

Number of habitats (pioneer sites, meadows and grazing areas, transitional areas, forest) per km²

- 1 habitat
- 2 habitats
- 3 habitats
- 4 habitats

Legend detail

- Centre of associated commune with land inside the perimeter
- ▲ Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- ⬢ Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- ⬢ Perimeter of the World Heritage Site, 2001

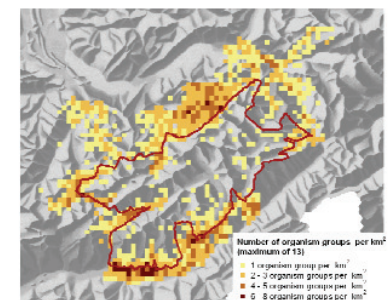


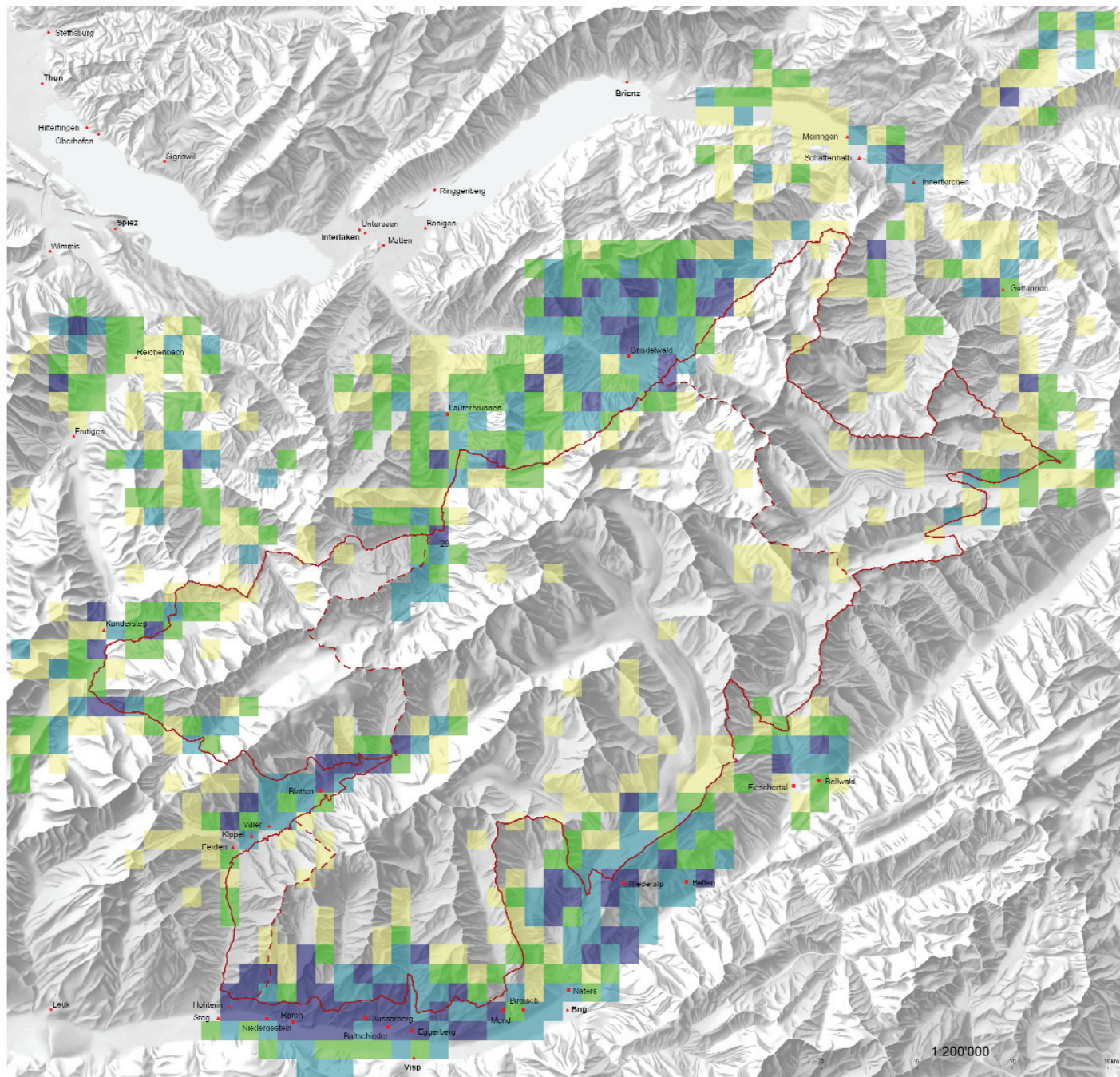
Table: Number of data sets available per organism group

Organism group	Total species	Data sets	Endangered species (NL 1-9)	Data sets	Endangered species and data sets classified by biome
Fungi	87	209	91	134	40 (110)
Lichen	65	347	26	34	26 (34)
Mosses	575	4288	78	198	51 (135)
Vascular plants	504	1700	114	345	20 (118)
Molluscs	29	105	12	21	12 (21)
Insects	212	95	14	0	14
Hymenoptera	24	36	17	36	17 (36)
Neuroptera	9	12	0	0	0
Butterflies	140	1733	35	765	35 (765)
Dragonflies	1	2	0	0	0
Lepidoptera	41	3100	24	810	24 (810)
Recording birds	151	5064	34	490	24 (441)
Mammals (small mammals)	8	29	7	21	7 (21)
Total	1937	17433	410	2600	270 (2550)

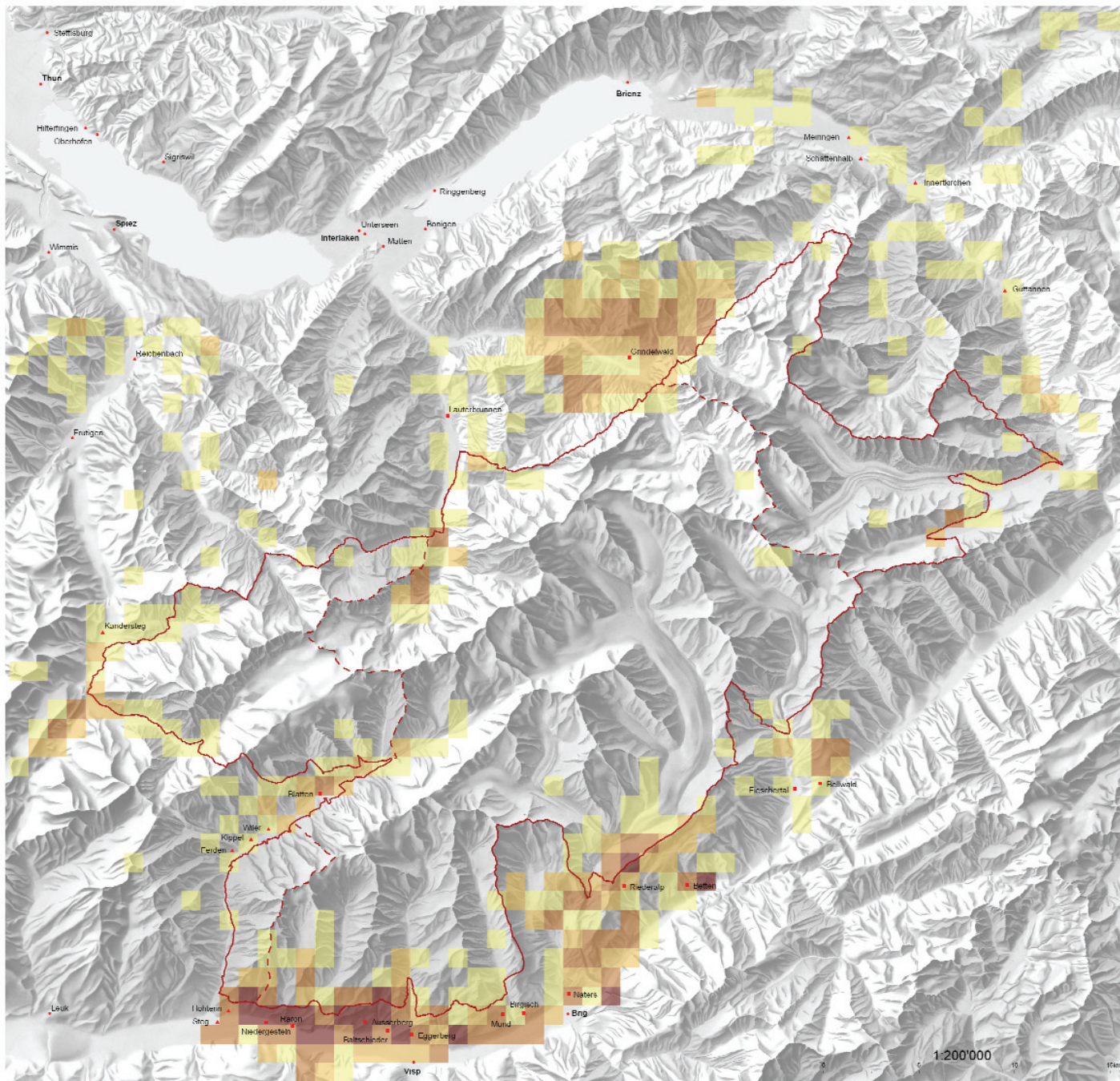
Source of data:
National border, lake, commune border: SACZ (1:10000)
Basic data: Swiss Federal Office of Topography (SVOPT/2004)
Main content in comparison: SWISS/WWF (2004)
Swiss Federal Office of Topography (SVOPT/2007)
Perimeter of the World Heritage Site, 2001 and 2005
Swiss Agency for the Environment, Forests and Landscape
Swiss Agency for the Environment, Forests and Landscape
Swiss Federal Office of Topography (SVOPT/2014)
Biodiversity data: July 2005, CDFP

Digital map data PM100, reproduced by permission of swisstopo (B/007386)

Map compilation and cartography:
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In cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Naters, 11/2005



Endangered Species per km² in Four Investigated Habitats



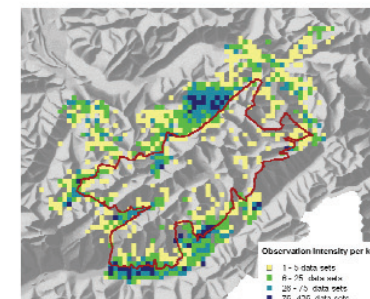
Legend

Number of endangered species per km²

- 1 - 2 species
- 3 - 5 species
- 6 - 15 species
- 16 - 33 species

Legend detail

- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
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- Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- Perimeter of the World Heritage Site, 2001

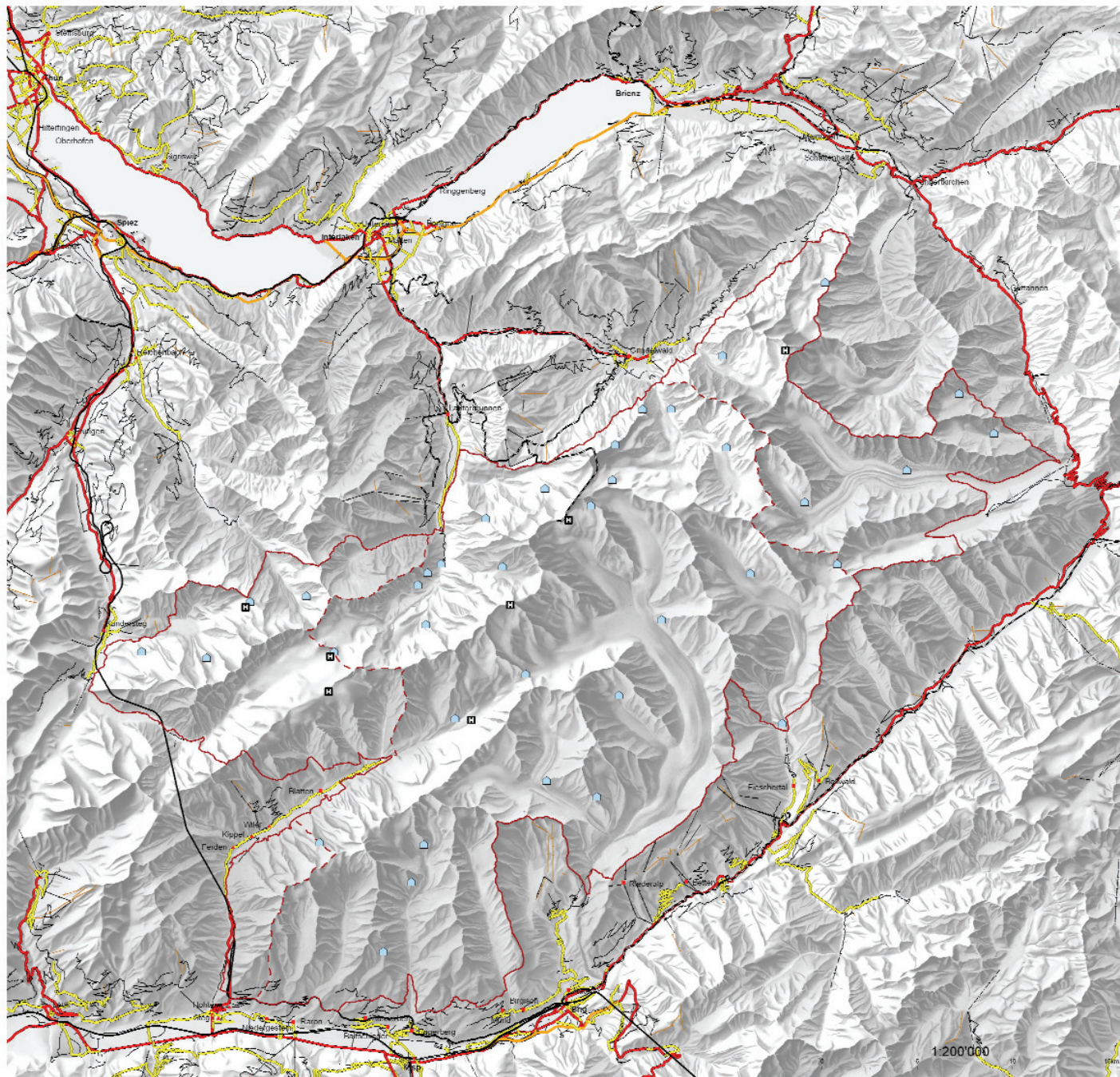


Source of data:
 National borders: Swiss communes for data: COG 01/2002
 (Swiss Federal Office of Topography (swisstopo))
 Mean centre of commune: COG02 (data set: 7866)
 Swiss Federal Office of Topography (swisstopo)
 Perimeter of the World Heritage Site, 2001 and 2006
 Swiss Agency for the Environment, Forests and Landscape
 Relief: PH100 01/2008 and PH500 01/2009
 (Swiss Federal Office of Topography (swisstopo))
 Indemnity data: 1 July 2008, E5257
 Digital map data (M100), reproduced by permission of swisstopo (11/06/2009)

Map compilation and cartography:
 CIGI, COGEP (Geos. Center of Forest Mapping) and CDE (Center for Development and Environment),
 Institute of Geography, University of Bern,
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interlaken and Muri, 11/2008



Transport Infrastructure and Alpine Accommodations



Legend

- Normal gauge railway
- Narrow gauge railway
- Cable car
- Service railway
- Ski lift
- Motorway
- Main highway
- 1st class road (minimum width: 6 m)
- 2nd class road (minimum width: 4 m)
- 3rd class road (minimum width: 2.8 m)

- 🏠 Swiss Alpine Club hut / mountain lodge
- 🚁 Alpine helicopter landing field

Legend detail

- Centre of associated commune with land inside the perimeter
- Centre of associated commune with land inside the proposed extension
- Centre of commune with more than 2,000 inhabitants
- 🔴 Perimeter of the World Heritage Site (including extension proposed to UNESCO)
- 🔴 Perimeter of the World Heritage Site, 2001



Source of data:
 Federal Institute for Spatial Information Systems (swisstopo) (1980)
 Swiss Federal Office of Topography (2001, 2005)
 Main centres in communes: SUISSE/AMES (2004)
 Swiss Federal Office of Topography (2002, 2007)
 Perimeter of the World Heritage Site, 2001 and 2005
 Swiss Agency for the Environment, Forests and Landscape
 (swiss-agnes) (1991 and 1992) (1994)
 Swiss Federal Office of Topography (2004)
 Normal gauge and narrow gauge railways, cable cars, ski lifts and roads
 "VECTORS" 2004, Swiss Federal Office of Topography (2002, 2003)
 Catalogue of Alpine huts, Swiss Alpine Club 2004, SAC (including Alpine lodges)
 Alpine landing fields, 2001, Swiss Federal Department of Environment, Transport, Energy and Communications

Digital map data TM100, reproduced by permission of swisstopo (BA057929)
 Map compilation and cartography:
 COE Centre for Development and Environment, Institute of Geography, University of Bern,
 in cooperation with the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association, Interaktion and others, 11/2005



List of supplements

- Suppl. 1 Original topographical map, 1:100'000, October 2005, location map showing the location of the property within the State Party (available on topographical map)
- Suppl. 2 Floristic data
- Suppl. 3 Faunistic data
- Suppl. 4 Geological Profiles, BLS Alptransit, 2004
- Suppl. 5 Relevant federal legislations
- Suppl. 6 Relevant cantonal and communal legislations, contracts and plans
- Suppl. 7 Management plan for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site
- Suppl. 8 Charter of Konkordiaplace, 26 September 2001 and 1 March 2005 (additional communes)
- Suppl. 9 Annual hunting reserves report 2004
- Suppl. 10 Recensement des lagopèdes alpins et des tétras lyres en 2004 dans une sélection de régions des Alpes suisses (chapter 4.3)
- Suppl. 11 Print of the slides
- Suppl. 12 The contributions of world natural heritage sites to sustainable regional development – two case studies from the north and the south
- Suppl. 13/14 Jungfrau-Aletsch-Bietschhorn, First UNESCO World Natural Heritage of the Alps
- Suppl. 15 Further information about the nominated area

General Map

Original topographical map, 1:100'000, October 2005, location map showing the location of the property within the State Party (available on topographical map)

Floristic data

List of Vascular Plants

Sources: Centre of the Swiss Floristic Network (CRSF/ZDSF): Comprehensive data on Swiss flora are collected and stored in this database at the Botanical Gardens in Geneva.

Analysis October 2005: The list is based on different data over the occurrences in the area. Most of the data originate from records out of the atlas of dispersal. For this atlas the data were recorded for characteristic mapping areas (about Welten/Sutter) and not by co-ordinates. The mapping areas (561, 565, 566, 567, 568, 581, 583, 584, 586, 596, 598, 599, 704, 705, 706, 707, 715, 716, 717, 718, 791, 798, 799) which lay fully or partly in the nominated area are considered. So there result 1787 species.

List of the endangered species of Vascular Plants

Analysis October 2005: All endangered species of Vascular Plants with known co-ordinates within the nominated area (108 species).

List of the Mosses in the nominated area

Sources: National Inventory of Swiss Bryophytes (NISM): Data on Swiss bryophytes are stored in this database at the University of Zurich.

Analysis October 2005: All species of mosses with known co-ordinates within the nominated area (716 species).

Faunistic data

List of animal species (exclusive of birds)

Sources: Swiss Centre for the Cartography of Fauna (CSCF/SZKF): This database, maintained at the Natural History Museum at Neuchâtel, contains comprehensive data on Swiss fauna, with the exception of birds.

Analysis October 2005: The whole area is disposed in units of 1 square kilometers. All species which occur in a square kilometer are recorded. All square kilometers which are fully or partly in the nominated area are considered. In all 1144 species have been confirmed: 42 mammals, 8 reptiles, 4 amphibians, 97 molluscs and 979 insects.

List of birds

Sources: Swiss Ornithological Institute, Sempach: The Swiss Ornithological Institute maintains a database on Swiss avifauna. It is a Private foundation and receives assistance from the federal government.

Analysis 2005: The list contains all species which are found in the nominated area including the categories of threat (99 species).

Geological Profiles

Source: BLS (Bern-Lötschberg-Simplon Bahn). Project Alptransit, 2004

http://www.blsalptransit.ch/download/grafiken/grafik_laengenprofil.pdf

http://www.blsalptransit.ch/download/grafiken/grafik_prognosenprofil.pdf

http://www.blsalptransit.ch/download/folien/FO_geologisches_laengenprofil_f.pdf

Relevant federal legislations

Here are the most important legislations. All are available online under <http://www.admin.ch/ch/f/rs/45.html>.

Loi fédérale du 1^{er} juillet 1966 sur la protection de la nature et du paysage (LPN, RS 451)

Ordonnance du 10 août 1977 concernant l'inventaire fédéral des paysages, sites et monuments naturels (OIFP, RS 451.11)

Loi fédérale du 20 juin 1986 sur la chasse et la protection des mammifères et oiseaux sauvages (LChP, RS 922.0)

Ordonnance du 30 septembre 1991 concernant les districts francs fédéraux (ODF, RS 922.31)

Ordonnance du 30 avril 1990 sur la régulation des populations de bouquetins (ORB, RS 922.27)

Ordonnance du 25 octobre 1995 sur la compensation des pertes subies dans l'utilisation de la force hydraulique (OCFH, RS 721.821)

Relevant cantonal and communal legislations, contracts and plan

Canton Valais

Loi sur la protection de la nature, du paysage et des sites du
13 novembre 1998

Plan directeur cantonal, Fiche de coordination f.603/2 (état au
21.7.1999)

Décision déclarant la forêt d'Aletsch „réserve forestière absolue“ et „site
à protéger“ du 5 mai 1933

Décision concernant la protection de la région du Märjelensee du 23
février 1938

Décision concernant la protection des quatre zones alluviales
d'importance nationale et des marges glaciaires de Jegi et
Langgletscher de la vallée de Lötschen du 20 mai 1998

Canton Berne

Loi sur la protection de la nature 15 septembre 1992

Plan directeur cantonal, Fiche de Mesure R_04

Naturschutzgebiet 4.1.1.39, Hinteres Lauterbrunnental, Extrait du
procès verbal No 3804 du Conseil-exécutif du Canton de Berne,
21 Juin 1960

Naturschutzgebiet 4.1.1.206, Wengernalp, Extrait du procès-verbal No
3502 du Conseil-exécutif du Canton de Berne, 22 décembre 1999

Plan directeur région Oberland Ost (2004)

**Management Plan for the Jungfrau-Aletsch-Bietschhorn
UNESCO World Heritage Site**

(including World Heritage Site 2001, nominated area 2006, associated communes
in the World Heritage region)

Charter of Kondordiplatz

Declaration of Signature of the Charter by Additional Communes

Annual hunting reserves report 2004

Annual records of 2004, collected by the cantons by order of the Swiss Agency for the Environment, Forests and Landscape (SAEFL)

Data base: www.wild.unizh.ch/jagdst/

**Recensement des lagopèdes alpins et des tétras lyres en 2004 dans une
sélection de régions des Alpes suisses**

Analysis Report - Station ornithologique suisse de Sempach,
2005

List of slides (lightly modified list of Chapter 7a)

For all of these slides, the non exclusive cession of rights are well ordered (see chapter 7a, including the 2 additional slides)

The contributions of world natural heritage sites to sustainable regional development – two case studies from the north and the south

Scientific publication in the Journal of alpine research, September 2004 (Urs Wiesmann, Karina Liechti)

Jungfrau-Aletsch-Bietschhorn

First UNESCO World Natural
Heritage of the Alps

Further information about the nominated area

Supplement 13/14/15

Jungfrau-Aletsch-Bietschhorn

First UNESCO World Natural
Heritage of the Alps

**Further information about
the nominated area**

List of Vascular Plants, October 2005

Mapping areas about Welten/Sutter: 561, 565, 566, 567, 568, 581, 583, 584, 586, 596, 598, 599, 704, 705, 706, 707, 715, 716, 717, 718, 791, 798, 799
1787 species

<i>Abies alba</i> Mill.	<i>Ajuga chamaepitys</i> (L.) Schreb.	<i>Androsace pubescens</i> DC.
<i>Acer campestre</i> L.	<i>Ajuga genevensis</i> L.	<i>Androsace vandellii</i> (Turra) Chiov.
<i>Acer opalus</i> Mill.	<i>Ajuga pyramidalis</i> L.	<i>Androsace vitaliana</i> (L.) Lapeyr.
<i>Acer platanoides</i> L.	<i>Ajuga reptans</i> L.	<i>Anemone narcissiflora</i> L.
<i>Acer pseudoplatanus</i> L.	<i>Alchemilla alpina</i> aggr.	<i>Anemone nemorosa</i> L.
<i>Achillea atrata</i> L.	<i>Alchemilla conjuncta</i> aggr. auct. helv.	<i>Angelica sylvestris</i> L.
<i>Achillea macrophylla</i> L.	<i>Alchemilla coriacea</i> aggr. auct. helv.	<i>Anogramma leptophylla</i> (L.) Link
<i>Achillea millefolium</i> L.	<i>Alchemilla fissa</i> aggr.	<i>Antennaria carpatica</i> (Wahlenb.) Bluff & Fing
<i>Achillea moschata</i> Wulfen	<i>Alchemilla glabra</i> aggr.	<i>Antennaria dioica</i> (L.) Gaertn.
<i>Achillea nana</i> L.	<i>Alchemilla hybrida</i> aggr. auct. helv.	<i>Anthemis arvensis</i> L.
<i>Achillea nobilis</i> L.	<i>Alchemilla pentaphylla</i> L.	<i>Anthemis cotula</i> L.
<i>Achillea ptarmica</i> L.	<i>Alchemilla splendens</i> aggr.	<i>Anthemis tinctoria</i> L.
<i>Achillea roseoalba</i> Ehrend.	<i>Alchemilla vulgaris</i> aggr. sensu Welten & S	<i>Anthericum liliago</i> L.
<i>Achillea setacea</i> Waldst. & Kit.	<i>Alisma plantago-aquatica</i> L.	<i>Anthericum ramosum</i> L.
<i>Achillea stricta</i> Gremli	<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	<i>Anthoxanthum alpinum</i> Á. & D. Löve
<i>Achillea tomentosa</i> L.	<i>Allium angulosum</i> L.	<i>Anthoxanthum odoratum</i> L.
<i>Achnatherum calamagrostis</i> (L.) P. Beauv.	<i>Allium carinatum</i> L. s.str.	<i>Anthriscus caucalis</i> M. Bieb.
<i>Acinos alpinus</i> (L.) Moench	<i>Allium oleraceum</i> L.	<i>Anthriscus cerefolium</i> (L.) Hoffm.
<i>Acinos arvensis</i> (Lam.) Dandy	<i>Allium schoenoprasum</i> L.	<i>Anthriscus nitida</i> (Wahlenb.) Hazsl.
<i>Aconitum napellus</i> aggr.	<i>Allium scorodoprasum</i> L.	<i>Anthriscus sylvestris</i> (L.) Hoffm.
<i>Aconitum paniculatum</i> auct.	<i>Allium senescens</i> subsp. <i>montanum</i> (Fr.) F	<i>Anthyllis alpestris</i> Hegetschw.
<i>Aconitum variegatum</i> auct.	<i>Allium sphaerocephalon</i> L.	<i>Anthyllis cherleri</i> Brügger
<i>Aconitum vulparia</i> aggr. sensu Welten & S	<i>Allium sphaerocephalon</i> L.	<i>Anthyllis vulgaris</i> (W. D. J. Koch) A. Kern.
<i>Aconitum x platanifolium</i> Degen & Gáyér	<i>Allium ursinum</i> L.	<i>Anthyllis vulneraria</i> L. s.str.
<i>Actaea spicata</i> L.	<i>Allium victorialis</i> L.	<i>Apera interrupta</i> (L.) P. Beauv.
<i>Adenostyles alliariae</i> (Gouan) A. Kern.	<i>Allium vineale</i> L.	<i>Apera spica-venti</i> (L.) P. Beauv.
<i>Adenostyles glabra</i> (Mill.) DC.	<i>Alnus glutinosa</i> (L.) Gaertn.	<i>Aphanes arvensis</i> L.
<i>Adenostyles leucophylla</i> (Willd.) Rchb.	<i>Alnus incana</i> (L.) Moench	<i>Aphanes microcarpa</i> auct.
<i>Adonis aestivalis</i> L.	<i>Alnus viridis</i> (Chaix) DC.	<i>Aposeris foetida</i> (L.) Less.
<i>Adonis flammea</i> Jacq.	<i>Alopecurus aequalis</i> Sobol.	<i>Aquilegia alpina</i> L.
<i>Adoxa moschatellina</i> L.	<i>Alopecurus pratensis</i> L.	<i>Aquilegia atrata</i> W. D. J. Koch
<i>Aegopodium podagraria</i> L.	<i>Althaea hirsuta</i> L.	<i>Aquilegia vulgaris</i> L.
<i>Aethionema saxatile</i> (L.) R. Br.	<i>Alyssum alyssoides</i> (L.) L.	<i>Arabidopsis thaliana</i> (L.) Heynh.
<i>Aethusa cynapium</i> L.	<i>Amaranthus albus</i> L.	<i>Arabis alpina</i> L. s.str.
<i>Agrimonia eupatoria</i> L.	<i>Amaranthus hybridus</i> auct.	<i>Arabis auriculata</i> Lam.
<i>Agrimonia procera</i> Wallr.	<i>Amaranthus lividus</i> auct. helv.	<i>Arabis brassica</i> (Leers) Rauschert
<i>Agropyron caninum</i> (L.) P. Beauv.	<i>Amaranthus retroflexus</i> L.	<i>Arabis caerulea</i> (All.) Haenke
<i>Agropyron intermedium</i> (Host) P. Beauv.	<i>Amelanchier ovalis</i> Medik.	<i>Arabis ciliata</i> Clairv.
<i>Agropyron pungens</i> (Pers.) Roem. & Schultze	<i>Anacamptis pyramidalis</i> (L.) Rich.	<i>Arabis glabra</i> (L.) Bernh.
<i>Agropyron repens</i> (L.) P. Beauv.	<i>Anagallis arvensis</i> L.	<i>Arabis hirsuta</i> (L.) Scop.
<i>Agrostemma githago</i> L.	<i>Anchusa arvensis</i> (L.) M. Bieb.	<i>Arabis muricola</i> Jord.
<i>Agrostis alpina</i> Scop.	<i>Anchusa azurea</i> auct.	<i>Arabis nova</i> Vill.
<i>Agrostis canina</i> L.	<i>Anchusa officinalis</i> L.	<i>Arabis pumila</i> auct.
<i>Agrostis gigantea</i> Roth	<i>Andromeda polifolia</i> L.	<i>Arabis sagittata</i> (Bertol.) DC.
<i>Agrostis rupestris</i> All.	<i>Androsace alpina</i> (L.) Lam.	<i>Arabis serpillifolia</i> Vill.
<i>Agrostis schleicheri</i> Jord. & Verl.	<i>Androsace carnea</i> aggr.	<i>Arabis soyeri</i> subsp. <i>subcoriacea</i> (Gren.) Bre
<i>Agrostis schraderiana</i> Bech.	<i>Androsace chamaejasme</i> Wulfen	<i>Arabis turrita</i> L.
<i>Agrostis stolonifera</i> L.	<i>Androsace helvetica</i> (L.) All.	<i>Arctium lappa</i> L.
<i>Agrostis tenuis</i> Sibth.	<i>Androsace maxima</i> L.	<i>Arctium minus</i> Bernh. s.l.
<i>Aira caryophylla</i> L.	<i>Androsace obtusifolia</i> All.	<i>Arctium nemorosum</i> Lej.

<i>Arctium tomentosum</i> Mill.	<i>Astrantia minor</i> L.	<i>Bufonia paniculata</i> Dubois
<i>Arctostaphylos alpina</i> (L.) Spreng.	<i>Athamanta cretensis</i> L.	<i>Buglossoides arvensis</i> (L.) I. M. Johnst.
<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	<i>Athyrium distentifolium</i> Opiz	<i>Buglossoides arvensis</i> (L.) I. M. Johnst.
<i>Arenaria biflora</i> L.	<i>Athyrium filix-femina</i> (L.) Roth	<i>Bulbocodium vernum</i> L.
<i>Arenaria ciliata</i> L.	<i>Atriplex latifolia</i> Wahlenb.	<i>Bunias erucago</i> L.
<i>Arenaria leptoclados</i> (Rchb.) Guss.	<i>Atriplex patula</i> L.	<i>Bunias orientalis</i> L.
<i>Arenaria marschlinii</i> W. D. J. Koch	<i>Atropa bella-donna</i> L.	<i>Bunias orientalis</i> L.
<i>Arenaria multicaulis</i> L.	<i>Avena fatua</i> L.	<i>Bunium bulbocastanum</i> L.
<i>Arenaria serpyllifolia</i> L.	<i>Avena sativa</i> L. s.str.	<i>Buphthalmum salicifolium</i> L.
<i>Armeria alpina</i> Willd. s.str.	<i>Avenella flexuosa</i> (L.) Drejer	<i>Bupleurum falcatum</i> L. s.l.
<i>Arnica montana</i> L.	<i>Avenula pratensis</i> (L.) Dumort.	<i>Bupleurum ranunculoides</i> L. s.l.
<i>Arrhenatherum elatius</i> (L.) J. & C. Presl	<i>Avenula pubescens</i> (Huds.) Dumort.	<i>Bupleurum rotundifolium</i> L.
<i>Artemisia absinthium</i> L.	<i>Avenula pubescens</i> (Huds.) Dumort.	<i>Bupleurum rotundifolium</i> L.
<i>Artemisia borealis</i> Pall.	<i>Avenula versicolor</i> (Vill.) M. Lainz	<i>Bupleurum stellatum</i> L.
<i>Artemisia campestris</i> L.	<i>Ballota nigra</i> L. s.str.	<i>Calamagrostis arundinacea</i> (L.) Roth
<i>Artemisia genipi</i> Weber	<i>Ballota nigra</i> subsp. foetida (Vis.) Hayek	<i>Calamagrostis epigejos</i> (L.) Roth
<i>Artemisia mutellina</i> Vill.	<i>Barbarea intermedia</i> Boreau	<i>Calamagrostis pseudophragmites</i> (Haller f.) I
<i>Artemisia vallesiaca</i> All.	<i>Barbarea vulgaris</i> R. Br.	<i>Calamagrostis varia</i> (Schrad.) Host
<i>Artemisia vulgaris</i> L.	<i>Bartsia alpina</i> L.	<i>Calamagrostis villosa</i> (Chaix) J. F. Gmel.
<i>Arum maculatum</i> L.	<i>Bellis perennis</i> L.	<i>Calamintha glandulosa</i> (Req.) Benth.
<i>Aruncus dioicus</i> (Walter) Fernald	<i>Berberis vulgaris</i> L.	<i>Calamintha nepetoides</i> Jord.
<i>Asarum europaeum</i> L.	<i>Berteroa incana</i> (L.) DC.	<i>Calamintha sylvatica</i> Bromf.
<i>Asparagus officinalis</i> L.	<i>Betonica alopecuroides</i> L.	<i>Calendula arvensis</i> L.
<i>Asperugo procumbens</i> L.	<i>Betonica hirsuta</i> L.	<i>Callitriche cophocarpa</i> Sendtn.
<i>Asperula aristata</i> L. f.	<i>Betonica officinalis</i> L. s.l.	<i>Callitriche hamulata</i> W. D. J. Koch
<i>Asperula cynanchica</i> L.	<i>Betula pendula</i> Roth	<i>Callitriche palustris</i> L.
<i>Asperula cynanchica</i> L.	<i>Betula pubescens</i> Ehrh.	<i>Calluna vulgaris</i> (L.) Hull
<i>Asperula taurina</i> L.	<i>Bidens tripartita</i> L. s.str.	<i>Caltha palustris</i> L.
<i>Asphodelus albus</i> Mill.	<i>Bifora radians</i> M. Bieb.	<i>Calystegia sepium</i> (L.) R. Br.
<i>Asplenium adiantum-nigrum</i> L.	<i>Biscutella laevigata</i> L.	<i>Camelina alyssum</i> (Mill.) Thell.
<i>Asplenium fontanum</i> (L.) Bernh.	<i>Blechnum spicatum</i> (L.) Roth	<i>Camelina microcarpa</i> DC.
<i>Asplenium ruta-muraria</i> L.	<i>Blysmus compressus</i> (L.) Link	<i>Camelina sativa</i> (L.) Crantz
<i>Asplenium septentrionale</i> (L.) Hoffm.	<i>Bothriochloa ischaemum</i> (L.) Keng	<i>Camelina sativa</i> subsp. pilosa (DC.) N. W. Zi
<i>Asplenium trichomanes</i> L.	<i>Botrychium lunaria</i> (L.) Sw.	<i>Campanula barbata</i> L.
<i>Asplenium viride</i> Huds.	<i>Botrychium simplex</i> E. Hitchc.	<i>Campanula bononiensis</i> L.
<i>Asplenium x breynii</i> auct.	<i>Botrychium virginianum</i> (L.) Sw.	<i>Campanula cenisia</i> L.
<i>Aster alpinus</i> L.	<i>Brachypodium pinnatum</i> aggr.	<i>Campanula cochlearifolia</i> Lam.
<i>Aster bellidiflorus</i> (L.) Scop.	<i>Brachypodium sylvaticum</i> (Huds.) P. Beauv.	<i>Campanula excisa</i> Murrill
<i>Aster linosyris</i> (L.) Bernh.	<i>Briza media</i> L.	<i>Campanula glomerata</i> L. s.l.
<i>Aster novi-belgii</i> aggr.	<i>Bromus arvensis</i> L.	<i>Campanula latifolia</i> L.
<i>Astragalus alpinus</i> L.	<i>Bromus benekenii</i> (Lange) Trimen	<i>Campanula patula</i> L. s.l.
<i>Astragalus australis</i> (L.) Lam.	<i>Bromus commutatus</i> Schrad.	<i>Campanula persicifolia</i> L.
<i>Astragalus cicer</i> L.	<i>Bromus erectus</i> Huds. s.str.	<i>Campanula rapunculoides</i> L.
<i>Astragalus exscapus</i> L.	<i>Bromus hordeaceus</i> L.	<i>Campanula rapunculus</i> L.
<i>Astragalus frigidus</i> (L.) A. Gray	<i>Bromus inermis</i> Leyss.	<i>Campanula rhomboidalis</i> L.
<i>Astragalus glycyphyllos</i> L.	<i>Bromus japonicus</i> Thunb.	<i>Campanula rotundifolia</i> L.
<i>Astragalus leontinus</i> Wulfen	<i>Bromus racemosus</i> L. s.str.	<i>Campanula scheuchzeri</i> Vill.
<i>Astragalus monspessulanus</i> L.	<i>Bromus ramosus</i> Huds.	<i>Campanula spicata</i> L.
<i>Astragalus monspessulanus</i> L.	<i>Bromus squarrosus</i> L.	<i>Campanula thyrsoides</i> L.
<i>Astragalus monspessulanus</i> L.	<i>Bromus sterilis</i> L.	<i>Campanula trachelium</i> L.
<i>Astragalus onobrychis</i> L.	<i>Bromus tectorum</i> L.	<i>Cannabis sativa</i> L.
<i>Astragalus penduliflorus</i> Lam.	<i>Bryonia alba</i> L.	<i>Capsella bursa-pastoris</i> (L.) Medik.
<i>Astrantia major</i> L.	<i>Buddleja davidii</i> Franch.	<i>Capsella rubella</i> Reut.

<i>Cardamine alpina</i> Willd.	<i>Carex nigra</i> (L.) Reichard	<i>Cerastium latifolium</i> L.
<i>Cardamine amara</i> L.	<i>Carex oederi</i> auct.	<i>Cerastium pedunculatum</i> Gaudin
<i>Cardamine flexuosa</i> With.	<i>Carex ornithopoda</i> Willd.	<i>Cerastium pumilum</i> Curtis
<i>Cardamine hirsuta</i> L.	<i>Carex ornithopodioides</i> Hausm.	<i>Cerastium semidecandrum</i> L.
<i>Cardamine impatiens</i> L.	<i>Carex otrubae</i> Podp.	<i>Cerastium uniflorum</i> Clairv.
<i>Cardamine pratensis</i> L.	<i>Carex pairae</i> F. W. Schultz	<i>Cerintho glabra</i> Mill.
<i>Cardamine resedifolia</i> L.	<i>Carex pallescens</i> L.	<i>Ceterach officinarum</i> Willd.
<i>Cardaminopsis arenosa</i> (L.) Hayek s.str.	<i>Carex panicea</i> L.	<i>Chaenorhinum minus</i> (L.) Lange
<i>Cardaria draba</i> (L.) Desv.	<i>Carex paniculata</i> L.	<i>Chaerophyllum aureum</i> L.
<i>Carduus crispus</i> L.	<i>Carex parviflora</i> Host	<i>Chaerophyllum hirsutum</i> L.
<i>Carduus defloratus</i> L. s.str.	<i>Carex pauciflora</i> Lightf.	<i>Chaerophyllum temulum</i> L.
<i>Carduus defloratus</i> subsp. <i>rhaeticus</i> (DC.)	<i>Carex paupercula</i> Michx.	<i>Chaerophyllum villarsii</i> W. D. J. Koch
<i>Carduus nutans</i> L. s.l.	<i>Carex pendula</i> Huds.	<i>Chamorchis alpina</i> (L.) Rich.
<i>Carduus personata</i> (L.) Jacq.	<i>Carex pilosa</i> Scop.	<i>Chelidonium majus</i> L.
<i>Carex acutiformis</i> Ehrh.	<i>Carex pilulifera</i> L.	<i>Chenopodium album</i> L.
<i>Carex alba</i> Scop.	<i>Carex pulicaris</i> L.	<i>Chenopodium bonus-henricus</i> L.
<i>Carex aterrima</i> Hoppe	<i>Carex punctata</i> Gaudin	<i>Chenopodium botrys</i> L.
<i>Carex atrata</i> L. s.str.	<i>Carex remota</i> L.	<i>Chenopodium ficifolium</i> Sm.
<i>Carex atrofusca</i> Schkuhr	<i>Carex rupestris</i> All.	<i>Chenopodium foliosum</i> Asch.
<i>Carex bicolor</i> All.	<i>Carex sempervirens</i> Vill.	<i>Chenopodium glaucum</i> L.
<i>Carex brachystachys</i> Schrank	<i>Carex spicata</i> Huds.	<i>Chenopodium hybridum</i> L.
<i>Carex brunnescens</i> (Pers.) Poir.	<i>Carex sylvatica</i> Huds.	<i>Chenopodium murale</i> L.
<i>Carex canescens</i> L.	<i>Carex tomentosa</i> L.	<i>Chenopodium opulifolium</i> Schrad.
<i>Carex capillaris</i> L.	<i>Carex vesicaria</i> L.	<i>Chenopodium polyspermum</i> L.
<i>Carex caryophyllea</i> Latourr.	<i>Carex vulpina</i> L.	<i>Chenopodium rubrum</i> L.
<i>Carex curvula</i> All. s.str.	<i>Carlina acaulis</i> L. s.l.	<i>Chenopodium rubrum</i> L.
<i>Carex curvula</i> subsp. <i>rosae</i> Gilomen	<i>Carlina vulgaris</i> aggr.	<i>Chenopodium vulvaria</i> L.
<i>Carex davalliana</i> Sm.	<i>Carpesium cernuum</i> L.	<i>Chondrilla juncea</i> L.
<i>Carex diandra</i> Schrank	<i>Carum carvi</i> L.	<i>Chrysosplenium alternifolium</i> L.
<i>Carex digitata</i> L.	<i>Castanea sativa</i> Mill.	<i>Cicerbita alpina</i> (L.) Wallr.
<i>Carex dioica</i> L.	<i>Caucalis platycarpus</i> L.	<i>Cichorium intybus</i> L.
<i>Carex distans</i> L.	<i>Caucalis platycarpus</i> L.	<i>Cicuta virosa</i> L.
<i>Carex distans</i> L.	<i>Centaurea cyanus</i> L.	<i>Circaea alpina</i> L.
<i>Carex echinata</i> Murray	<i>Centaurea jacea</i> L. s.str.	<i>Circaea lutetiana</i> L.
<i>Carex elata</i> sensu Welten & Sutter	<i>Centaurea jacea</i> subsp. <i>angustifolia</i> Greml	<i>Circaea x intermedia</i> Ehrh.
<i>Carex elongata</i> L.	<i>Centaurea montana</i> L.	<i>Cirsium acaule</i> Scop.
<i>Carex ericetorum</i> Pollich	<i>Centaurea scabiosa</i> L. s.str.	<i>Cirsium arvense</i> (L.) Scop.
<i>Carex ferruginea</i> Scop.	<i>Centaurea scabiosa</i> subsp. <i>alpestris</i> (Hegn	<i>Cirsium eriophorum</i> (L.) Scop. s.l.
<i>Carex firma</i> Host	<i>Centaurea scabiosa</i> subsp. <i>tenuifolia</i> (Gau	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex flacca</i> Schreb.	<i>Centaurea triumfettii</i> All.	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex flava</i> L.	<i>Centaurea valesiaca</i> (DC.) Jord.	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex foetida</i> All.	<i>Centaurea valesiaca</i> (DC.) Jord.	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex frigida</i> All.	<i>Centaureum erythraea</i> Rafn	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex halleriana</i> Asso	<i>Centaureum pulchellum</i> (Sw.) Druce	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex hirta</i> L.	<i>Cephalanthera damasonium</i> (Mill.) Druce	<i>Cirsium heterophyllum</i> (L.) Hill
<i>Carex hirta</i> L.	<i>Cephalanthera longifolia</i> (L.) Fritsch	<i>Cirsium oleraceum</i> (L.) Scop.
<i>Carex hostiana</i> DC.	<i>Cerastium alpinum</i> L. s.l.	<i>Cirsium palustre</i> (L.) Scop.
<i>Carex humilis</i> Leyss.	<i>Cerastium arvense</i> L. s.str.	<i>Cirsium spinosissimum</i> (L.) Scop.
<i>Carex lachenalii</i> Schkuhr	<i>Cerastium arvense</i> subsp. <i>strictum</i> (W. D.	<i>Cirsium vulgare</i> (Savi) Ten.
<i>Carex lepidocarpa</i> Tausch	<i>Cerastium brachypetalum</i> Pers. s.str.	<i>Cleistogenes serotina</i> (L.) Keng
<i>Carex leporina</i> L.	<i>Cerastium cerastoides</i> (L.) Britton	<i>Clematis alpina</i> (L.) Mill.
<i>Carex limosa</i> L.	<i>Cerastium fontanum</i> Baumg. s.str.	<i>Clematis vitalba</i> L.
<i>Carex liparocarpos</i> Gaudin	<i>Cerastium glomeratum</i> Thuill.	<i>Clinopodium vulgare</i> L.
<i>Carex montana</i> L.	<i>Cerastium holosteoides</i> Fr.	<i>Clypeola jonthlaspi</i> L.

<i>Cochlearia pyrenaica</i> DC.	<i>Cystopteris dickieana</i> R. Sim	<i>Dryopteris villarii</i> (Bellardi) Schinz & Thell.
<i>Coeloglossum viride</i> (L.) Hartm.	<i>Cystopteris fragilis</i> (L.) Bernh.	<i>Echinochloa crus-galli</i> (L.) P. Beauv.
<i>Colchicum alpinum</i> DC.	<i>Cystopteris montana</i> (Lam.) Desv.	<i>Echinops sphaerocephalus</i> L.
<i>Colchicum alpinum</i> DC.	<i>Cystopteris regia</i> auct.	<i>Echium vulgare</i> L.
<i>Colchicum autumnale</i> L.	<i>Dactylis glomerata</i> L.	<i>Eleocharis mamillata</i> H. Lindb.
<i>Colutea arborescens</i> L.	<i>Dactylorhiza cruenta</i> (O. F. Müll.) Soó	<i>Eleocharis mamillata</i> subsp. <i>austriaca</i> (Haye)
<i>Conium maculatum</i> L.	<i>Dactylorhiza incarnata</i> (L.) Soó	<i>Eleocharis palustris</i> (L.) Roem. & Schult.
<i>Consolida regalis</i> Gray	<i>Dactylorhiza maculata</i> (L.) Soó	<i>Eleocharis quinqueflora</i> (Hartmann) O. Schw
<i>Convallaria majalis</i> L.	<i>Dactylorhiza sambucina</i> (L.) Soó	<i>Eleocharis uniglumis</i> (Link) Schult.
<i>Convolvulus arvensis</i> L.	<i>Dactylorhiza traunsteineri</i> (Rchb.) Soó	<i>Elyna myosuroides</i> (Vill.) Fritsch
<i>Conyza canadensis</i> (L.) Cronquist	<i>Danthonia decumbens</i> (L.) DC.	<i>Empetrum hermaphroditum</i> Hagerup
<i>Corallorrhiza trifida</i> Châtel.	<i>Daphne alpina</i> L.	<i>Ephedra helvetica</i> C. A. Mey.
<i>Cornus sanguinea</i> L.	<i>Daphne mezereum</i> L.	<i>Epilobium alpestre</i> (Jacq.) Krock.
<i>Coronilla emerus</i> L.	<i>Datura stramonium</i> L.	<i>Epilobium alsinifolium</i> Vill.
<i>Coronilla minima</i> L.	<i>Daucus carota</i> L.	<i>Epilobium anagallidifolium</i> Lam.
<i>Coronilla vaginalis</i> Lam.	<i>Delphinium elatum</i> L.	<i>Epilobium angustifolium</i> L.
<i>Coronilla varia</i> L.	<i>Dentaria pentaphyllos</i> L.	<i>Epilobium collinum</i> C. C. Gmel.
<i>Corydalis intermedia</i> (L.) Mérat	<i>Deschampsia cespitosa</i> (L.) P. Beauv.	<i>Epilobium dodonaei</i> Vill.
<i>Corydalis solida</i> (L.) Clairv.	<i>Descurainia sophia</i> (L.) Prantl	<i>Epilobium duriaei</i> Godr.
<i>Corylus avellana</i> L.	<i>Dianthus armeria</i> L.	<i>Epilobium fleischeri</i> Hochst.
<i>Cotinus coggygria</i> Scop.	<i>Dianthus carthusianorum</i> L. s.l.	<i>Epilobium hirsutum</i> L.
<i>Cotoneaster integerrimus</i> Medik.	<i>Dianthus sylvestris</i> Wulfen	<i>Epilobium montanum</i> L.
<i>Cotoneaster tomentosus</i> Lindl.	<i>Dianthus sylvestris</i> Wulfen	<i>Epilobium nutans</i> F. W. Schmidt
<i>Crataegus laevigata</i> (Poir.) DC.	<i>Dianthus sylvestris</i> Wulfen	<i>Epilobium obscurum</i> Schreb.
<i>Crataegus monogyna</i> aggr.	<i>Dianthus sylvestris</i> Wulfen	<i>Epilobium palustre</i> L.
<i>Crepis alpestris</i> (Jacq.) Tausch	<i>Dianthus sylvestris</i> Wulfen	<i>Epilobium parviflorum</i> Schreb.
<i>Crepis aurea</i> (L.) Cass.	<i>Dictamnus albus</i> L.	<i>Epilobium roseum</i> Schreb.
<i>Crepis biennis</i> L.	<i>Digitalis grandiflora</i> Mill.	<i>Epilobium tetragonum</i> L. s.str.
<i>Crepis capillaris</i> Wallr.	<i>Digitalis lutea</i> L.	<i>Epipactis atrorubens</i> (Hoffm.) Besser
<i>Crepis conyzifolia</i> (Gouan) A. Kern.	<i>Digitaria ischaemum</i> (Schreb.) Muhl.	<i>Epipactis helleborine</i> aggr.
<i>Crepis foetida</i> L.	<i>Digitaria sanguinalis</i> (L.) Scop.	<i>Epipactis palustris</i> (L.) Crantz
<i>Crepis nicaeensis</i> Pers.	<i>Diphysium alpinum</i> (L.) Rothm.	<i>Epipogium aphyllum</i> Sw.
<i>Crepis paludosa</i> (L.) Moench	<i>Diplotaxis muralis</i> (L.) DC.	<i>Equisetum arvense</i> L.
<i>Crepis pontana</i> (L.) Dalla Torre	<i>Diplotaxis tenuifolia</i> (L.) DC.	<i>Equisetum fluviatile</i> L.
<i>Crepis pygmaea</i> L.	<i>Dipsacus fullonum</i> L.	<i>Equisetum palustre</i> L.
<i>Crepis pyrenaica</i> (L.) Greuter	<i>Dipsacus pilosus</i> L.	<i>Equisetum pratense</i> Ehrh.
<i>Crepis tectorum</i> L.	<i>Doronicum clusii</i> (All.) Tausch	<i>Equisetum sylvaticum</i> L.
<i>Crepis terglouensis</i> (Hacq.) A. Kern.	<i>Doronicum grandiflorum</i> Lam.	<i>Equisetum telmateia</i> Ehrh.
<i>Crepis vesicaria</i> subsp. <i>taraxacifolia</i> (Thuill)	<i>Draba aizoides</i> L.	<i>Equisetum variegatum</i> Schleich.
<i>Crocus albiflorus</i> Kit.	<i>Draba dubia</i> Suter	<i>Eragrostis minor</i> Host
<i>Cruciata laevipes</i> Opiz	<i>Draba fladnizensis</i> Wulfen	<i>Erica herbacea</i> L.
<i>Cruciata pedemontana</i> (Bellardi) Ehrend.	<i>Draba nemorosa</i> L.	<i>Erigeron acris</i> auct. s.l.
<i>Crupina vulgaris</i> Cass.	<i>Draba siliquosa</i> M. Bieb.	<i>Erigeron alpinus</i> L.
<i>Cryptogramma crispa</i> (L.) Hook.	<i>Draba tomentosa</i> Clairv.	<i>Erigeron annuus</i> (L.) Pers. s.l.
<i>Cuscuta epithymum</i> (L.) L.	<i>Dracocephalum ruyschiana</i> L.	<i>Erigeron atticus</i> Vill.
<i>Cuscuta europaea</i> L.	<i>Drosera anglica</i> Huds.	<i>Erigeron gaudinii</i> Brügger
<i>Cymbalaria muralis</i> P. Gaertn. & al.	<i>Drosera rotundifolia</i> L.	<i>Erigeron neglectus</i> A. Kern.
<i>Cynodon dactylon</i> (L.) Pers.	<i>Drosera x obovata</i> Mert. & W. D. J. Koch	<i>Erigeron polymorphus</i> Scop.
<i>Cynoglossum officinale</i> L.	<i>Dryas octopetala</i> L.	<i>Erigeron uniflorus</i> L.
<i>Cynosurus cristatus</i> L.	<i>Dryopteris austriaca</i> (Jacq.) Woyn.	<i>Erinus alpinus</i> L.
<i>Cynosurus echinatus</i> L.	<i>Dryopteris carthusiana</i> (Vill.) H. P. Fuchs	<i>Eriophorum angustifolium</i> Honck.
<i>Cyperus flavescens</i> L.	<i>Dryopteris expansa</i> (C. Presl) Fraser-Jenk	<i>Eriophorum gracile</i> Roth
<i>Cyperus fuscus</i> L.	<i>Dryopteris filix-mas</i> (L.) Schott	<i>Eriophorum latifolium</i> Hoppe
<i>Cypripedium calceolus</i> L.	<i>Dryopteris pseudomas</i> (Woll.) Holub & Po	<i>Eriophorum scheuchzeri</i> Hoppe

<i>Eriophorum vaginatum</i> L.	<i>Festuca arundinacea</i> Schreb. s.str.	<i>Galium palustre</i> L.
<i>Erodium cicutarium</i> (L.) L'Hér.	<i>Festuca curvula</i> Gaudin	<i>Galium pumilum</i> Murray
<i>Erodium cicutarium</i> subsp. <i>bipinnatum</i> (De) <i>Festuca gigantea</i> (L.) Vill.		<i>Galium rotundifolium</i> L.
<i>Erodium moschatum</i> (L.) L'Hér.	<i>Festuca halleri</i> All.	<i>Galium spurium</i> L.
<i>Erophila verna</i> aggr.	<i>Festuca heterophylla</i> Lam.	<i>Galium uliginosum</i> L.
<i>Eruca sativa</i> Mill.	<i>Festuca intercedens</i> (Hack.) Lüdi	<i>Galium verum</i> L. s.l.
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	<i>Festuca ovina</i> auct.	<i>Gentiana acaulis</i> L.
<i>Erucastrum nasturtiifolium</i> (Poir.) O. E. Sch	<i>Festuca pratensis</i> Huds. s.l.	<i>Gentiana asclepiadea</i> L.
<i>Eryngium alpinum</i> L.	<i>Festuca pulchella</i> Schrad. s.l.	<i>Gentiana bavarica</i> L.
<i>Erysimum cheiranthoides</i> L.	<i>Festuca quadriflora</i> Honck.	<i>Gentiana brachyphylla</i> Vill.
<i>Erysimum cheiri</i> (L.) Crantz	<i>Festuca rubra</i> aggr.	<i>Gentiana clusii</i> E. P. Perrier & Songeon
<i>Erysimum repandum</i> L.	<i>Festuca rupicaprina</i> (Hack.) A. Kern.	<i>Gentiana cruciata</i> L.
<i>Erysimum rhaeticum</i> (Hornem.) DC.	<i>Festuca trachyphylla</i> (Hack.) Krajina	<i>Gentiana lutea</i> L.
<i>Erysimum virgatum</i> Roth	<i>Festuca valesiaca</i> Gaudin	<i>Gentiana nivalis</i> L.
<i>Euonymus europaeus</i> L.	<i>Festuca varia</i> aggr.	<i>Gentiana orbicularis</i> Schur
<i>Euonymus europaeus</i> L.	<i>Festuca violacea</i> aggr.	<i>Gentiana punctata</i> L.
<i>Euonymus latifolius</i> Mill.	<i>Filago arvensis</i> L.	<i>Gentiana purpurea</i> L.
<i>Eupatorium cannabinum</i> L.	<i>Filago minima</i> (Sm.) Pers.	<i>Gentiana utriculosa</i> L.
<i>Euphorbia cyparissias</i> L.	<i>Filipendula ulmaria</i> (L.) Maxim.	<i>Gentiana verna</i> L.
<i>Euphorbia dulcis</i> L.	<i>Filipendula vulgaris</i> Moench	<i>Gentianella campestris</i> (L.) Börner s.l.
<i>Euphorbia exigua</i> L.	<i>Foeniculum vulgare</i> Mill.	<i>Gentianella ciliata</i> (L.) Borkh.
<i>Euphorbia falcata</i> L.	<i>Fragaria vesca</i> L.	<i>Gentianella germanica</i> (Willd.) Börner s.l.
<i>Euphorbia helioscopia</i> L.	<i>Fragaria viridis</i> Duchesne	<i>Gentianella ramosa</i> (Hegetschw.) Holub
<i>Euphorbia lathyris</i> L.	<i>Frangula alnus</i> Mill.	<i>Gentianella tenella</i> (Rottb.) Börner
<i>Euphorbia peplus</i> L.	<i>Fraxinus excelsior</i> L.	<i>Geranium bohemicum</i> L.
<i>Euphorbia platyphyllos</i> L.	<i>Fraxinus excelsior</i> L.	<i>Geranium columbinum</i> L.
<i>Euphorbia seguieriana</i> Neck. s.str.	<i>Fraxinus excelsior</i> L.	<i>Geranium dissectum</i> L.
<i>Euphorbia stricta</i> L.	<i>Fumana ericoides</i> (Cav.) Gand.	<i>Geranium divaricatum</i> Ehrh.
<i>Euphorbia verrucosa</i> L.	<i>Fumana procumbens</i> (Dunal) Gren. & God	<i>Geranium lucidum</i> L.
<i>Euphorbia virgata</i> Waldst. & Kit.	<i>Fumaria officinalis</i> L. s.l.	<i>Geranium molle</i> L.
<i>Euphrasia alpina</i> Lam.	<i>Fumaria vaillantii</i> Loisel.	<i>Geranium palustre</i> L.
<i>Euphrasia brevipila</i> Burnat & Gremli	<i>Gagea fistulosa</i> (DC.) Ker Gawl.	<i>Geranium phaeum</i> subsp. <i>lividum</i> (L'Hér.) Hc
<i>Euphrasia drosocalyx</i> Freyn	<i>Gagea lutea</i> (L.) Ker Gawl.	<i>Geranium pusillum</i> L.
<i>Euphrasia hirtella</i> Reut.	<i>Gagea minima</i> (L.) Ker Gawl.	<i>Geranium pyrenaicum</i> Burm. f.
<i>Euphrasia minima</i> Schleich.	<i>Gagea saxatilis</i> (Mert. & W. D. J. Koch) Sc	<i>Geranium rivulare</i> Vill.
<i>Euphrasia nemorosa</i> (Pers.) Wallr.	<i>Gagea villosa</i> (M. Bieb.) Sweet	<i>Geranium robertianum</i> L. s.str.
<i>Euphrasia pectinata</i> Ten.	<i>Galanthus nivalis</i> L.	<i>Geranium rotundifolium</i> L.
<i>Euphrasia picta</i> Wimm. s.str.	<i>Galeopsis ladanum</i> L.	<i>Geranium sanguineum</i> L.
<i>Euphrasia pulchella</i> A. Kern.	<i>Galeopsis ladanum</i> subsp. <i>angustifolia</i> (Hc	<i>Geranium sylvaticum</i> L.
<i>Euphrasia rostkoviana</i> auct. helv.	<i>Galeopsis speciosa</i> Mill.	<i>Geum montanum</i> L.
<i>Euphrasia rostkoviana</i> subsp. <i>montana</i> (Jo	<i>Galeopsis tetrahit</i> L.	<i>Geum reptans</i> L.
<i>Euphrasia salisburgensis</i> Hoppe	<i>Galeopsis tetrahit</i> L.	<i>Geum rivale</i> L.
<i>Euphrasia stricta</i> J. F. Lehm.	<i>Galinsoga ciliata</i> (Raf.) S. F. Blake	<i>Geum urbanum</i> L.
<i>Euphrasia tatarica</i> Spreng.	<i>Galinsoga parviflora</i> Cav.	<i>Glaucium flavum</i> Crantz
<i>Euphrasia versicolor</i> A. Kern.	<i>Galium anisophyllum</i> Vill.	<i>Glechoma hederacea</i> L. s.l.
<i>Fagopyrum esculentum</i> Moench	<i>Galium aparine</i> L.	<i>Globularia cordifolia</i> L.
<i>Fagus sylvatica</i> L.	<i>Galium boreale</i> L.	<i>Globularia nudicaulis</i> L.
<i>Fallopia convolvulus</i> (L.) Á. Löve	<i>Galium elongatum</i> C. Presl	<i>Globularia punctata</i> Lapeyr.
<i>Fallopia dumetorum</i> (L.) Holub	<i>Galium glaucum</i> L.	<i>Glyceria fluitans</i> (L.) R. Br.
<i>Festuca airoides</i> Lam.	<i>Galium lucidum</i> All.	<i>Glyceria plicata</i> (Fr.) Fr.
<i>Festuca alpina</i> Suter	<i>Galium megalospermum</i> All.	<i>Gnaphalium hoppeanum</i> W. D. J. Koch
<i>Festuca altissima</i> All.	<i>Galium mollugo</i> aggr.	<i>Gnaphalium luteoalbum</i> L.
<i>Festuca amethystina</i> L.	<i>Galium odoratum</i> (L.) Scop.	<i>Gnaphalium norvegicum</i> Gunnerus

Gnaphalium supinum L.	Hieracium villosum Jacq.	Juncus trifidus L.
Gnaphalium sylvaticum L.	Hippocrepis comosa L.	Juncus triglumis L.
Gnaphalium uliginosum L.	Hippophaë rhamnoides L.	Juniperus communis L. s.str.
Goodyera repens (L.) R. Br.	Holcus lanatus L.	Juniperus communis subsp. alpina (Suter) C
Gymnadenia conopsea (L.) R. Br.	Holcus mollis L.	Juniperus sabina L.
Gymnadenia odoratissima (L.) Rich.	Holosteum umbellatum L.	Kernera saxatilis (L.) Sweet
Gymnocarpium dryopteris (L.) Newman	Homogyne alpina (L.) Cass.	Knautia arvensis (L.) Coult.
Gymnocarpium robertianum (Hoffm.) Newr	Hordelymus europaeus (L.) Harz	Knautia arvensis (L.) Coult.
Gypsophila repens L.	Hordelymus europaeus (L.) Harz	Knautia dipsacifolia Kreutzer s.str.
Hedera helix L.	Hordeum distichon L.	Knautia purpurea (Vill.) Borbás
Hedysarum hedysaroides (L.) Schinz & Th	Hordeum leporinum Link	Kobresia simpliciuscula (Wahlenb.) Mack.
Helianthemum alpestre (Jacq.) DC.	Hordeum murinum L. s.str.	Koeleria hirsuta Gaudin
Helianthemum grandiflorum (Scop.) DC.	Hordeum vulgare L. s.l.	Koeleria macrantha (Ledeb.) Schult.
Helianthemum nummularium (L.) Mill. s.str	Hornungia petraea (L.) Rchb.	Koeleria pyramidata (Lam.) P. Beauv.
Helianthemum ovatum (Viv.) Dunal	Humulus lupulus L.	Koeleria vallesiana (Honck.) Gaudin
Helianthemum ovatum (Viv.) Dunal	Huperzia selago (L.) Schrank & Mart.	Laburnum alpinum (Mill.) Bercht. & J. Presl
Helianthemum tomentosum (Scop.) Spreng	Hutchinsia alpina (L.) R. Br.	Lactuca perennis L.
Heliotropium europaeum L.	Hutchinsia brevicaulis Spreng.	Lactuca saligna L.
Hemerocallis fulva (L.) L.	Hyoscyamus niger L.	Lactuca serriola L.
Hepatica nobilis Schreb.	Hypericum hirsutum L.	Lactuca viminea (L.) J. & C. Presl
Heracleum sphondylium L. s.str.	Hypericum humifusum L.	Lactuca virosa L.
Heracleum sphondylium subsp. elegans (C	Hypericum maculatum Crantz s.str.	Lamiastrum flavidum (F. Herm.) Ehrend.
Herminium monorchis (L.) R. Br.	Hypericum montanum L.	Lamiastrum montanum (Pers.) Ehrend.
Herniaria alpina Chaix	Hypericum perforatum L. s.str.	Lamium amplexicaule L.
Herniaria glabra L.	Hypericum tetrapterum Fr.	Lamium hybridum Vill.
Hieracium alpinum L.	Hypericum x desetangii Lamotte	Lamium maculatum L.
Hieracium amplexicaule L.	Hypochaeris maculata L.	Lamium purpureum L.
Hieracium aurantiacum L.	Hypochaeris radicata L.	Lappula deflexa (Wahlenb.) Garcke
Hieracium bifidum Hornem.	Hypochaeris uniflora Vill.	Lappula squarrosa (Retz.) Dumort.
Hieracium bupleuroides C. C. Gmel.	Hyssopus officinalis L.	Lapsana communis L. s.l.
Hieracium cymosum L.	Iberis amara L.	Larix decidua Mill.
Hieracium glaciale Reyn.	Iberis pinnata L.	Laserpitium halleri Crantz
Hieracium glanduliferum Hoppe aggr.	Ilex aquifolium L.	Laserpitium latifolium L.
Hieracium glaucinum Jord.	Impatiens glandulifera Royle	Laserpitium siler L.
Hieracium glaucum All.	Impatiens noli-tangere L.	Lathraea squamaria L.
Hieracium humile Jacq.	Impatiens parviflora DC.	Lathyrus aphaca L.
Hieracium intybaceum All.	Inula conyza DC.	Lathyrus heterophyllus L.
Hieracium lachenalii C. C. Gmel.	Inula salicina L.	Lathyrus hirsutus L.
Hieracium lactucella Wallr.	Iris x germanica L.	Lathyrus latifolius L.
Hieracium laevigatum Willd.	Isatis tinctoria L.	Lathyrus pratensis L.
Hieracium morisianum Rchb. f.	Jasione montana L.	Lathyrus sphaericus Retz.
Hieracium pallidum aggr.	Juglans regia L.	Lathyrus sylvestris L.
Hieracium peletierianum Mérat	Juncus alpinoarticulatus Chaix	Lathyrus tuberosus L.
Hieracium pictum Pers.	Juncus articulatus L.	Lathyrus vernus (L.) Bernh. s.str.
Hieracium pilosella L.	Juncus bufonius L.	Leersia oryzoides (L.) Sw.
Hieracium piloselloides Vill.	Juncus compressus Jacq.	Lemna minor L.
Hieracium prenanthoides Vill.	Juncus conglomeratus L.	Leontodon autumnalis L.
Hieracium sabaudum L.	Juncus effusus L.	Leontodon helveticus Mérat
Hieracium saussureoides (Arv.-Touv.) Arv.	Juncus filiformis L.	Leontodon hispidus auct.
Hieracium staticifolium All.	Juncus inflexus L.	Leontodon hyoseroides Rchb.
Hieracium sylvaticum (L.) L.	Juncus jacquinii L.	Leontodon montanus Lam.
Hieracium tomentosum (L.) L.	Juncus subnodulosus Schrank	Leontodon pseudocrispus Sch. Bip.
Hieracium umbellatum L.	Juncus tenuis Willd.	Leontopodium alpinum Cass.

Lepidium campestre (L.) R. Br.	Luzula sudetica aggr.	Minuartia recurva (All.) Schinz & Thell.
Lepidium densiflorum Schrad.	Luzula sylvatica aggr.	Minuartia sedoides (L.) Hiern
Lepidium ruderales L.	Lychnis alpina L.	Minuartia verna (L.) Hiern
Lepidium virginicum L.	Lychnis coronaria (L.) Desr.	Minuartia viscosa (Schreb.) Schinz & Thell.
Leucanthemopsis alpina (L.) Heywood	Lychnis flos-cuculi L.	Misopates orontium (L.) Raf.
Leucanthemum adustum (W. D. J. Koch) C	Lychnis flos-jovis (L.) Desr.	Moehringia ciliata (Scop.) Dalla Torre
Leucanthemum halleri (Suter) Ducommun	Lychnis viscaria L.	Moehringia muscosa L.
Leucanthemum praecox (Horvatic) Horvati	Lycopodiella inundata (L.) Holub	Moehringia trinervia (L.) Clairv.
Leucanthemum vulgare Lam.	Lycopodium annotinum L.	Molinia arundinacea Schrank
Leucojum vernum L.	Lycopodium clavatum L.	Molinia caerulea (L.) Moench
Ligusticum mutellina (L.) Crantz	Lycopus europaeus L. s.l.	Moneses uniflora (L.) A. Gray
Ligusticum mutellinoides (Crantz) Vill.	Lycopus europaeus L. s.l.	Monotropa hypophaea Wallr.
Ligustrum vulgare L.	Lysimachia nemorum L.	Monotropa hypopitys L.
Lilium martagon L.	Lysimachia nummularia L.	Muscari botryoides (L.) Mill.
Limodorum abortivum (L.) Sw.	Lysimachia vulgaris L.	Muscari comosum (L.) Mill.
Linaria alpina (L.) Mill. s.l.	Lythrum hyssopifolia L.	Muscari neglectum Ten.
Linaria angustissima (Loisel.) Re	Lythrum salicaria L.	Muscari racemosum (L.) Mill.
Linaria vulgaris Mill.	Maianthemum bifolium (L.) F. W. Schmidt	Mycelis muralis (L.) Dumort.
Linnaea borealis L.	Malaxis monophyllos (L.) Sw.	Myosotis alpestris F. W. Schmidt
Linum austriacum L.	Malus sylvestris Mill.	Myosotis arvensis Hill
Linum catharticum L.	Malva alcea L.	Myosotis laxa subsp. cespitosa (Schultz) Noi
Linum perenne subsp. alpinum (Jacq.) Ock	Malva moschata L.	Myosotis ramosissima Rochel
Linum tenuifolium L.	Malva neglecta Wallr.	Myosotis scorpioides L.
Listera cordata (L.) R. Br.	Malva sylvestris L.	Myosotis stricta Roem. & Schult.
Listera ovata (L.) R. Br.	Marrubium vulgare L.	Myosotis strigulosa Rchb.
Lithospermum officinale L.	Matricaria chamomilla auct.	Myosotis sylvatica sensu Welten & Sutter
Lloydia serotina (L.) Rchb.	Matricaria matricarioides auct.	Myosoton aquaticum (L.) Moench
Loiseleuria procumbens (L.) Desv.	Medicago falcata L.	Myricaria germanica (L.) Desv.
Lolium multiflorum Lam.	Medicago lupulina L.	Myriophyllum spicatum L.
Lolium perenne L.	Medicago minima (L.) L.	Myrrhis odorata (L.) Scop.
Lolium rigidum Gaudin	Medicago sativa L.	Narcissus poëticus L.
Lolium temulentum L.	Melampyrum arvense L.	Narcissus pseudonarcissus L.
Lonicera alpigena L.	Melampyrum pratense L.	Narcissus radiiflorus Salisb.
Lonicera caerulea L.	Melampyrum sylvaticum L.	Nardus stricta L.
Lonicera etrusca Santi	Melica ciliata L.	Nasturtium officinale R. Br.
Lonicera nigra L.	Melica nutans L.	Neottia nidus-avis (L.) Rich.
Lonicera periclymenum L.	Melica uniflora Retz.	Nepeta cataria L.
Lonicera xylostium L.	Melilotus albus Medik.	Neslia paniculata (L.) Desv. s.str.
Lotus alpinus (DC.) Ramond	Melilotus altissimus Thuill.	Nigella arvensis L.
Lotus corniculatus L.	Melilotus officinalis (L.) Lam.	Nigritella nigra auct.
Lotus delortii auct. helv.	Mentha aquatica L.	Nonea lutea (Desr.) DC.
Lotus tenuis Willd.	Mentha arvensis L.	Nonea pulla DC.
Lunaria annua L.	Mentha longifolia (L.) Huds.	Odontites luteus (L.) Clairv.
Lunaria rediviva L.	Menyanthes trifoliata L.	Odontites vernus (Bellardi) Dumort. s.str.
Luzula alpinopilosa (Chaix) Breistr.	Mercurialis annua L.	Odontites viscosus (L.) Clairv.
Luzula campestris (L.) DC.	Mercurialis perennis L.	Odontites vulgaris Moench
Luzula lutea (All.) DC.	Meum athamanticum Jacq.	Oenothera biennis L.
Luzula luzulina (Vill.) Dalla Torre & Sarnth.	Micropus erectus L.	Onobrychis arenaria (Kit.) DC.
Luzula luzuloides (Lam.) Dandy & Wilmott	Milium effusum L.	Onobrychis montana DC.
Luzula multiflora (Retz.) Lej.	Minuartia fastigiata (Sm.) Rchb.	Onobrychis viciifolia Scop.
Luzula nivea (L.) DC.	Minuartia hybrida (Vill.) Schischk.	Ononis natix L.
Luzula pilosa (L.) Willd.	Minuartia laricifolia (L.) Schinz & Thell.	Ononis pusilla L.
Luzula spicata (L.) DC. s.l.	Minuartia mutabilis (Lapeyr.) Bech.	Ononis repens subsp. procurrens (Wallr.) As

Ononis rotundifolia L.	Pedicularis ascendens Gaudin	Platanthera chlorantha (Custer) Rchb.
Onopordum acanthium L.	Pedicularis foliosa L.	Poa alpina L.
Onosma arenaria subsp. pennina Braun-Bl	Pedicularis kernerii Dalla Torre	Poa annua L.
Onosma helvetica auct.	Pedicularis oederi Hornem.	Poa badensis aggr.
Onosma helvetica auct.	Pedicularis palustris L.	Poa bulbosa L.
Ophioglossum vulgatum L.	Pedicularis recutita L.	Poa cenisia All.
Ophrys insectifera L.	Pedicularis tuberosa L.	Poa chaixii Vill.
Opuntia vulgaris auct.	Pedicularis verticillata L.	Poa compressa L.
Orchis coriophora L.	Petasites albus (L.) Gaertn.	Poa hybrida Gaudin
Orchis mascula (L.) L.	Petasites hybridus (L.) P. Gaertn. & al.	Poa laxa Haenke
Orchis militaris L.	Petasites paradoxus (Retz.) Baumg.	Poa minor Gaudin
Orchis morio L.	Petrohragia prolifera (L.) P. W. Ball & Heyn	Poa nemoralis L.
Orchis pallens L.	Petrohragia saxifraga (L.) Link	Poa palustris L.
Orchis ustulata L.	Peucedanum cervaria (L.) Lapeyr.	Poa perconcinna J. R. Edm.
Origanum vulgare L.	Peucedanum oreoselinum (L.) Moench	Poa pratensis aggr.
Orlaya grandiflora (L.) Hoffm.	Peucedanum ostruthium (L.) W. D. J. Koch	Poa supina Schrad.
Ornithogalum pyrenaicum L. s.str.	Phalaris arundinacea L.	Poa trivialis L. s.str.
Ornithogalum umbellatum L.	Phalaris canariensis L.	Poa violacea Bellardi
Ornithopus perpusillus L.	Phleum alpinum auct.	Podospermum laciniatum (L.) DC.
Orobanche alba Willd.	Phleum bertolonii DC.	Polemonium caeruleum L.
Orobanche caryophyllacea Sm.	Phleum commutatum Gaudin	Polycnemum arvense L.
Orobanche elatior Sutton	Phleum hirsutum Honck.	Polycnemum majus A. Braun
Orobanche flava F. W. Schultz	Phleum paniculatum Huds.	Polygala alpestris Rchb.
Orobanche hederæ Duby	Phleum phleoides (L.) H. Karst.	Polygala alpina (DC.) Steud.
Orobanche laserpitii-sileris Jord.	Phleum pratense L.	Polygala amarella Crantz
Orobanche loricata Rchb.	Phragmites australis (Cav.) Steud.	Polygala chamaebuxus L.
Orobanche lucorum A. Braun	Phyllitis scolopendrium (L.) Newman	Polygala comosa Schkuhr
Orobanche minor Sm.	Physalis alkekengi L.	Polygala pedemontana E. P. Perrier & B. Ve
Orobanche purpurea Jacq.	Phyteuma betonicifolium Vill.	Polygala serpyllifolia Hosé
Orobanche reticulata Wallr.	Phyteuma hemisphaericum L.	Polygala vulgaris L. s.str.
Orobanche teucrii Holandre	Phyteuma orbiculare L.	Polygala vulgaris subsp. oxyptera (Rchb.) Sc
Orthilia secunda (L.) House	Phyteuma ovatum Honck.	Polygonatum multiflorum (L.) All.
Oxalis acetosella L.	Phyteuma scheuchzeri All.	Polygonatum odoratum (Mill.) Druce
Oxalis corniculata L.	Phyteuma spicatum L.	Polygonatum verticillatum (L.) All.
Oxalis fontana Bunge	Picea abies (L.) H. Karst.	Polygonum alpinum All.
Oxyria digyna (L.) Hill	Picris hieracioides L. s.l.	Polygonum aviculare aggr.
Oxytropis campestris (L.) DC. s.l.	Pimpinella major (L.) Huds.	Polygonum bistorta L.
Oxytropis fetida (Vill.) DC.	Pimpinella nigra Mill.	Polygonum hydropiper L.
Oxytropis halleri var. villososericea (Shuttle	Pimpinella saxifraga auct.	Polygonum lapathifolium L. s.str.
Oxytropis jacquinii Bunge	Pinguicula alpina L.	Polygonum minus Huds.
Oxytropis lapponica (Wahlenb.) J. Gay	Pinguicula leptoceras Rchb.	Polygonum mite Schrank
Oxytropis pilosa (L.) DC.	Pinguicula vulgaris L.	Polygonum persicaria L.
Panicum capillare L.	Pinus cembra L.	Polygonum viviparum L.
Papaver argemone L.	Pinus mugo grex. arborea Tubeuf	Polypodium vulgare L.
Papaver croceum Ledeb.	Pinus mugo grex. prostrata Tubeuf	Polystichum aculeatum (L.) Roth
Papaver dubium L. s.str.	Pinus sylvestris L.	Polystichum lonchitis (L.) Roth
Papaver lecoqii Lamotte	Plantago alpina L.	Populus alba L.
Papaver rhoeas L.	Plantago atrata Hoppe s.str.	Populus nigra L. s.str.
Paradisea liliastrum (L.) Bertol.	Plantago lanceolata L.	Populus tremula L.
Parietaria officinalis L.	Plantago major L. s.str.	Portulaca oleracea L. s.str.
Paris quadrifolia L.	Plantago major subsp. intermedia (Gilib.) L	Potamogeton alpinus Balb.
Parnassia palustris L.	Plantago media L.	Potamogeton berchtoldii Fieber
Pastinaca sativa L. s.l.	Platanthera bifolia (L.) Rich.	Potamogeton gramineus L.

Potamogeton lucens L.	Potamogeton lucens L.	Pulsatilla vernalis (L.) Mill.
Potamogeton natans L.	Potamogeton natans L.	Pyrola chlorantha Sw.
Poa alpina L.	Potamogeton pectinatus L.	Pyrola media Sw.
Poa annua L.	Potamogeton pusillus L.	Pyrola minor L.
Poa badensis aggr.	Potentilla alpicola Fauc.	Pyrola rotundifolia L.
Poa bulbosa L.	Potentilla anserina L.	Pyrus pyrastrer aggr.
Poa cenisia All.	Potentilla argentea L.	Quercus petraea Liebl.
Poa chaixii Vill.	Potentilla assurgens Vill.	Quercus pubescens Willd.
Poa compressa L.	Potentilla aurea L.	Quercus robur L.
Poa hybrida Gaudin	Potentilla aurea L.	Ranunculus aconitifolius L.
Poa laxa Haenke	Potentilla brauneana Hoppe	Ranunculus acris L. s.str.
Poa minor Gaudin	Potentilla caulescens L.	Ranunculus acris subsp. friesianus (Jord.) S
Poa nemoralis L.	Potentilla cinerea Vill.	Ranunculus alpestris L.
Poa palustris L.	Potentilla crantzii Fritsch	Ranunculus aquatilis aggr.
Poa perconcinna J. R. Edm.	Potentilla erecta (L.) Raeusch.	Ranunculus arvensis L.
Poa pratensis aggr.	Potentilla frigida Vill.	Ranunculus auricomus aggr.
Poa supina Schrad.	Potentilla grandiflora L.	Ranunculus ficaria L.
Poa trivialis L. s.str.	Potentilla micrantha DC.	Ranunculus flammula L.
Poa violacea Bellardi	Potentilla neumanniana Rchb.	Ranunculus glacialis L.
Podospermum laciniatum (L.) DC.	Potentilla norvegica L.	Ranunculus lanuginosus L.
Polemonium caeruleum L.	Potentilla palustris (L.) Scop.	Ranunculus montanus Willd.
Polycnemum arvense L.	Potentilla pusilla Host	Ranunculus nemorosus DC.
Polycnemum majus A. Braun	Potentilla recta L.	Ranunculus oreophilus M. Bieb.
Polygala alpestris Rchb.	Potentilla reptans L.	Ranunculus parnassifolius L.
Polygala alpina (DC.) Steud.	Potentilla rupestris L.	Ranunculus platanifolius L.
Polygala amarella Crantz	Potentilla sterilis (L.) Garcke	Ranunculus polyanthemophyllus W. Koch &
Polygala chamaebuxus L.	Prenanthes purpurea L.	Ranunculus pyrenaicus auct.
Polygala comosa Schkuhr	Primula auricula L.	Ranunculus repens L.
Polygala pedemontana E. P. Perrier & B. V	Primula elatior (L.) L. s.str.	Ranunculus reptans L.
Polygala serpyllifolia Hosé	Primula farinosa L.	Ranunculus sceleratus L.
Polygala vulgaris L. s.str.	Primula hirsuta All.	Ranunculus serpens Schrank
Polygala vulgaris subsp. oxyptera (Rchb.)	Primula integrifolia L.	Ranunculus trichophyllus Chaix s.str.
Polygonatum multiflorum (L.) All.	Primula veris L. s.str.	Ranunculus trichophyllus subsp. lutulentus (f
Polygonatum odoratum (Mill.) Druce	Primula veris subsp. suaveolens (Bertol.) C	Raphanus raphanistrum L.
Polygonatum verticillatum (L.) All.	Primula vulgaris Huds.	Raphanus sativus L.
Polygonum alpinum All.	Prunella grandiflora (L.) Scholler	Rapistrum perenne (L.) All.
Polygonum aviculare aggr.	Prunella vulgaris L.	Rapistrum rugosum (L.) All.
Polygonum bistorta L.	Prunus armeniaca L.	Reseda lutea L.
Polygonum hydropiper L.	Prunus avium L.	Reynoutria japonica Houtt.
Polygonum lapathifolium L. s.str.	Prunus cerasus L. s.l.	Rhamnus alpina L.
Polygonum minus Huds.	Prunus domestica L.	Rhamnus cathartica L.
Polygonum mite Schrank	Prunus domestica subsp. insititia (L.) Bonn	Rhamnus pumila Turra
Polygonum persicaria L.	Prunus mahaleb L.	Rhaponticum scariosum auct. helv.
Polygonum viviparum L.	Prunus padus L. s.l.	Rhinanthus alectorolophus (Scop.) Pollich
Polypodium vulgare L.	Prunus persica (L.) Batsch	Rhinanthus glacialis Personnat
Polystichum aculeatum (L.) Roth	Prunus spinosa L.	Rhinanthus minor L.
Polystichum lonchitis (L.) Roth	Pseudorchis albida (L.) Á. & D. Löve	Rhododendron ferrugineum L.
Populus alba L.	Pteridium aquilinum (L.) Kuhn	Rhododendron hirsutum L.
Populus nigra L. s.str.	Puccinellia distans (Jacq.) Parl.	Ribes alpinum L.
Populus tremula L.	Pulmonaria australis (Murr) W. Sauer	Ribes petraeum Wulfen
Portulaca oleracea L. s.str.	Pulmonaria australis (Murr) W. Sauer	Ribes uva-crispa L.
Potamogeton alpinus Balb.	Pulsatilla alpina (L.) Delarbre s.str.	Robinia pseudoacacia L.
Potamogeton bertholdii Fieber	Pulsatilla apiifolia (Scop.) Schult.	Rorippa amphibia (L.) Besser
Potamogeton gramineus L.	Pulsatilla montana (Hoppe) Rchb.	Rorippa islandica aggr.

Rorippa pyrenaica (All.) Rchb.	Salix glaucosericea Flod.	Scheuchzeria palustris L.
Rorippa sylvestris (L.) Besser	Salix hastata L.	Schoenoplectus lacustris (L.) Palla
Rosa abietina H. Christ	Salix helvetica Vill.	Schoenus ferrugineus L.
Rosa agrestis Savi	Salix herbacea L.	Scirpus sylvaticus L.
Rosa arvensis Huds.	Salix laggeri Wimm.	Scleranthus annuus L. s.str.
Rosa canina L.	Salix nigricans Sm. s.l.	Scleranthus perennis L.
Rosa chavini Reut.	Salix pentandra L.	Scleranthus polycarpus L.
Rosa coriifolia Fr. s.l.	Salix purpurea L.	Scleranthus verticillatus Tausch
Rosa corymbifera Borkh.	Salix repens L.	Sclerochloa dura (L.) P. Beauv.
Rosa elliptica Tausch	Salix reticulata L.	Scorzonera austriaca Willd.
Rosa glauca Pourr.	Salix retusa L.	Scrophularia nodosa L.
Rosa majalis Herrm.	Salix serpillifolia Scop.	Scrophularia umbrosa Dumort.
Rosa micrantha Sm.	Salix triandra L.	Secale cereale L.
Rosa mollis Sm.	Salix viminalis L.	Sedum acre L.
Rosa montana Chaix	Salix x hegetschweileri Heer	Sedum album L.
Rosa obtusifolia Desv.	Salsola kali auct.	Sedum alpestre Vill.
Rosa pendulina L.	Salvia glutinosa L.	Sedum annuum L.
Rosa rubiginosa L.	Salvia officinalis L.	Sedum atratum L.
Rosa sherardii Davies	Salvia pratensis L.	Sedum dasyphyllum L.
Rosa tomentosa Sm.	Salvia sclarea L.	Sedum maximum (L.) Hoffm.
Rosa villosa L.	Salvia verticillata L.	Sedum montanum Songeon & E. P. Perrier
Rosa vosagiaca aggr.	Sambucus ebulus L.	Sedum sexangulare L.
Rubia tinctorum L.	Sambucus nigra L.	Sedum spurium M. Bieb.
Rubus caesius L.	Sambucus racemosa L.	Sedum telephium L. s.str.
Rubus fruticosus aggr.	Sanguisorba minor Scop. s.str.	Sedum villosum L.
Rubus idaeus L.	Sanguisorba officinalis L.	Selaginella selaginoides (L.) Schrank & Mart
Rubus saxatilis L.	Sanicula europaea L.	Sempervivum arachnoideum L.
Rumex acetosa L.	Saponaria ocyroides L.	Sempervivum montanum L.
Rumex acetosella aggr.	Saponaria officinalis L.	Sempervivum tectorum L. s.l.
Rumex alpestris Jacq.	Saussurea alpina (L.) DC. s.str.	Senecio aquaticus Hill
Rumex alpinus L.	Saxifraga adscendens L.	Senecio aquaticus Hill
Rumex crispus L.	Saxifraga aizoides L.	Senecio capitatus (Wahlenb.) Steud.
Rumex nivalis Hegetschw.	Saxifraga androsacea L.	Senecio cordatus W. D. J. Koch
Rumex obtusifolius L.	Saxifraga aphylla Sternb.	Senecio doronicum (L.) L.
Rumex pulcher L.	Saxifraga aspera L.	Senecio fuchsii C. C. Gmel.
Rumex sanguineus L.	Saxifraga biflora All. s.str.	Senecio incanus L. s.str.
Rumex scutatus L.	Saxifraga biflora subsp. macropetala (Engl	Senecio jacobaea L.
Ruta graveolens L.	Saxifraga bryoides L.	Senecio nemorensis auct. helv.
Sagina apetala Ard. s.l.	Saxifraga caesia L.	Senecio sylvaticus L.
Sagina glabra (Willd.) Fenzl	Saxifraga cotyledon L.	Senecio viscosus L.
Sagina procumbens L.	Saxifraga cuneifolia L.	Senecio vulgaris L.
Sagina saginoides (L.) H. Karst.	Saxifraga exarata Vill. s.str.	Seseli annuum L. s.str.
Sagina saginoides (L.) H. Karst.	Saxifraga moschata Wulfen s.l.	Seseli libanotis (L.) W. D. J. Koch
Salix alba L.	Saxifraga muscoides All.	Sesleria varia (Jacq.) Wettst.
Salix appendiculata Vill.	Saxifraga oppositifolia L.	Setaria glauca auct.
Salix aurita L.	Saxifraga paniculata Mill.	Setaria verticillata (L.) P. Beauv.
Salix breviserrata Flod.	Saxifraga rotundifolia L.	Setaria viridis (L.) P. Beauv.
Salix caesia Vill.	Saxifraga seguieri Spreng.	Sherardia arvensis L.
Salix caprea L.	Saxifraga stellaris L.	Sibbaldia procumbens L.
Salix cinerea L.	Saxifraga tridactylites L.	Sibbaldia procumbens L.
Salix daphnoides Vill.	Scabiosa columbaria L. s.l.	Sibbaldia procumbens L.
Salix elaeagnos Scop.	Scabiosa gramuntia L.	Silaum silaus (L.) Schinz & Thell.
Salix foetida DC.	Scabiosa lucida Vill.	Silene acaulis (L.) Jacq.
Salix fragilis L.	Scandix pecten-veneris L.	Silene alba (Mill.) E. H. L. Krause

Silene armeria L.	Streptopus amplexifolius (L.) DC.	Trifolium aureum Pollich
Silene dichotoma Ehrh.	Succisa pratensis Moench	Trifolium badium Schreb.
Silene dioica (L.) Clairv.	Symphytum officinale L.	Trifolium campestre Schreb.
Silene exscapa All.	Tanacetum parthenium (L.) Sch. Bip.	Trifolium campestre Schreb.
Silene noctiflora L.	Tanacetum vulgare L.	Trifolium campestre Schreb.
Silene noctiflora L.	Taraxacum alpinum aggr.	Trifolium campestre Schreb.
Silene nutans L. s.str.	Taraxacum cucullatum aggr.	Trifolium dubium Sibth.
Silene otites (L.) Wibel	Taraxacum laevigatum aggr.	Trifolium fragiferum L.
Silene pusilla Waldst. & Kit.	Taraxacum officinale aggr.	Trifolium hybridum L. s.str.
Silene rupestris L.	Taraxacum palustre (Lyons) Symons	Trifolium hybridum subsp. elegans (Savi) As
Silene vulgaris (Moench) Garcke s.str.	Taraxacum palustre (Lyons) Symons	Trifolium incarnatum L. s.str.
Silene vulgaris subsp. glareosa auct.	Taraxacum schroeterianum Hand.-Mazz.	Trifolium medium L.
Silybum marianum (L.) Gaertn.	Taxus baccata L.	Trifolium montanum L.
Sinapis alba L.	Telephium imperati L.	Trifolium pallescens Schreb.
Sinapis arvensis L.	Tetragonolobus maritimus (L.) Roth	Trifolium patens Schreb.
Sisymbrium altissimum L.	Teucrium botrys L.	Trifolium pratense L. s.str.
Sisymbrium austriacum Jacq.	Teucrium chamaedrys L.	Trifolium pratense subsp. nivale (W. D. J. Ko
Sisymbrium officinale (L.) Scop.	Teucrium montanum L.	Trifolium repens L. s.l.
Solanum dulcamara L.	Teucrium scorodonia L.	Trifolium resupinatum L.
Solanum nigrum L.	Thalictrum aquilegifolium L.	Trifolium rubens L.
Solanum tuberosum L.	Thalictrum foetidum L.	Trifolium spadiceum L.
Soldanella alpina L.	Thalictrum minus L. s.l.	Trifolium thalii Vill.
Soldanella pusilla Baumg.	Thelypteris limbosperma (All.) H. P. Fuchs	Triglochin palustris L.
Solidago canadensis L.	Thelypteris phegopteris (L.) Sloss.	Trigonella monspeliaca L.
Solidago virgaurea L. s.str.	Thesium alpinum L.	Tripleurospermum inodorum (L.) Sch. Bip.
Solidago virgaurea subsp. minuta (L.) Arca	Thesium pyrenaicum Pourr.	Trisetum cavanillesii Trin.
Sonchus arvensis L. s.str.	Thlaspi arvense L.	Trisetum distichophyllum (Vill.) Roem. & Sch
Sonchus asper Hill	Thlaspi caerulescens J. & C. Presl	Trisetum flavescens (L.) P. Beauv.
Sonchus oleraceus L.	Thlaspi perfoliatum L.	Trisetum spicatum (L.) K. Richt.
Sorbus aria (L.) Crantz	Thlaspi rotundifolium auct.	Trollius europaeus L.
Sorbus aucuparia L.	Thymelaea passerina (L.) Coss. & Germ.	Tulipa australis Link
Sorbus chamaemespilus (L.) Crantz	Thymus froelichianus Opiz	Tulipa sylvestris L. s.str.
Sorbus mougeotii Soy.-Will. & Godr.	Thymus oenipontanus sensu Welten & Sut	Turgenia latifolia (L.) Hoffm.
Sparganium angustifolium Michx.	Thymus praecox Opiz s.str.	Tussilago farfara L.
Sparganium erectum L. s.l.	Thymus praecox subsp. polytrichus (Borbá	Typha angustifolia L.
Sparganium minimum Wallr.	Thymus pulegioides L. s.str.	Typha latifolia L.
Spergula arvensis L.	Tilia cordata Mill.	Typha minima Hoppe
Spergularia rubra (L.) J. & C. Presl	Tilia platyphyllos Scop.	Ulmus glabra Huds.
Spiranthes aestivalis (Poir.) Rich.	Tofieldia calyculata (L.) Wahlenb.	Ulmus glabra Huds.
Stachys alpina L.	Tofieldia pusilla (Michx.) Pers.	Ulmus laevis Pall.
Stachys annua (L.) L.	Torilis arvensis (Huds.) Link	Ulmus minor Mill.
Stachys arvensis (L.) L.	Torilis japonica (Houtt.) DC.	Urtica dioica L.
Stachys palustris L.	Tozzia alpina L.	Urtica urens L.
Stachys recta L. s.str.	Tragopogon dubius Scop.	Utricularia minor L.
Stachys sylvatica L.	Tragopogon pratensis sensu Welten & Sut	Utricularia vulgaris L.
Stellaria graminea L.	Tragus racemosus (L.) All.	Vaccaria hispanica (Mill.) Rauschert
Stellaria media (L.) Vill.	Traunsteinera globosa (L.) Rchb.	Vaccinium myrtillus L.
Stellaria nemorum L. s.str.	Trichophorum alpinum (L.) Pers.	Vaccinium oxycoccos L.
Stellaria pallida (Dumort.) Piré	Trichophorum cespitosum (L.) Hartm.	Vaccinium uliginosum aggr.
Stellaria uliginosa Murray	Trientalis europaea L.	Vaccinium vitis-idaea L.
Stipa capillata L.	Trifolium alpestre L.	Valeriana dioica L.
Stipa eriocalis auct. helv. s.str.	Trifolium alpinum L.	Valeriana montana L.
Stipa joannis Celak.	Trifolium arvense L.	Valeriana officinalis aggr.

Valeriana tripteris L.	Vicia sepium L.
Valerianella carinata Loisel.	Vicia sylvatica L.
Valerianella dentata (L.) Pollich	Vicia tenuifolia Roth
Valerianella locusta (L.) Laterr.	Vicia tetrasperma (L.) Schreb.
Veratrum album L. s.l.	Vicia villosa Roth s.str.
Verbascum blattaria L.	Vinca minor L.
Verbascum crassifolium DC.	Vincetoxicum hirundinaria Medik.
Verbascum densiflorum Bertol.	Viola arvensis Murray
Verbascum lychnitis L.	Viola biflora L.
Verbascum nigrum L.	Viola calcarata L.
Verbascum phlomoides L.	Viola canina L. s.str.
Verbascum thapsus L. s.str.	Viola canina subsp. montana sensu Welten & Sutter
Verbena officinalis L.	Viola cenisia L.
Veronica agrestis L.	Viola cenisia L.
Veronica alpina L.	Viola collina Besser
Veronica anagallis-aquatica L.	Viola hirta L.
Veronica aphylla L.	Viola kitaibeliana Schult.
Veronica arvensis L.	Viola lutea Huds.
Veronica beccabunga L.	Viola mirabilis L.
Veronica bellidioides L.	Viola odorata L.
Veronica chamaedrys L.	Viola palustris L.
Veronica dillenii Crantz	Viola pinnata L.
Veronica filiformis Sm.	Viola pyrenaica DC.
Veronica fruticans Jacq.	Viola reichenbachiana Boreau
Veronica fruticulosa L.	Viola riviniana Rchb.
Veronica hederifolia L. s.l.	Viola rupestris F. W. Schmidt
Veronica officinalis L.	Viola thomasiana Songeon & E. P. Perrier
Veronica persica Poir.	Viola tricolor L.
Veronica polita Fr.	Viscum album L. s.l.
Veronica praecox All.	Vitis vinifera L.
Veronica scutellata L.	Vulpia bromoides (L.) Gray
Veronica serpyllifolia L. s.str.	Woodsia alpina (Bolton) Gray
Veronica serpyllifolia subsp. humifusa (Dic Woodsia pulchella Bertol.	Xeranthemum inapertum (L.) Mill.
Veronica spicata L.	Zannichellia palustris L.
Veronica teucrium L.	Zea mays L.
Veronica triphyllos L.	
Veronica urticifolia Jacq.	
Veronica verna L.	
Viburnum lantana L.	
Viburnum opulus L.	
Vicia angustifolia L. s.l.	
Vicia cracca L. s.str.	
Vicia faba L.	
Vicia hirsuta (L.) Gray	
Vicia hybrida L.	
Vicia incana Gouan	
Vicia lathyroides L.	
Vicia lutea L.	
Vicia onobrychioides L.	
Vicia pannonica Crantz	
Vicia sativa L. s.str.	
Vicia sepium L.	
Vicia sepium L.	

List of the Mosses in the nominated area, October 2005

716 species

- Aloina brevisrostris (Hook. & Grev.) Kindb.
Aloina rigida (Hedw.) Limpr.
Amblyodon dealbatus (Hedw.) P. Beauv.
Amblystegium confervoides (Brid.) Schimp.
Amblystegium jungermannioides (Brid.) A. J. E. Smith
Amblystegium serpens (Hedw.) Schimp.
Amblystegium subtile (Hedw.) Schimp.
Amblystegium tenax (Hedw.) C. Jens.
Amblystegium varium (Hedw.) Lindb.
Amphidium lapponicum (Hedw.) Schimp.
Amphidium mougeotii (B. & S.) Schimp.
Anacamptodon splachnoides (Brid.) Brid.
Anastrepta orcadensis (Hook.) Schiffn.
Anastrophyllum assimile (Mitt.) Steph.
Anastrophyllum hellerianum (Lindenb.) Schust.
Anastrophyllum minutum (Schreb.) Schust.
Andreaea crassinervia Bruch
Andreaea frigida Hüb.
Andreaea heinemannii Hampe & C. Müll.
Andreaea nivalis Hook.
Andreaea rothii Web. & Mohr
Andreaea rupestris Hedw.
Aneura pinguis (L.) Dum.
Anoetangium aestivum (Hedw.) Mitt.
Anomobryum filiforme (Dicks.) Solms
Anomobryum julaceum (Brid.) Schimp.
Anomodon attenuatus (Hedw.) Hüb.
Anomodon longifolius (Brid.) Hartm.
Anomodon rugelii (C. Müll.) Keissl.
Anomodon viticulosus (Hedw.) Hook. & Tayl.
Anthelia julacea (L.) Dum.
Antitrichia curtipendula (Hedw.) Brid.
Aongstroemia longipes (Somm.) B., S. & G.
Apometzgeria pubescens (Schrank) Kuw.
Arctoa fulvella (Dicks.) B., S. & G.
Asterella lindenberghiana (Corda) H. Arnell
Athalamia hyalina (Sommerf.) Hatt.
Atractylocarpus alpinus (Milde) Lindb.
Atrichum undulatum (Hedw.) P. Beauv.
Aulacomnium androgynum (Hedw.) Schwaegr.
Aulacomnium palustre (Hedw.) Schwaegr.
Barbilophozia atlantica (Kaal.) K. Müll.
Barbilophozia attenuata (Mart.) Loeske
Barbilophozia barbata (Schreb.) Loeske
Barbilophozia floerkei (Web. & Mohr) Loeske
Barbilophozia hatcheri (Evans) Loeske
Barbilophozia kunzeana (Hüb.) K. Müll.
Barbilophozia lycopodioides (Wallr.) Loeske
Barbilophozia quadriloba (Lindb.) Loeske
Barbula acuta (Brid.) Brid.
Barbula asperifolia Mitt.
Barbula bicolor (B., S. & G.) Lindb.
Barbula convoluta Hedw.
Barbula crocea (Brid.) Web. & Mohr
Isopterygium elegans (Brid.) Lindb.
Isopterygium muellerianum (Schimp.) Jaeg.
Isopterygium pulchellum (Hedw.) Jaeg.
Isothecium alopecuroides (Dubois) Isov.
Isothecium myosuroides Brid.
Jamesoniella autumnalis (DC.) Steph.
Jungermannia atrovirens Dum.
Jungermannia confertissima Nees
Jungermannia gracillima Sm.
Jungermannia hyalina Lyell
Jungermannia leiantha Grolle
Jungermannia obovata Nees
Jungermannia polaris Lindb.
Jungermannia sphaerocarpa Hook.
Kiaeria blyttii (B., S. & G.) Broth.
Kiaeria falcata (Hedw.) I. Hag.
Kiaeria starkei (Web. & Mohr) I. Hag.
Kurzia trichoclados (K. Müll.) Grolle
Lejeunea cavifolia (Ehrh.) Lindb.
Lepidozia reptans (L.) Dum.
Leptodontium flexifolium (Dicks.) Hampe
Leptodontium styriacum (Jur.) Limpr.
Lescurea mutabilis (Brid.) I. Hag.
Lescurea saxicola (Schimp.) Milde
Leucobryum glaucum (Hedw.) Angstr.
Leucobryum juniperoides (Brid.) C. Müll.
Leucodon sciuroides (Hedw.) Schwaegr.
Lophocolea bidentata (L.) Dum.
Lophocolea heterophylla (Schrad.) Dum.
Lophocolea minor Nees
Lophozia ascendens (Warnst.) Schust.
Lophozia badensis (Gott.) Schiffn.
Lophozia bantriensis (Hook.) Steph.
Lophozia bicrenata (Hoffm.) Dum.
Lophozia collaris (Nees) Dum.
Lophozia decolorans (Limpr.) Steph.
Lophozia excisa (Dicks.) Dum.
Lophozia gillmanii (Aust.) Schust.
Lophozia grandiretis (Kaal.) Schiffn.
Lophozia heterocolpos (Hartm.) Howe
Lophozia incisa (Schrad.) Dum.
Lophozia incisa (Schrad.) Dum.
Lophozia longidens (Lindb.) Mac.
Lophozia longiflora (Nees) Schiffn.
Lophozia obtusa (Lindb.) Evans
Lophozia perssonii Buch & S. Arnell
Lophozia sudetica (Hüb.) Grolle
Lophozia ventricosa (Dicks.) Dum.
Lophozia wenzelii (Nees) Steph.
Mannia fragrans (Balb.) Frye & Clark
Marchantia polymorpha L.
Marsupella adusta (Nees) Spruce
Marsupella alpina (Limpr.) H. Bern.
Marsupella brevissima (Dum.) Grolle

Barbula fallax Hedw.

Marsupella emarginata (Ehrh.) Dum.

Barbula gigantea Funck
Barbula reflexa (Brid.) Brid.
Barbula revoluta Brid.
Barbula rigidula (Hedw.) Mitt.
Barbula tophacea (Brid.) Mitt.
Barbula unguiculata Hedw.
Barbula vinealis Brid.
Bartramia halleriana Hedw.
Bartramia ithyphylla Brid.
Bartramia pomiformis Hedw.
Bazzania flaccida (Dum.) Grolle
Bazzania tricrenata (Wahlenb.) Lindb.
Bazzania trilobata (L.) S. Gray
Blasia pusilla L.
Blindia acuta (Hedw.) B., S. & G.
Blindia caespiticia (Web. & Mohr) C. Müll.
Brachydontium trichodes (Web.) Milde
Brachythecium albicans (Hedw.) Schimp.
Brachythecium campestre (C. Müll.) Schimp.
Brachythecium fendleri (Sull.) Jaeg.
Brachythecium geheebii Milde
Brachythecium glaciale Schimp.
Brachythecium glareosum (Spruce) Schimp.
Brachythecium latifolium Kindb.
Brachythecium mildeanum (Schimp.) Milde
Brachythecium oxycladum (Brid.) Jaeg.
Brachythecium plumosum (Hedw.) Schimp.
Brachythecium populeum (Hedw.) Schimp.
Brachythecium reflexum (Starke) Schimp.
Brachythecium rivulare Schimp.
Brachythecium rutabulum (Hedw.) Schimp.
Brachythecium salebrosum (Web. & Mohr) Schimp.
Brachythecium starkei (Brid.) Schimp.
Brachythecium trachypodium (Brid.) Schimp.
Brachythecium turgidum (Hartm.) Kindb.
Brachythecium velutinum (Hedw.) Schimp.
Bryoerythrophyllum ferruginascens (Stirt.) Giac.
Bryoerythrophyllum recurvirostre (Hedw.) Chen
Bryoerythrophyllum rubrum (Geh.) Chen
Bryum algovicum C. Müll.
Bryum alpinum With.
Bryum arcticum (R. Br.) B., S. & G.
Bryum argenteum Hedw.
Bryum bicolor Dicks.
Bryum blindii B., S. & G.
Bryum caespiticium Hedw.
Bryum capillare Hedw.
Bryum creberrimum Tayl.
Bryum elegans Brid.
Bryum imbricatum (Schwaegr.) B. & S.
Bryum intermedium (Brid.) Bland.
Bryum muehlenbeckii B., S. & G.
Bryum neodamense C. Müll.
Bryum pallens Sw.
Bryum pallescens Schwaegr.
Bryum pseudotriquetrum (Hedw.) Gaertn., Meyer & Scherb.
Bryum rubens Mitt.

Marsupella funckii (Web. & Mohr) Dum.
Marsupella sparsifolia (Lindb.) Dum.
Marsupella sphacelata (Lindenb.) Dum.
Marsupella sprucei (Limpr.) H. Bern.
Meesia triquetra (Richt.) Ångstr.
Meesia uliginosa Hedw.
Metzgeria conjugata Lindb.
Metzgeria furcata (L.) Dum.
Mielichhoferia mielichhoferiana (Funck) Loeske
Mnium ambiguum H. Müll.
Mnium hornum Hedw.
Mnium marginatum (Dicks.) P. Beauv.
Mnium spinosum (Voit) Schwaegr.
Mnium spinulosum B., S. & G.
Mnium stellare Hedw.
Mnium thomsonii Schimp.
Moerckia blyttii (Moerch) Brockm.
Moerckia hibernica (Hook.) Gott.
Mylia anomala (Hook.) S. Gray
Myurella julacea (Schwaegr.) Schimp.
Myurella tenerrima (Brid.) Lindb.
Nardia breidleri (Limpr.) Lindb.
Nardia compressa (Hook.) S. Gray
Nardia geoscyphus (De Not.) Lindb.
Nardia insecta Lindb.
Nardia scalaris S. Gray subsp. *A505scalaris*
Neckera complanata (Hedw.) Hüb.
Neckera crispa Hedw.
Neckera pumila Hedw.
Nowellia curvifolia (Dicks.) Mitt.
Odontoschisma elongatum (Lindb.) Evans
Oligotrichum hercynicum (Hedw.) DC.
Oncophorus virens (Hedw.) Brid.
Orthothecium chryseon (Schwaegr.) Schimp.
Orthothecium intricatum (Hartm.) Schimp.
Orthothecium rufescens (Sm.) Schimp.
Orthothecium strictum Lor.
Orthotrichum affine Brid.
Orthotrichum alpestre B., S. & G.
Orthotrichum anomalum Hedw.
Orthotrichum callistomum B., S. & G.
Orthotrichum cupulatum Brid.
Orthotrichum diaphanum Brid.
Orthotrichum laevigatum Zett.
Orthotrichum lyellii Hook. & Tayl.
Orthotrichum obtusifolium Brid.
Orthotrichum pallens Brid.
Orthotrichum patens Brid.
Orthotrichum rupestre Schwaegr.
Orthotrichum speciosum Nees
Orthotrichum stramineum Brid.
Orthotrichum striatum Hedw.
Oxystegus tenuirostris (Hook. & Tayl.) A. J. E. Smith
Paraleucobryum albicans (Schwaegr.) Loeske
Paraleucobryum longifolium (Hedw.) Loeske
Pedinophyllum interruptum (Nees) Kaal.
Pellia endiviifolia (Dicks.) Dum.

Bryum sauteri B., S. & G.
 Bryum schleicheri DC.
 Bryum sp.
 Bryum subapiculatum Hampe
 Bryum subelegans Kindb.
 Bryum turbinatum (Hedw.) Turn.
 Bryum violaceum Crundw. & Nyh.
 Bryum weigellii Spreng.
 Buxbaumia aphylla Hedw.
 Buxbaumia viridis (Lam. & DC.) Moug. & Nestl.
 Calliergon cordifolium (Hedw.) Kindb.
 Calliergon giganteum (Schimp.) Kindb.
 Calliergon sarmentosum (Wahlenb.) Kindb.
 Calliergon stramineum (Brid.) Kindb.
 Calliergon trifarium (Web. & Mohr) Kindb.
 Calliergonella cuspidata (Hedw.) Loeske
 Calypogeia azurea Stotl. & Crotz
 Calypogeia fissa (L.) Raddi
 Calypogeia integristipula Steph.
 Calypogeia muelleriana (Schiffn.) K. Müll.
 Calypogeia neesiana (Mass. & Carest.) Loeske
 Calypogeia suecica (H. Arnell & J. Perss.) K. Müll.
 Campylium calcareum Crundw. & Nyh.
 Campylium chrysophyllum (Brid.) J. Lange
 Campylium halleri (Hedw.) Lindb.
 Campylium stellatum (Hedw.) J. Lange & C. Jens.
 Campylopus atrovirens De Not.
 Campylopus flexuosus (Hedw.) Brid.
 Campylopus fragilis (Brid.) B., S. & G.
 Campylopus schwarzii Schimp.
 Campylopus subulatus Schimp.
 Catosciopium nigrum (Hedw.) Brid.
 Cephalozia bicuspidata (L.) Dum.
 Cephalozia catenulata (Hüb.) Lindb.
 Cephalozia connivens (Dicks.) Lindb.
 Cephalozia leucantha Spruce
 Cephalozia lunulifolia (Dum.) Dum.
 Cephalozia pleniceps (Aust.) Lindb.
 Cephaloziella arctica Bryhn & Douin
 Cephaloziella divaricata (Sm.) Schiffn.
 Cephaloziella grimsulana (Gott. & Rabenh.) Lac.
 Cephaloziella hampeana (Nees) Schiffn.
 Cephaloziella integerrima (Lindb.) Warnst.
 Cephaloziella rubella (Nees) Warnst.
 Ceratodon purpureus (Hedw.) Brid.
 Chiloscypus polyanthos (L.) Corda
 Cinclidium stygium Sw.
 Cinclidotus aquaticus (Hedw.) B. & S.
 Cinclidotus fontinaloides (Hedw.) P. Beauv.
 Cirriphyllum cirrosum (Schwaegr.) Grout
 Cirriphyllum crassinervium (Tayl.) Loeske & Fleisch.
 Cirriphyllum piliferum (Hedw.) Grout
 Cirriphyllum tenuinerve (Lindb.) Wijk & Marg.
 Cirriphyllum tommasinii (Boul.) Grout
 Cladopodiella fluitans (Nees) Buch
 Climacium dendroides (Hedw.) Web. & Mohr
 Cololejeunea calcarea (Lib.) Schiffn.
 Pellia epiphylla (L.) Corda
 Pellia neesiana (Gott.) Limpr.
 Peltolepis quadrata (Saut.) K. Müll.
 Phascum cuspidatum Hedw.
 Philonotis calcarea (B. & S.) Schimp.
 Philonotis fontana (Hedw.) Brid.
 Philonotis seriata Mitt.
 Philonotis tomentella Mol.
 Physcomitrium patens (Hedw.) Mitt.
 Physcomitrium pyriforme (Hedw.) Brid.
 Plagiobryum demissum (Hook.) Lindb.
 Plagiobryum zierii (Hedw.) Lindb.
 Plagiochila asplenioides (L.) Dum.
 Plagiochila porelloides (Nees) Lindenb.
 Plagiomnium affine (Bland.) T. Kop.
 Plagiomnium cuspidatum (Hedw.) T. Kop.
 Plagiomnium elatum (B. & S.) T. Kop.
 Plagiomnium ellipticum (Brid.) T. Kop.
 Plagiomnium medium (B. & S.) T. Kop. medium
 Plagiomnium rostratum (Schrad.) T. Kop.
 Plagiomnium undulatum (Hedw.) T. Kop.
 Plagiopus oederianus (Sw.) Crum & Anders.
 Plagiothecium curvifolium Limpr.
 Plagiothecium denticulatum (Hedw.) Schimp.
 Plagiothecium laetum Schimp.
 Plagiothecium latebricola Schimp.
 Plagiothecium neckeroideum Schimp.
 Plagiothecium nemorale (Mitt.) Jaeg.
 Plagiothecium platyphyllum Mönk.
 Plagiothecium roeseanum Schimp.
 Plagiothecium ruthei Limpr.
 Plagiothecium undulatum (Hedw.) Schimp.
 Pleurocladula albescens (Hook.) Grolle
 Pleurozium schreberi (Hedw.) Mitt.
 Pogonatum aloides (Hedw.) P. Beauv.
 Pogonatum urnigerum (Hedw.) P. Beauv.
 Pohlia andalusica (Höhn.) Broth.
 Pohlia andrewsii Shaw
 Pohlia annotina (Hedw.) Lindb.
 Pohlia camptotrachela (Ren. & Card.) Broth.
 Pohlia cruda (Hedw.) Lindb.
 Pohlia drummondii (C. Müll.) Andr.
 Pohlia elongata Hedw.
 Pohlia elongata Hedw.
 Pohlia filum (Schimp.) Mart.
 Pohlia longicolla (Hedw.) Lindb.
 Pohlia ludwigii (Schwaegr.) Broth.
 Pohlia lutescens (Limpr.) Lindb. f.
 Pohlia nutans (Hedw.) Lindb. subsp. nutans
 Pohlia obtusifolia (Brid.) L. Koch
 Pohlia prolifera (Bredl.) H. Arnell
 Pohlia vexans (Limpr.) Lindb. f.
 Pohlia wahlenbergii (Web. & Mohr) Andr.
 Polytrichum alpinum Hedw.
 Polytrichum commune Hedw.
 Polytrichum formosum Hedw.
 Polytrichum juniperinum Hedw.

Conocephalum conicum (L.) Underw.
 Conostomum tetragonum (Hedw.) Lindb.
 Coscinodon cribrosus (Hedw.) Spruce
 Cratoneuron commutatum (Hedw.) G. Roth
 Cratoneuron decipiens (De Not.) Loeske
 Cratoneuron falcatum (Brid.) G. Roth
 Cratoneuron filicinum (Hedw.) Spruce
 Crossidium squamiferum (Viv.) Jur.
 Ctenidium molluscum (Hedw.) Mitt.
 Ctenidium procerrimum (Mol.) Lindb.
 Cynodontium bruntonii (Sm.) B., S. & G.
 Cynodontium fallax Limpr.
 Cynodontium gracilescens (Web. & Mohr) Schimp.
 Cynodontium polycarpon (Hedw.) Schimp.
 Cynodontium tenellum (B., S. & G.) Limpr.
 Cyrtomnium hymenophylloides (Hüb.) T. Kop.
 Desmatodon latifolius (Hedw.) Brid.
 Desmatodon laureri (Schultz) B. & S.
 Desmatodon systylius Schimp.
 Dichelyma falcatum (Hedw.) Myr.
 Dichodontium pellucidum (Hedw.) Schimp.
 Dicranella cerviculata (Hedw.) Schimp.
 Dicranella grevilleana (Brid.) Schimp.
 Dicranella heteromalla (Hedw.) Schimp.
 Dicranella palustris (Dicks.) E. Warb.
 Dicranella schreberiana (Hedw.) Crum & Anders
 Dicranella subulata (Hedw.) Schimp.
 Dicranella varia (Hedw.) Schimp.
 Dicranodontium asperulum (Mitt.) Broth.
 Dicranodontium denudatum (Brid.) Britt.
 Dicranodontium uncinatum (Harv.) Jaeg.
 Dicranoweisia crispula (Hedw.) Milde
 Dicranum bonjeanii De Not.
 Dicranum elongatum Schwaegr.
 Dicranum flagellare Hedw.
 Dicranum fuscescens Sm.
 Dicranum fuscescens Sm.
 Dicranum majus Sm.
 Dicranum montanum Hedw.
 Dicranum muehlenbeckii B., S. & G.
 Dicranum polysetum Sw.
 Dicranum scoparium Hedw.
 Dicranum tauricum Sap.
 Dicranum viride (Sull. & Lesq.) Lindb.
 Diphyscium foliosum (Hedw.) Mohr
 Diplophyllum albicans (L.) Dum.
 Diplophyllum obtusifolium (Hook.) Dum.
 Diplophyllum taxifolium (Wahlenb.) Dum.
 Distichium capillaceum (Hedw.) B., S. & G.
 Distichium inclinatum (Hedw.) B., S. & G.
 Ditrichum flexicaule (Schwaegr.) Hampe
 Ditrichum heteromallum (Hedw.) Britt.
 Ditrichum pusillum (Hedw.) Hampe
 Drepanocladus aduncus (Hedw.) Warnst.
 Drepanocladus cossonii (Schimp.) Loeske
 Drepanocladus exannulatus (Schimp.) Warnst.
 Drepanocladus fluitans (Hedw.) Warnst.
 Polytrichum longisetum Brid.
 Polytrichum piliferum Hedw. A597
 Polytrichum sexangulare Brid.
 Polytrichum strictum Brid.
 Porella arboris-vitae (With.) Grolle
 Porella cordaeana (Hüb.) Moore
 Porella platyphylla (L.) Pfeiff.
 Pottia intermedia (Turn.) B., S. & G.
 Pottia lanceolata (Hedw.) C. Müll.
 Pottia truncata (Hedw.) B. & S.
 Preissia quadrata (Scop.) Nees
 Pseudoleskea incurvata (Hedw.) Loeske
 Pseudoleskea patens (Lindb.) Kindb.
 Pseudoleskea plicata (Web. & Mohr) Kindb.
 Pseudoleskea radicata (Mitt.) Mac. & Kindb.
 Pseudoleskeella catenulata (Schrad.) Kindb.
 Pseudoleskeella nervosa (Brid.) Nyh.
 Pterigynandrum filiforme Hedw.
 Pterigynandrum ovatum (Hedw.) Dix.
 Ptilidium ciliare (L.) Hampe
 Ptilidium pulcherrimum (G. Web.) Vainio
 Ptilidium crista-castrensis (Hedw.) De Not.
 Pylaisia polyantha (Hedw.) Schimp.
 Racomitrium aciculare (Hedw.) Brid.
 Racomitrium aquaticum (Schrad.) Brid.
 Racomitrium canescens (Hedw.) Brid.
 Racomitrium elongatum Frisv.
 Racomitrium ericoides (Brid.) Brid.
 Racomitrium fasciculare (Hedw.) Brid.
 Racomitrium heterostichum (Hedw.) Brid.
 Racomitrium lanuginosum (Hedw.) Brid.
 Racomitrium macounii Kindb.
 Racomitrium microcarpum (Hedw.) Brid.
 Radula complanata (L.) Dum.
 Radula complanata (L.) Dum. subsp. complanata
 Reboulia hemisphaerica (L.) Raddi
 Rhabdoweisia crispata (Dicks.) Lindb.
 Rhabdoweisia fugax (Hedw.) B., S. & G.
 Rhizomnium magnifolium (Horik.) T. Kop.
 Rhizomnium pseudopunctatum (B. & S.) T. Kop.
 Rhizomnium punctatum (Hedw.) T. Kop.
 Rhodobryum roseum (Hedw.) Limpr.
 Rhynchostegium murale (Hedw.) Schimp.
 Rhynchostegium riparioides (Hedw.) Card.
 Rhytidiadelphus loreus (Hedw.) Warnst.
 Rhytidiadelphus squarrosus (Hedw.) Warnst.
 Rhytidiadelphus triquetrus (Hedw.) Warnst.
 Rhytidium rugosum (Hedw.) Kindb.
 Riccardia chamaedryfolia (With.) Grolle
 Riccardia incurvata Lindb.
 Riccardia latifrons (Lindb.) Lindb.
 Riccardia multifida (L.) S. Gray
 Riccardia palmata (Hedw.) Carruth.
 Riccia breidleri Steph.
 Riccia ciliifera Lindenb.
 Riccia gougetiana Dur. & Mont.
 Riccia sorocarpa Bisch.

Drepanocladus lycopodioides (Brid.) Warnst.
 Drepanocladus pseudostramineus (C. Müll.) G. Roth
 Drepanocladus revolvens (Sm.) Warnst.
 Drepanocladus uncinatus (Hedw.) Warnst.
 Drepanocladus vernicosus (Mitt.) Warnst.
 Dryptodon patens (Hedw.) Brid.
 Encalypta affinis Hedw. f.
 Encalypta alpina Sm.
 Encalypta ciliata Hedw.
 Encalypta longicolla Bruch
 Encalypta microstoma Bals. & De Not.
 Encalypta rhapsocarpa Schwaegr.
 Encalypta streptocarpa Hedw.
 Encalypta vulgaris Hedw.
 Entodon cladorrhizans (Hedw.) C. Müll.
 Entodon concinnus (De Not.) Par.
 Ephemerum minutissimum Lindb.
 Eremonotus myriocarpus (Carring.) Pears.
 Eucladium verticillatum (Brid.) B., S. & G.
 Eurhynchium hians (Hedw.) Sande Lac.
 Eurhynchium praelongum (Hedw.) Schimp.
 Eurhynchium pulchellum (Hedw.) Jenn.
 Eurhynchium striatum (Hedw.) Schimp.
 Fissidens adianthoides Hedw.
 Fissidens bryoides Hedw.
 Fissidens crassipes B.,S.&G.
 Fissidens dubius P. Beauv.
 Fissidens osmundoides Hedw.
 Fissidens rufulus B.,S.&G.
 Fissidens taxifolius Hedw.
 Fissidens viridulus (Sw.) Wahlenb.
 Fontinalis antipyretica Hedw.
 Fontinalis squamosa Hedw.
 Frullania dilatata (L.) Dum.
 Frullania fragilifolia (Tayl.) Gott. & al.
 Frullania jackii Gott.
 Frullania parvistipula Steph.
 Frullania tamarisci (L.) Dum.
 Funaria fascicularis (Hedw.) Lindb.
 Funaria hygrometrica Hedw.
 Funaria microstoma Schimp.
 Funaria muhlenbergii Turn.
 Geocalyx graveolens (Schrad.) Nees
 Grimmia affinis Hornsch.
 Grimmia anodon B.,S.&G.
 Grimmia anomala Schimp.
 Grimmia apiculata Hornsch.
 Grimmia atrata Hoppe & Hornsch.
 Grimmia caespiticia (Brid.) Jur.
 Grimmia donniana Sm.
 Grimmia elatior Bals. & De Not.
 Grimmia elongata Kaulf.
 Grimmia funalis (Schwaegr.) B., S. & G.)
 Grimmia hartmanii Schimp.
 Grimmia incurva Schwaegr.
 Grimmia laevigata (Brid.) Brid.
 Grimmia montana B.,S.&G.
 Riccia subbifurca Croz.
 Saelania glaucescens (Hedw.) Broth.
 Sauteria alpina (Nees) Nees
 Scapania aequiloba (Schwaegr.) Dum.
 Scapania aspera M. & H. Bernet
 Scapania curta (Mart.) Dum.
 Scapania cuspiduligera (Nees) K. Müll.
 Scapania gymnostomophila Kaal.
 Scapania helvetica Gott.
 Scapania irrigua (Nees) Nees
 Scapania mucronata Buch
 Scapania nemorea (L.) Grolle
 Scapania paludicola Loeske & K. Müll.
 Scapania paludosa (K. Müll.) K. Müll.
 Scapania scandica (H. Arnell & Buch) Macv.
 Scapania subalpina (Lindenb.) Dum.
 Scapania uliginosa (Lindenb.) Dum.
 Scapania umbrosa (Schrad.) Dum.
 Scapania undulata (L.) Dum.
 Scapania verrucosa Heeg
 Schistidium apocarpum (Hedw.) B.,S.&G.
 Schistidium rivulare (Brid.) Podp.
 Schistidium trichodon (Brid.) Poelt
 Schistostega pennata (Hedw.) Web. & Mohr
 Scleropodium purum (Hedw.) Limpr.
 Scorpidium scorpioides (Hedw.) Limpr.
 Seligeria brevifolia (Lindb.) Lindb.
 Seligeria calcarea (Hedw.) B.,S.&G.
 Seligeria donniana (Sm.) C. Müll.
 Seligeria pusilla (Hedw.) B.,S.&G.
 Seligeria recurvata (Hedw.) B.,S.&G.
 Seligeria trifaria (Brid.) Lindb.
 Sphagnum capillifolium (Ehrh.) Hedw.
 Sphagnum centrale C.Jens.
 Sphagnum compactum DC.
 Sphagnum contortum K. F. Schultz
 Sphagnum cuspidatum Hoffm.
 Sphagnum denticulatum Brid.
 Sphagnum fuscum (Schimp.) Klinggr.
 Sphagnum girgensohnii Russ.
 Sphagnum magellanicum Brid.
 Sphagnum majus (Russ.) C.Jens.
 Sphagnum palustre L.
 Sphagnum papillosum Lindb.
 Sphagnum platyphyllum (Braithw.) Warnst.
 Sphagnum quinquefarium (Braithw.) Warnst.
 Sphagnum recurvum P. Beauv.
 Sphagnum rubellum Wils.
 Sphagnum russowii Warnst.
 Sphagnum squarrosum Crome
 Sphagnum subnitens Russ. & Warnst.
 Sphagnum subsecundum Nees
 Sphagnum teres (Schimp.) *Angstr.
 Sphagnum warnstorffii Russ.
 Splachnum sphaericum Hedw.
 Stegonia latifolia (Schwaegr.) Broth.
 Taxiphyllum wissgrillii (Garov.) Wijk & Marg.

Grimmia muehlenbeckii Schimp.
Grimmia orbicularis Wils.
Grimmia ovalis (Hedw.) Lindb.
Grimmia pulvinata (Hedw.) Sm.
Grimmia sessitana De Not.
Grimmia sudetica Schwaegr.
Grimmia teretinervis Limpr.
Grimmia tergestina B., S. & G.
Grimmia torquata Grev.
Grimmia trichophylla Grev.
Grimmia unicolor Hook.
Gymnocolea inflata (Huds.) Dum.
Gymnomitrium apiculatum (Schiffn.) K. Müll.
Gymnomitrium concinatum (Lightf.) Corda
Gymnomitrium coralloides Nees
Gymnostomum aeruginosum Sm.
Gymnostomum calcareum Nees, Hornsch. & Sturm
Harpanthus scutatus (Web. & Mohr) Spruce
Hedwigia ciliata (Hedw.) P. Beauv.
Herzogiella seligeri (Brid.) Iwats.
Herzogiella striatella (Brid.) Iwats.
Heterocladium dimorphum (Brid.) Schimp.
Heterocladium heteropterum Schimp.
Homalia trichomanoides (Hedw.) Schimp.
Homalothecium lutescens (Hedw.) Robins.
Homalothecium philippeanum (Spruce) Schimp.
Homalothecium sericeum (Hedw.) Schimp.
Homomallium incurvatum (Brid.) Loeske
Hookeria lucens (Hedw.) J.E. Sm.
Hydrogrimmia mollis (B., S. & G.) Loeske
Hygrohypnum alpinum (Lindb.) Loeske
Hygrohypnum cochlearifolium (Vent.) Broth.
Hygrohypnum duriusculum (De Not.) Jamieson
Hygrohypnum luridum (Hedw.) Jenn.
Hygrohypnum molle (Hedw.) Loeske
Hygrohypnum smithii (Sw.) Broth.
Hylocomium pyrenaicum (Spruce) Lindb.
Hylocomium splendens (Hedw.) Schimp.
Hylocomium umbratum (Hedw.) Schimp.
Hymenostylium recurvirostre (Hedw.) Dix.
Hypnum bambergeri Schimp.
Hypnum callichroum Brid.
Hypnum cupressiforme Hedw.
Hypnum hamulosum Schimp.
Hypnum lindbergii Mitt.
Hypnum pallescens (Hedw.) P. Beauv.
Hypnum pratense (Rabenh.) Hartm.
Hypnum recurvatum (Lindb. & H. Arnell) Kindb.
Hypnum revolutum (Mitt.) Lindb.
Hypnum sauteri Schimp.
Hypnum vaucheri Lesq.
Tayloria acuminata Hornsch.
Tayloria froelichiana (Hedw.) Broth.
Tayloria lingulata (Dicks.) Lindb.
Tayloria rudolphiana (Garov.) B., S. & G.
Tayloria serrata (Hedw.) B., S. & G.
Tayloria splachnoides (Schwaegr.) Hook.
Tetraphis pellucida Hedw.
Tetraplodon angustatus (Hedw.) B., S. & G.
Tetraplodon mnioides (Hedw.) B., S. & G.
Tetradontium ovatum (Funck) Schwaegr.
Thuidium abietinum (Hedw.) Schimp.
Thuidium delicatulum (Hedw.) Mitt.
Thuidium philibertii Limpr.
Thuidium recognitum (Hedw.) Lindb.
Thuidium tamariscinum (Hedw.) Schimp.
Timmia austriaca Hedw.
Timmia bavarica Hessel.
Timmia norvegica Zett.
Tomentypnum nitens (Hedw.) Loeske
Tortella densa (Lor. & Mol.) Crundw. & Nyh.
Tortella fragilis (Hook. & Wils.) Limpr.
Tortella inclinata (Hedw. f.) Limpr.
Tortella tortuosa (Hedw.) Limpr.
Tortula atrovirens (Sm.) Lindb.
Tortula caninervis (Mitt.) Broth.
Tortula mucronifolia Schwaegr.
Tortula muralis Hedw.
Tortula norvegica (Web.) Lindb.
Tortula obtusifolia (Schwaegr.) Math.
Tortula papillosa Wils.
Tortula ruralis (Hedw.) Gaertn., Meyer & Scherb.
Tortula subulata Hedw.
Tortula virescens (De Not.) De Not.
Trematodon brevicollis Hornsch.
Trichocolea tomentella (Ehrh.) Dum.
Trichodon cylindricus (Hedw.) Schimp.
Trichostomum brachydontium Bruch
Trichostomum crispulum Bruch
Tritomaria exsecta (Schrad.) Loeske
Tritomaria exsectiformis (Breidl.) Loeske
Tritomaria polita (Nees) J/org.
Tritomaria quinquentata (Huds.) Buch
Tritomaria scitula (Tayl.) J/org.
Ulota coarctata (P. Beauv.) Hammar
Ulota crispa (Hedw.) Brid.
Ulota hutchinsiae (Sw.) Hammar
Weissia brachycarpa (Nees, Hornsch. & Sturm) Jur.
Weissia controversa Hedw.
Weissia longifolia Mitt.
Weissia wimmeriana (Sendtn.) B., S. & G.
Zygodon gracilis Wils.

List of the endangered species of Vascular Plants, October 2005

LRN: IUCN-Kriterien 2001, CR = Critically Endangered, En = Endangered,

VU = Vulnerable, NT = Near Threatened, LC = Least Concerned

Records since 1980

108 species

		LRN	MAX(A)			LRN	MAX(A)
Aconitum	variegatum	NT	1996	Galeopsis	ladanum	NT	2000
Adonis	aestivalis	VU	2000	Galeopsis	tetrahit	LC	2000
Aethionema	saxatile	VU	1995	Galium	spurium	NT	2000
Alchemilla	fissa	LC	1992	Geranium	pusillum	LC	2000
Alyssum	alyssoides	LC	2000	Geranium	pyrenaicum	LC	2000
Anchusa	arvensis	LC	2000	Goodyera	repens	LC	1994
Androsace	vitaliana	NT	1993	Gymnadenia	odoratissima	LC	1986
Anthemis	tinctoria	NT	2000	Hieracium	staticifolium	LC	1992
Aquilegia	alpina	NT	1998	Juncus	filiformis	LC	1996
Arenaria	serpyllifolia	LC	2000	Lactuca	serriola	LC	2000
Armeria	alpina	NT	1999	Lamium	amplexicaule	LC	2000
Artemisia	absinthium	LC	2000	Lapsana	communis	LC	2000
Artemisia	genipi	LC	1992	Lathyrus	sphaericus	VU	1997
Astragalus	cicer	NT	2000	Lathyrus	tuberosus	VU	2000
Botrychium	simplex	CR	1984	Limodorum	abortivum	NT	1995
Bromus	tectorum	LC	2000	Malaxis	monophyllos	VU	2003
Buglossoides	arvensis	LC	2000	Matthiola	valesiaca	VU	1997
Bulbocodium	vernum	NT	2002	Medicago	lupulina	LC	2000
Bunium	bulbocastanum	LC	2000	Neslia	paniculata	VU	2000
Callitriche	palustris	LC	1996	Odontites	vernus	VU	2000
Caltha	palustris	LC	1996	Orchis	ustulata	NT	1986
Campanula	excisa	NT	1997	Papaver	argemone	VU	2000
Capsella	bursa-pastoris	LC	2000	Paradisea	liliastrum	LC	1989
Carex	canescens	LC	1996	Poa	glauca	NT	1998
Carex	maritima	VU	1996	Polygonum	aviculare	LC	2000
Carex	nigra	LC	1996	Potentilla	argentea	LC	2000
Carex	paniculata	LC	1996	Potentilla	recta	LC	2000
Carex	rostrata	LC	1996	Prenanthes	purpurea	LC	1984
Centaurea	cyanus	NT	2000	Ranunculus	trichophyllus	NT	1996
Cerastium	pedunculatum	LC	1980	Rorippa	pyrenaica	VU	2003
Chaenorhinum	minus	LC	2000	Salix	phylicifolia	CR	1987
Chamorchis	alpina	LC	1986	Sambucus	racemosa	LC	1984
Chenopodium	album	LC	2000	Saxifraga	biflora	NT	1993
Chenopodium	hybridum	LC	2000	Selaginella	selaginoides	LC	1987
Cirsium	arvense	LC	2000	Silene	exscapa	LC	1983
Consolida	regalis	VU	2000	Sparganium	angustifolium	NT	1996
Convolvulus	arvensis	LC	2000	Thlaspi	arvense	LC	2000
Corallorrhiza	trifida	LC	2001	Tragopogon	dubius	LC	2000
Cryptogramma	crispa	LC	1997	Traunsteinera	globosa	LC	1989
Cypripedium	calceolus	VU	1996	Trifolium	arvense	LC	2000
Dactylorhiza	incarnata	NT	1987	Trifolium	pratense	LC	2000
Descurainia	sophia	LC	2000	Tulipa	sylvestris	VU	2003
Diphasiastrum	complanatum	EN		Valerianella	dentata	VU	2000
Draba	fladnizensis	LC	1986	Valerianella	locusta	LC	2000
Epipogium	aphyllum	NT	1999	Veronica	arvensis	LC	2000
Equisetum	fluviatile	LC	1996	Veronica	hederifolia	LC	2000
Equisetum	palustre	LC	1996	Vicia	cracca	LC	2000
Eriophorum	latifolium	LC	1996	Vicia	sativa	LC	2000
Eriophorum	scheuchzeri	LC	1996	Viola	arvensis	LC	2000
Eriophorum	vaginatum	LC	1987	Viola	calcarata	LC	1997
Euphorbia	helioscopia	LC	2000	Viola	palustris	LC	1980
Fallopia	convolvulus	LC	2000	Woodsia	alpina	NT	1989
Filago	arvensis	VU	2000				
Fumaria	officinalis	LC	2000				
Fumaria	vaillantii	EN	2000				
Galeopsis	angustifolia	NT	2000				

List of animal species (exclusive of birds), October 2005

data since 1980

Perimeter: Plan square kilometers in the nominated area about the Cover jab050217

LR: Categories of the red list, 0 = ausgestorben, 1 = vom Aussterben bedroht, 2 = stark gefährdet,

3 = gefährdet, 4 = potentiell gefährdet,

LRN: IUCN-Kriterien 2001 (not available for all families), CR = Critically Endangered, En = Endangered,

VU = Vulnerable, NT = Near Threatened, LC = Least Concerned

1144 species

		LR	LRN	MAX(A)			LR	LRN	MAX(A)
Actinopterygii					Cochlicopa	lubrica			2004
Leuciscus	cephalus			1999	Cochlicopa	lubricella			2001
Leuciscus	leuciscus			1999	Discus	rotundatus			2004
Phoxinus	phoxinus	4d		2004	Discus	ruderatus			2002
Rutilus	rutilus			1998	Euconulus	alderi	3		2001
Scardinius	erythrophthalmus			1998	Euconulus	fulvus			2004
Perca	fluviatilis			1998	Zonitoides	nitidus			2001
Oncorhynchus	mykiss			2000	Arianta	arbustorum			2004
Salmo	trutta	2		1998	Causa	holosericea	4		2004
Salmo	trutta	4d		2000	Cepaea	hortensis			2000
Salvelinus	alpinus	3		1998	Cepaea	nemoralis			2000
Salvelinus	fontinalis			1998	Cepaea	sylvatica			2004
Salvelinus	namaycush			2000	Helix	pomatia	4		2003
Thymallus	thymallus	3		2004	Isognomostoma	isognomostomos			2004
Cottus	gobio	4d		1999	Candidula	unifasciata			2001
Amphibia					Ciliella	ciliata			1991
Bufo	bufo	3		2005	Euomphalia	strigella	4		2001
Rana	temporaria			2005	Helicella	itala	4		2000
Salamandra	atra	3		2005	Helicodonta	obvoluta			2003
Triturus	alpestris	3		2005	Monachoides	incarnatus			2001
Bivalvia					Trichia	hispida			2001
Pisidium	casertanum			2001	Trichia	sericea			2004
Pisidium	personatum			1991	Trichia	villosa			2004
Gastropoda					Xerolenta	obvia			2001
Platyla	polita	4		2001	Lehmannia	marginata			2001
Deroceras	agreste			2003	Limax	cinereoniger			1982
Deroceras	laeve	4		2001	Malacolimax	tenellus			2001
Deroceras	reticulatum			2000	Galba	truncatula			2002
Arion	atripunctatus			2001	Radix	labiata			1988
Arion	distinctus			2000	Tandonia	rustica			1996
Arion	fuscus			2004	Planorbis	planorbis	4		1988
Arion	rufus			2001	Punctum	pygmaeum			2002
Arion	silvaticus			2001	Pupilla	muscorum			2001
Arion	vulgaris			2001	Pupilla	sterrii	4		1999
Boettgerilla	pallens			2000	Pupilla	triplicata	4		2001
Fruticicola	fruticum			2001	Pyramidula	pusilla			2004
Ena	montana			2004	Oxyloma	elegans			2002
Jaminaia	quadridens	3		2001	Succinea	putris			2001
Merdigera	obscura			2002	Succinella	oblonga			2001
Zebrina	detrita	3		2001	Acanthinula	aculeata			2002
Carychium	minimum			2001	Vallonia	costata			2002
Carychium	tridentatum			2002	Vallonia	pulchella			2001
Abida	secale			2004	Columella	columella			1980
Chondrina	avenacea			1997	Columella	edentula			2002
Granaria	variabilis	4		1999	Truncatellina	callicratis	4		2001
Balea	perversa	4		1994	Truncatellina	monodon	3		2002
Clausilia	cruciata			2001	Vertigo	alpestris			2001
Clausilia	dubia			2002	Vertigo	geyeri	1		2001
Clausilia	rugosa			2004	Vertigo	pygmaea			2001
Cochlodina	laminata			2002	Vertigo	substriata	3		2002
Macrogastra	attenuata			1991	Euobresia	diaphana			2004
Macrogastra	plicatula			2004	Euobresia	glacialis			2001
Neostyriaca	corynodes			1983	Euobresia	nivalis			2001

Eucobresia	pegorarii		1999	Corymbia	erythroptera		2001
Vitrina	pellucida		2002	Corymbia	fulva		1998
Aegopinella	minor	4	2001	Corymbia	hybrida		2002
Aegopinella	nitens		2004	Corymbia	maculicornis		2002
Aegopinella	pura		2001	Corymbia	rubra		1997
Mediterranea	depressa	3	1982	Dinoptera	collaris		1998
Morlina	glabra		1999	Ergates	faber		2003
Oxychilus	cellarius		2001	Evodinus	clathratus		2004
Perpolita	hammonis		2002	Gaurotes	virginea		2003
Perpolita	petronella		2001	Lamia	textor		2001
Vitrea	contracta	3	1997	Leiopus	nebulosus		2003
Vitrea	crystallina		2004	Leptura	maculata		2002
Vitrea	subrimata		2004	Leptura	quadrifasciata		2002
Insecta				Lepturobosca	virens		2002
Agrilus	biguttatus		2004	Megopis	scabricornis		2003
Anthaxia	helvetica		2002	Mesosa	nebulosa		2003
Anthaxia	hungarica		2004	Monochamus	sutor		2003
Anthaxia	quadripunctata		2002	Oberea	erythrocephala		2004
Anthaxia	sepulchralis		1998	Oberea	linearis		2002
Buprestis	novemmaculata		2002	Oxymirus	cursor		2002
Buprestis	rustica		2002	Pachyta	quadrimaculata		2003
Dicerca	alni		2004	Pachytodes	cerambyciformis		2002
Scintillatrix	rutilans		2003	Phytoecia	coerulescens		2004
Ancistronycha	abdominalis		1995	Pidonia	lurida		2002
Cantharis	rustica		1996	Pogonocherus	hispidulus		2003
Cantharis	tristis		1996	Pseudovadonia	livida		1996
Rhagonycha	lutea		1995	Pyrrhidium	sanguineum		2002
Amara	ovata		1996	Rhagium	inquisitor		2002
Asaphidion	austriacum		2002	Rhagium	mordax		2003
Asaphidion	caraboides		2002	Stenopterus	rufus		1998
Bembidion	complanatum		2002	Stenurella	bifasciata		1998
Bembidion	cruciatum		2002	Stenurella	melanura		2003
Bembidion	decorum		2002	Bromius	obscurus		1996
Bembidion	femoratum		1996	Cryptocephalus	hypochaeridis		1995
Bembidion	geniculatum		2002	Oulema	gallaeciana		1995
Bembidion	lunatum	3	2002	Thanasimus	formicarius		1996
Bembidion	quadrimaculatum		1996	Coccinella	septempunctata		1995
Bembidion	ruficorne		2002	Coccinula	quatuordecimpustulata		1996
Bembidion	scapulare		2002	Rhinocyllus	conicus		1996
Bembidion	stomoides		2002	Dasytes	niger		1995
Bembidion	terminale	1	2002	Dermestes	lardarius		1996
Bembidion	tetracolum		1996	Agabus	bipustulatus		1988
Bradycellus	verbasci		1996	Agabus	congener		1987
Calathus	erratus		2002	Hydroporus	memnonius		1987
Calathus	micropterus		1996	Hydroporus	nigellus	3	1987
Cicindela	campestris		1996	Hydroporus	nigrita		1987
Cicindela	gallica		2002	Hydroporus	palustris		1988
Cicindela	sylvicola		2002	Ilybius	erichsoni	4	1987
Harpalus	honestus		1996	Stictotarsus	griseostriatus		1988
Harpalus	tardus		1996	Anostirus	gracilicollis		1996
Nebria	rufescens		2002	Ctenicera	virens		1996
Poecilus	versicolor		1996	Hemicrepidius	hirtus		1995
Pterostichus	melanarius		1996	Hypnoidus	rivularius		1995
Pterostichus	oblongopunctatus		2002	Geotrupes	stercorarius		1996
Alosterna	tabacicolor		2002	Hister	unicolor		1996
Anastrangalia	dubia		2002	Helophorus	flavipes		1987
Anastrangalia	reyi		1995	Helophorus	glacialis		1988
Anastrangalia	sanguinolenta		2003	Hydrobius	fuscipes		1988
Brachyta	interrogationis		2004	Dorcus	parallelipedus		2003
Callidium	coriaceum		2004	Mordella	aculeata		1995
Callidium	violaceum		2002	Mordella	holomelaena		1995
Cerambyx	scopolii		2001	Mordella	huetheri		1995
Chlorophorus	varius		1998	Oedemera	virescens		1996

Clytus	arietis		2003	Cetonia	aurata		2002
Gnorimus	nobilis		2003	Andrena	thoracica	3	2000
Hoplia	argentea		1998	Andrena	tibialis		2000
Phyllopertha	horticola		2002	Andrena	wilkella		1999
Protaetia	cuprea		2002	Melitturga	clavicornis	2	1998
Thanatophilus	sinuatus		1996	Panurginus	herzi		2003
Emus	hirtus		1996	Panurginus	montanus		2003
Ontholestes	tessellatus		1995	Panurgus	banksianus		2002
Philonthus	splendens		1995	Panurgus	calcaratus	3	1998
Stenus	ruralis		1995	Panurgus	dentipes	3	1993
Anechura	bipunctata		2002	Anthophora	aestivalis	3	2002
Mantis	religiosa		2005	Anthophora	balneorum		2002
Baetis	alpinus		2003	Anthophora	crassipes		1989
Ecdyonurus	helveticus		2003	Anthophora	mucida		2002
Ecdyonurus	picteti		2003	Anthophora	plumipes		2001
Epeorus	alpicola		2003	Anthophora	quadrimaculata		1997
Rhithrogena	alpestris		2003	Ceratina	chalybea		1998
Rhithrogena	degrangei	4	2003	Ceratina	cucurbitina		2002
Rhithrogena	hybrida	4	2003	Ceratina	cyanea		2002
Rhithrogena	loyolaea	4	2003	Eucera	interrupta	3	2002
Rhithrogena	nivata	4	2003	Eucera	longicornis		2003
Andrena	afrensis		2002	Eucera	nigrescens		1999
Andrena	apicata	3	2003	Melecta	luctuosa	3	1999
Andrena	barbareae		1999	Nomada	atroscutellaris	3	1998
Andrena	barbilabris	3	2003	Nomada	braunsiana	3	2002
Andrena	bicolor		2003	Nomada	conjungens		1986
Andrena	carantonica		2002	Nomada	emarginata		2001
Andrena	cineraria	3	1990	Nomada	fabriciana		1995
Andrena	combinata	3	1998	Nomada	flavoguttata		2002
Andrena	congruens	3	2001	Nomada	flavopicta	3	2002
Andrena	curvungula	2	1996	Nomada	fulvicornis		1998
Andrena	dorsata		1999	Nomada	gransassoi		2002
Andrena	falsifica		2002	Nomada	integra		1989
Andrena	flavipes		2001	Nomada	marshamella		1990
Andrena	flicicola	3	1990	Nomada	nobilis	4	2002
Andrena	fucata		1987	Nomada	panzeri		2002
Andrena	fulvago		1999	Nomada	posthuma		2001
Andrena	gelriae	3	1990	Nomada	rufipes	3	1992
Andrena	haemorrhoea		2003	Nomada	similis		1992
Andrena	hattorfiana	3	2002	Nomada	striata		1998
Andrena	helvola		2002	Nomada	succincta		2001
Andrena	humilis		2003	Pasites	maculatus	2	1998
Andrena	intermedia		2003	Tetralonia	salicariae	3	1998
Andrena	labialis	1	1996	Thyreus	hirtus		1992
Andrena	labiata		2002	Thyreus	orbatus	3	1997
Andrena	lapponica		2002	Thyreus	ramosus	2	2000
Andrena	minutula		2002	Xylocopa	valga	3	2001
Andrena	minutuloides		1999	Xylocopa	violacea	3	1980
Andrena	mitis	3	2000	Apis	mellifera		2002
Andrena	nigroaenea		2000	Bombus	argillaceus	3	1998
Andrena	nitidiuscula		1998	Bombus	hortorum		1996
Andrena	ovatula		1999	Bombus	humilis	3	2002
Andrena	praecox	3	2000	Bombus	hypnorum		2003
Andrena	probata		1999	Bombus	lapidarius		2001
Andrena	proxima		1996	Bombus	lucorum		2003
Andrena	ranunculorum		1996	Bombus	mendax		1995
Andrena	rogenhoferi		1985	Bombus	mesomelas	3	2002
Andrena	ruficrus		2003	Bombus	monticola		2003
Andrena	rufizona		2002	Bombus	pascuorum		2002
Andrena	semilaevis		1987	Bombus	pratensis		1998
Andrena	similis		1999	Bombus	ruderi		1998
Andrena	simillima		1993	Bombus	soroensis		2002
Andrena	strohmeilla		2000	Bombus	sylvarum	3	2002

Andrena	subopaca		1999	Bombus	terrestris		2002
Andrena	tarsata		1992	Bombus	wurflinii		2002
Psithyrus	bohemicus		2002	Lasioglossum	calceatum		2003
Psithyrus	vestalis		2002	Lasioglossum	clypeare		1998
Chrysis	analis		1998	Lasioglossum	convexiusculum	3	2001
Chrysis	austriaca		2001	Lasioglossum	costulatum	3	1998
Chrysis	bicolor		2001	Lasioglossum	cupromicans		2003
Chrysis	calimorpha		2001	Lasioglossum	euboeense		1989
Chrysis	consanguinea		2001	Lasioglossum	fratellum		2003
Chrysis	cyanea		1998	Lasioglossum	fulvicorne		1999
Chrysis	ignita		1998	Lasioglossum	laevigatum		1999
Chrysis	mediata		2000	Lasioglossum	laticeps		2002
Chrysis	simplex		2002	Lasioglossum	leucopus		1989
Chrysis	succincta		1998	Lasioglossum	leucozonium		2003
Euchroeus	neglectus		2001	Lasioglossum	lissonotum	4	1998
Hedychrum	aureicolle		1998	Lasioglossum	lucidulum		1998
Hedychrum	gerstaeckeri		1998	Lasioglossum	majus	3	1986
Hedychrum	nobile		2001	Lasioglossum	minutulum	3	2001
Omalus	bidentulus		2001	Lasioglossum	morio		2000
Colletes	daviesanus		2001	Lasioglossum	nigripes	3	2002
Colletes	fodiens	3	2001	Lasioglossum	nitidiusculum		1996
Colletes	impunctatus		1989	Lasioglossum	nitidulum		1999
Colletes	mlokoszewiczi		2001	Lasioglossum	parvulum	3	1999
Colletes	nigricans	3	1989	Lasioglossum	pauxillum		2002
Colletes	similis	3	2001	Lasioglossum	punctatissimum		2000
Hylaeus	alpinus		1997	Lasioglossum	pygmaeum	2	2002
Hylaeus	angustatus		1996	Lasioglossum	rufitarse		1989
Hylaeus	annularis		1998	Lasioglossum	sexnotatum	2	1992
Hylaeus	annulatus		1989	Lasioglossum	subfasciatum	3	2000
Hylaeus	brevicornis		2001	Lasioglossum	subfulvicorne		1999
Hylaeus	communis		2002	Lasioglossum	tricinctum	3	1986
Hylaeus	diformis	3	1992	Lasioglossum	villosulum		2003
Hylaeus	gibbus		2002	Lasioglossum	xanthopus	3	1998
Hylaeus	gredleri		2002	Nomia	diversipes	3	2002
Hylaeus	hyalinatus		2002	Rophites	algirus	3	1996
Hylaeus	nigritus		2002	Sphecodes	albilabris	3	1998
Hylaeus	nivalis		2002	Sphecodes	crassus		2002
Hylaeus	punctulatissimus	3	2001	Sphecodes	ephippius		2002
Hylaeus	signatus		1989	Sphecodes	ferruginatus		2003
Hylaeus	sinuatus		2001	Sphecodes	geoffrellus		1998
Hylaeus	variegatus	3	2002	Sphecodes	gibbus		1998
Dufourea	alpina		2002	Sphecodes	hyalinatus		2002
Dufourea	dentiventris		2002	Sphecodes	marginatus		2001
Dufourea	halictula		2002	Sphecodes	monilicornis		1998
Dufourea	minuta	3	2001	Sphecodes	pellucidus	3	2002
Dufourea	paradoxa		1996	Sphecodes	puncticeps		2001
Halictus	confusus		2003	Sphecodes	reticulatus	3	1991
Halictus	eurygnathus		1998	Sphecodes	rufiventris		2001
Halictus	langobardicus		1998	Anthidium	byssinum		1998
Halictus	leucaheneus		1998	Anthidium	laterale	2	1989
Halictus	maculatus		2001	Anthidium	manicatum		1999
Halictus	quadricinctus	3	1999	Anthidium	montanum		1997
Halictus	rubicundus		2003	Anthidium	oblongatum		2002
Halictus	scabiosae	3	2002	Anthidium	punctatum	3	2002
Halictus	sexcinctus	3	2002	Anthidium	scapulare	3	2002
Halictus	simplex		2002	Anthidium	septemdentatum	2	1998
Halictus	smaragdulus	3	1999	Anthidium	strigatum		1998
Halictus	subauratus	3	1998	Chelostoma	campanularum		2002
Halictus	tumulorum		2003	Chelostoma	distinctum		1996
Lasioglossum	aeratum		2000	Chelostoma	florisomne		2003
Lasioglossum	albipes		2003	Chelostoma	grande		2001
Lasioglossum	alpigenum		2003	Chelostoma	rapunculi		2002
Lasioglossum	bavaricum		2003	Coelioxys	afra	3	1990

Lasioglossum	brevicorne	3	2002	Coelioxys	conica	2002
Lasioglossum	breviventre	4	1999	Coelioxys	mandibularis	1992
Lasioglossum	buccale	4	1998	Coelioxys	rufescens	3 2002
Dioxys	cincta	2	1989	Melitta	tricincta	3 1998
Dioxys	tridentata		1997	Mutilla	europaea	2002
Heriades	crenulatus	3	2002	Anoplius	nigerrimus	2003
Heriades	truncorum		2002	Anoplius	viaticus	2003
Megachile	alpicola		2002	Arachnospila	minutula	2002
Megachile	analis		1997	Arachnospila	spissa	2003
Megachile	circumcincta		2003	Cryptocheilus	notatus	2002
Megachile	lagopoda	1	1989	Dipogon	variegatus	1998
Megachile	leachella		1998	Entomobora	plicatus	2002
Megachile	maritima	3	2001	Monosapyga	clavicornis	2003
Megachile	melanopyga		2003	Sapygina	decemguttata	2002
Megachile	nigriventris		2003	Ammophila	campestris	1998
Megachile	parietina	3	2002	Ammophila	sabulosa	1998
Megachile	pilicrus		1989	Argogorytes	mystaceus	1987
Megachile	pilidens	3	2002	Astata	boops	1991
Megachile	pyrenaica		1998	Astata	minor	1991
Megachile	pyrenaica		2003	Bembix	tarsata	2002
Megachile	versicolor		1992	Brachystegus	scalaris	1998
Megachile	willughbiella		1998	Cerceris	arenaria	2002
Osmia	acuticornis	3	1990	Cerceris	interrupta	1998
Osmia	adunca		2002	Cerceris	quinquefasciata	2001
Osmia	alticola		1989	Cerceris	rybyensis	2002
Osmia	anceyi		1990	Crossocerus	assimilis	2002
Osmia	andrenoides		1991	Crossocerus	quadrifasciatus	2001
Osmia	anthocopoides	3	1998	Dinetus	pictus	2001
Osmia	aurulenta		2003	Diodontus	luperus	1998
Osmia	bicolor		2003	Diodontus	tristis	2001
Osmia	bicornis		2003	Dryudella	femoralis	2003
Osmia	brevicornis	3	2002	Ectemnius	cavifrons	1998
Osmia	caerulescens		2002	Ectemnius	dives	2003
Osmia	claviventris		2003	Ectemnius	lapidarius	1998
Osmia	cornuta		2000	Entomognathus	brevis	2001
Osmia	dalmatica		1996	Gorytes	quinquecinctus	1998
Osmia	gallarum	3	1999	Gorytes	quinquefasciatus	1987
Osmia	inermis		1999	Gorytes	sulcifrons	1998
Osmia	labialis		1990	Lestica	clypeata	2002
Osmia	leaiana		2003	Lindenius	albilabris	1998
Osmia	lepeletieri	3	2002	Lindenius	panzeri	2001
Osmia	leucomelana		2002	Mimumesa	dahlbomi	2002
Osmia	loti		2003	Nitela	spinolai	1998
Osmia	minutula		1993	Nysson	spinus	1987
Osmia	mitis		2002	Oxybelus	bipunctatus	1992
Osmia	mustelina		2003	Oxybelus	trispinosus	2002
Osmia	nigriventris		1989	Oxybelus	victor	2001
Osmia	parietina		2003	Passaloecus	corniger	1998
Osmia	ravouxi		1989	Pemphredon	lethifera	2002
Osmia	scutellaris	4	1989	Pemphredon	rugifera	1987
Osmia	spinulosa		2002	Philanthus	triangulum	1998
Osmia	submicans	3	2002	Podalonia	affinis	2002
Osmia	tergestensis		2002	Podalonia	hirsuta	2000
Osmia	tridentata	3	1991	Psenulus	pallipes	2002
Osmia	tuberculata		2002	Tachysphex	pompiliformis	2003
Osmia	villosa		1989	Tachytes	panzeri	1998
Osmia	xanthomelana		2003	Trypoxylon	beaumonti	1998
Stelis	franconica		1996	Ancistrocerus	claripennis	2002
Stelis	minuta		1986	Ancistrocerus	oviventris	2003
Stelis	nasuta	3	1986	Ancistrocerus	parietinus	2002
Stelis	ornatula		1989	Antepipona	ephippium	1991
Stelis	phaeoptera		1996	Celonites	abbreviatus	1987
Stelis	punctulatissima		2002	Dolichovespula	norwegica	2002

Stelis	signata		1998	Dolichovespula	omissa		1987
Dasygaster	hirtipes	3	1998	Eumenes	coarctatus		2002
Melitta	haemorrhoidalis		1999	Eumenes	coronatus		1998
Melitta	leporina		1998	Eumenes	lunulatus		1998
Eumenes	papillarius		1991	Entephria	nobilitaria		1997
Eumenes	pomiformis		2002	Epirrita	autumnata		1997
Eumenes	subpomiformis		1998	Epirrita	dilutata		1997
Euodynerus	notatus		2002	Eupithecia	denticulata		1987
Katamenes	arbustorum		1997	Eupithecia	gemellata		1990
Microdynerus	parvulus		2002	Eupithecia	innotata		1989
Odynerus	alpinus		1992	Eupithecia	ochridata		1989
Odynerus	laevipes		1987	Eupithecia	pauillaria		1990
Odynerus	reniformis		2002	Eupithecia	pernotata		1990
Odynerus	spinipes		2002	Eupithecia	pusillata		1994
Odynerus	spiricornis		1987	Eupithecia	satyrata		1993
Polistes	biglumis		2003	Gnophos	obfuscatus		1997
Polistes	bischoffi		2003	Odezia	atrata		2002
Polistes	dominulus		2002	Pennithera	firmata		1994
Polistes	gallicus		1997	Scopula	decorata		1997
Stenodynerus	bluethgeni		1987	Scopula	marginepunctata		1994
Stenodynerus	picticus		1997	Scopula	ornata		1994
Vespula	germanica		1998	Scotopteryx	bipunctaria		1997
Vespula	rufa		1996	Thera	obeliscata		1997
Vespula	vulgaris		2003	Thera	variata		1994
Arctia	villica		1994	Xanthorhoe	montanata		2002
Callimorpha	dominula		2005	Triodia	sylvina		1998
Coscinia	cribraria		1984	Carcharodus	alceae	1	2000
Cybosia	mesomella		1986	Carcharodus	lavatherae	1	2005
Diacrisia	sannio		2002	Carterocephalus	palaemon		1994
Diaphora	sordida		1989	Erynnis	tages		2002
Dysauxes	ancilla		1988	Hesperia	comma		2005
Dysauxes	punctata		1991	Ochlodes	venatus		2005
Eilema	caniola		1990	Pyrgus	alveus	3	1995
Eilema	complana		1990	Pyrgus	andromedae		1997
Eilema	lurideola		1985	Pyrgus	cacaliae		2005
Eilema	lutarella		1985	Pyrgus	carlinae		2002
Eilema	palliatella		1990	Pyrgus	carthami	3	2005
Eilema	pseudocomplana		1994	Pyrgus	malvae	3	1981
Eilema	pygmaeola		1989	Pyrgus	malvoides		2002
Euplagia	quadripunctaria		2002	Spialia	sertorius		2003
Nudaria	mundana		1992	Thymelicus	acteon	2	2000
Paidia	rica		1983	Thymelicus	lineola		2005
Parasemia	plantaginis		1982	Thymelicus	sylvestris		2001
Phragmatobia	fuliginosa		1994	Dendrolimus	pini		1993
Phragmatobia	luctifera		1994	Eriogaster	arbusculae		1992
Rhyparia	purpurata		1985	Eriogaster	lanestris		1993
Setina	aurita		2005	Lasiocampa	quercus		1986
Setina	irrorella		2002	Lasiocampa	trifolii		1985
Spilosoma	luteum		1989	Macrothylatia	rubi		1992
Syntomis	phegea		2005	Malacosoma	alpicolum		1994
Thumatha	senex		1992	Malacosoma	castrensis		1982
Cossus	cossus		1992	Malacosoma	neustrium		1986
Zeuzera	pyrina		1988	Odonestis	pruni		1982
Achlya	flavicornis		1993	Phyllodesma	tremulifolia		1998
Cilix	glaucata		1989	Poecilocampa	alpina		2002
Drepana	falcataria		1990	Lemonia	taraxaci		2002
Falcaria	lacertinaria		1982	Aricia	agestis	3	1998
Habrosyne	pyritoides		1987	Aricia	artaxerxes		2003
Ochropacha	duplaris		1988	Aricia	eumedon	3	2005
Polyploca	ridens		1994	Aricia	nicias	4a	1991
Tethea	ocularis		1991	Callophrys	rubi	3	2002
Tethea	or		1987	Celastrina	argiolus		2000
Watsonalla	binaria		1985	Cupido	alcetas	2	1998

Endromis	versicolora		1994	Cupido	minimus	3	2003
Alicis	repandata		1997	Glaucoopsyche	alexis	2	2002
Chloroclysta	citrata		1994	Hamearis	lucina	3	1981
Chloroclysta	siterata		1994	Lycaena	alciphron	2	2005
Chloroclysta	truncata		1997	Lycaena	hippotoe		2005
Lycaena	phlaeas		2001	Hoplodrina	ambigua		1997
Lycaena	tityrus		2005	Lithophane	leautieri		1997
Lycaena	virgaureae	3	2005	Lygephila	viciae		1994
Maculinea	arion	3	2002	Macdunnoughia	confusa		1994
Plebeius	argus	3	1996	Mesoligia	literosa		1997
Plebeius	glandon		1990	Mythimna	albipuncta		1997
Plebeius	idas	3	2002	Mythimna	ferrago		1997
Plebeius	optilete		2005	Mythimna	l-album		1997
Plebeius	orbitulus		1990	Mythimna	vitellina		1997
Plebeius	trappi	2	2003	Noctua	comes		1994
Polyommatus	amandus	4b	2000	Noctua	janthina		1997
Polyommatus	bellargus		2005	Noctua	orbona		1997
Polyommatus	coridon	3	2005	Ochropleura	musiva		1997
Polyommatus	damon	3	2002	Opigena	polygona		1994
Polyommatus	daphnis	2	1997	Phlogophora	meticulosa		1994
Polyommatus	dorylas	3	2000	Polymixis	gemmea		1997
Polyommatus	eros		1995	Polymixis	xanthomista		1997
Polyommatus	escheri	2	2005	Scoliopteryx	libatrix		1994
Polyommatus	icarus		2003	Spaelotis	senna		1997
Polyommatus	semiargus		2003	Tholera	cespitis		1994
Polyommatus	thersites	3	1995	Tholera	decimalis		1997
Pseudophilotes	baton	3	2002	Xanthia	aurago		1994
Satyrium	spini	2	2005	Xanthia	icteritia		1994
Scolitantides	orion	2	2001	Xanthia	ocellaris		1997
Thecla	betulae		2000	Xestia	c-nigrum		1997
Calliteara	pubibunda		1994	Xestia	xanthographa		1997
Euproctis	chrysorrhoea		1986	Cerura	vinula		1994
Euproctis	similis		1985	Clostera	curtula		1993
Leucoma	salicis		1984	Clostera	pigra		2002
Lymantria	dispar		1994	Furcula	bicuspis		1994
Lymantria	monacha		1982	Furcula	bifida		1982
Agrochola	circellaris		1997	Furcula	furcula		1986
Agrochola	helvola		1997	Notodonta	dromedarius		1994
Agrochola	litura		1994	Notodonta	tritopha		1983
Agrochola	lychnidis		1994	Notodonta	ziczac		1989
Agrochola	macilentata		1997	Phalera	bucephala		1988
Agrochola	nitida		1986	Pheosia	gnoma		1986
Agrotis	segetum		1994	Pheosia	tremula		1994
Agrotis	trux		1997	Pterostoma	palpina		1987
Ammoconia	caecimacula		1997	Ptilodon	capucina		1992
Amphipyra	tragopoginis		1997	Stauropus	fagi		1982
Antitype	chi		1997	Thaumetopoea	pityocampa		2005
Apamea	furva		1997	Aglais	urticae		2005
Apamea	monoglyphata		1997	Aphantopus	hyperantus		2002
Calamia	tridens		1994	Argynnis	adippe	3	2005
Catocala	nupta		1997	Argynnis	aglaja		2005
Chersotis	cuprea		1998	Argynnis	niobe	3	2003
Chersotis	margaritacea		1997	Argynnis	paphia		2002
Chersotis	rectangula		1994	Boloria	dia	2	2003
Conistra	ligula		1997	Boloria	euphrosyne		2002
Conistra	vaccinii		1997	Boloria	napaea		2005
Cryphia	raptricula		1994	Boloria	pales		2003
Diloba	caeruleocephala		1994	Boloria	selene	3	2003
Episema	glaucina		1997	Boloria	thore	2	1981
Eugnorisma	depuncta		1997	Boloria	titania	3	1995
Euxoa	cos		1997	Brenthis	daphne	2	2005
Euxoa	decora		1997	Brenthis	ino	3	2005
Euxoa	distinguenda		1997	Brintesia	circe	2	1998

Euxoa	nigricans		1997	Coenonympha	gardetta		2003
Euxoa	obelisca		1997	Coenonympha	pamphilus		2003
Euxoa	vitta		1997	Erebia	aethiops	3	2003
Hada	proxima		1997	Erebia	alberganus		2002
Heliothis	armigera		1994	Erebia	cassioides		1995
Heliothis	peltigera		1994	Erebia	epiphron		2005
Erebia	euryale		2005	Pieris	rapae		2005
Erebia	gorge		1993	Pontia	callidice		1993
Erebia	ligea		2000	Pontia	daplidice	2	2003
Erebia	manto		2002	Bijugis	bombycella		2002
Erebia	medusa		1999	Canephora	unicolor		1997
Erebia	melampus		2005	Epichnopterix	alpina		2003
Erebia	meolans	3	1998	Eumasia	parietariella		1992
Erebia	mnestra		2005	Leptopterix	plumistrella		2002
Erebia	montana		2005	Psyche	casta		2003
Erebia	oeme	3	1995	Psyche	crassiorella		1994
Erebia	pandrose		2002	Taleporia	tubulosa		1994
Erebia	pharte		2005	Udea	alpinalis		2002
Erebia	pluto		2002	Udea	uliginosalis		2002
Erebia	pronoe	3	2002	Saturnia	pavonia		1994
Erebia	sudetica	4a	1981	Saturnia	pyri		1989
Erebia	triaria	2	2000	Bembecia	ichneumoniformis		2002
Erebia	tyndarus		2005	Chamaesphracia	dumonti		1993
Euphydryas	aurinia		2002	Acherontia	atropos		1994
Euphydryas	cynthia		1990	Agrius	convolvuli		1994
Hipparchia	alcyone	2	2005	Deilephila	elpenor		1986
Hipparchia	semele	2	2005	Deilephila	porcellus		2005
Hyponephele	lycaon	3	2005	Hemaris	tityus		1983
Inachis	io		2003	Hyles	euphorbiae		1994
Issoria	lathonia		2003	Hyles	galii		2002
Lasiommata	maera		2005	Hyles	vespertilio		1984
Lasiommata	megera		2003	Hyloicus	pinastri		1995
Lasiommata	petropolitana	3	2002	Laothoe	populi		1989
Limnitis	reducta	2	2000	Macroglossum	stellatarum		2004
Maniola	jurtina		2003	Mimas	tiliae		1996
Melanargia	galathea		2005	Proserpinus	proserpinus		1995
Melitaea	athalia	3	2005	Sphinx	ligustri		1992
Melitaea	aurelia	2	1998	Thyris	fenestrella		1988
Melitaea	deione	2	1998	Adscita	albanica		1992
Melitaea	diamina	3	2002	Adscita	geryon		1996
Melitaea	didyma	3	2005	Adscita	statices		1996
Melitaea	parthenoides	2	1981	Jordanita	subsolana		1993
Melitaea	phoebe	2	2005	Rhagades	pruni		1996
Minois	dryas	2	2000	Zygaena	carniolica		2002
Nymphalis	antiopa	3	2003	Zygaena	exulans		2005
Oeneis	glacialis		2003	Zygaena	fausta		1981
Pararge	aegeria		2003	Zygaena	filipendulae		1997
Polygonia	c-album		2002	Zygaena	lonicerae		2005
Satyrus	ferula		2005	Zygaena	loti		1996
Vanessa	atalanta		2003	Zygaena	purpuralis		1997
Vanessa	cardui		2003	Zygaena	transalpina		2002
Iphiclidus	podalirius	2	2003	Zygaena	viciae		2005
Papilio	machaon		2003	Aeshna	caerulea	3 VU	1999
Parnassius	apollo	3	2005	Aeshna	cyanea	LC	2002
Parnassius	mnemosyne	2	1999	Aeshna	juncea	LC	2003
Parnassius	phoebus		2001	Coenagrion	hastulatum	3 NT	1999
Anthocharis	cardamines		2003	Coenagrion	puella	LC	2001
Aporia	crataegi	3	2005	Enallagma	cyathigerum	LC	1994
Colias	alfacariensis		2003	Ischnura	elegans	LC	1984
Colias	crocea		2003	Ischnura	pumilio	4d LC	1983
Colias	hyale		2003	Pyrrhosoma	nymphula	LC	1999
Colias	palaeno	3	2005	Cordulia	aenea	LC	1999
Colias	phicomone		2005	Somatochlora	alpestris	LC	2003

Euchloe	simplonia		1985	Somatochlora	arctica	3 NT	1990
Gonepteryx	rhamni		2000	Lestes	dryas	1 CR	1992
Leptidea	sinapis		2003	Leucorrhinia	dubia	3 NT	2000
Pieris	brassicae		2005	Libellula	quadrifasciata	LC	1999
Pieris	bryoniae	3	2002	Sympetrum	danae	NT	1983
Pieris	mannii	2	2002	Sympetrum	meridionale	NE	2002
Pieris	napi		2005	Sympetrum	striolatum	LC	1990
Platycnemis	pennipes	LC	2001	Nemoura	mortoni		2004
Arcyptera	fusca		2005	Nemoura	obtusa		2002
Chorthippus	biguttulus		2005	Nemoura	sinuata		2004
Chorthippus	brunneus		2005	Nemurella	pictetii		2004
Chorthippus	dorsatus		2004	Protonemura	brevistyla		2003
Chorthippus	mollis	3	2005	Protonemura	lateralis		2004
Chorthippus	montanus	3	2002	Protonemura	nimborella		2003
Chorthippus	parallelus		2005	Protonemura	nimborum		2003
Chorthippus	vagans	3	2005	Protonemura	nitida		2003
Euthystira	brachyptera		2003	Protonemura	praecox		1981
Gomphocerippus	rufus		2005	Dictyogenus	alpinum		2003
Gomphocerus	sibiricus		2005	Isoperla	rivulorum		2003
Myrmeleotettix	maculatus	2	2005	Perlodes	intricatus		2003
Oedipoda	caerulescens	3	2005	Protonemura	algovia		2003
Oedipoda	germanica	3	2005	Rhabdiopteryx	alpina		2003
Omocestus	haemorrhoidalis	3	2005	Rhabdiopteryx	neglecta		2003
Omocestus	rufipes	3	2005	Taeniopteryx	kuehntreiberi		2003
Omocestus	viridulus		2005	Ptilocolepus	granulatus		2004
Psophus	stridulus	3	2005	Crunoecia	irrorata		2002
Sphingonotus	caerulans	1	2005	Allogamus	auricollis		2004
Stauroderus	scalaris		2005	Allogamus	hilaris		2004
Stenobothrus	lineatus		2005	Allogamus	mendax		2003
Stenobothrus	rubicundulus		2004	Drusus	biguttatus		2004
Stethophyma	grossum	2	2002	Drusus	discolor		2003
Bohemanella	frigida		2005	Halesus	rubricollis		2004
Calliptamus	italicus	3	2005	Limnephilus	coenosus		2003
Miramella	alpina	3	2003	Potamophylax	cingulatus		2003
Podisma	pedestris	3	2005	Philopotamus	ludificatus		2002
Gryllus	campestris	3	2005	Plectrocnemia	geniculata		2003
Nemobius	sylvestris		2005	Rhyacophila	albardana		2003
Oecanthus	pellucens	3	2005	Rhyacophila	dorsalis		2003
Tetrix	bipunctata		2002	Rhyacophila	torrentium		2003
Tetrix	tenuicornis		2005	Rhyacophila	vulgaris		2004
Tetrix	tuerki	2	2002	Mammalia			
Uvarovitettix	depressus	3	2002	Capra	ibex		2005
Antaxius	pedestris	3	2004	Rupicapra	rupicapra		2003
Barbitistes	serricauda	3	2002	Capreolus	capreolus		2003
Conocephalus	fuscus	3	2002	Cervus	elaphus		2003
Decticus	verrucivorus	3	2005	Sus	scrofa		1980
Leptophyes	punctatissima	3	2005	Vulpes	vulpes		2003
Metrioptera	brachyptera	3	2005	Lynx	lynx	1	2004
Metrioptera	roeselii		2005	Martes	foina		2003
Metrioptera	saussuriana		2002	Martes	martes		2001
Phaneroptera	falcata	3	2005	Meles	meles		2003
Phaneroptera	nana	3	2003	Mustela	erminea		2000
Pholidoptera	griseoptera		2003	Mustela	nivalis	3	2002
Platycleis	albopunctata	3	2005	Tadarida	teniotis	4a	1992
Tettigonia	cantans		1999	Eptesicus	serotinus	2	1989
Tettigonia	viridissima		2005	Hypsugo	savii	4b	2002
Capnia	nigra		2003	Myotis	blythii	2	2000
Capnia	vidua		2003	Myotis	daubentonii	3	1990
Chloroperla	susemicheli		2003	Myotis	myotis	2	2001
Siphonoperla	montana		2003	Myotis	myotis/blythi		1992
Leuctra	albida		2003	Myotis	mystacinus	3	1990
Leuctra	inermis		2003	Myotis	mystacinus/brandthii		1988
Leuctra	major		2003	Myotis	nattereri	4b	1991

Leuctra	mortoni		2003	Nyctalus	noctula	3	1988
Leuctra	moselyi		2003	Pipistrellus	pipistrellus		1991
Leuctra	pseudosignifera		2003	Plecotus	sp.		1989
Leuctra	rauscheri		2003	Vespertilio	murinus	4a	1988
Leuctra	rosinae		2003	Erinaceus	europaeus		2001
Leuctra	schmidi		2002	Crocidura	russula		1997
Amphinemura	standfussi		2003	Sorex	alpinus		2000
Amphinemura	sulcicollis		1981	Sorex	antinorii		2002
Sorex	araneus		2000				
Sorex	minutus		2000				
Lepus	europaeus	3	2003				
Lepus	timidus		2001				
Eliomys	quercinus		2002				
Muscardinus	avellanarius	3	1995				
Myoxus	glis		1990				
Clethrionomys	glareolus		2000				
Apodemus	flavicollis		1982				
Apodemus	sylvaticus		1982				
Marmota	marmota		2003				
Sciurus	vulgaris		2004				
Reptilia							
Anguis	fragilis		2004				
Coronella	austriaca	3	2005				
Natrix	natrix	3	2005				
Lacerta	agilis	3	1994				
Lacerta	bilineata	3	2004				
Podarcis	muralis	3	2003				
Zootoca	vivipara		2004				
Vipera	aspis	3	2005				

List of birds, October 2005

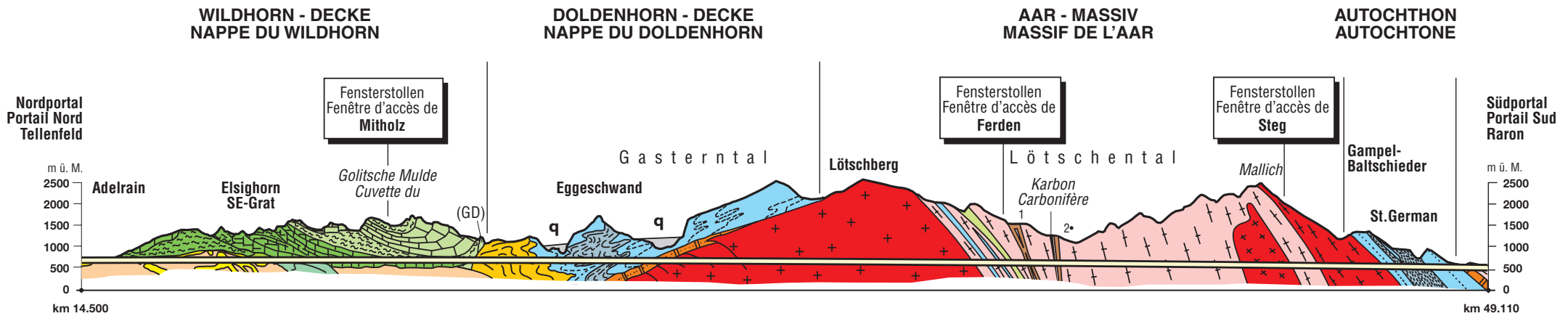
LR: Categories of the red list, 0 = ausgestorben, 1 = vom Aussterben bedroht, 2 = stark gefährdet, 3 = gefährdet, 4 = potentiell gefährdet,

99 species

		LR			LR
Accipiter	gentilis	LC	Monticola	saxatilis	VU
Accipiter	nisus	LC	Montifringilla	nivalis	LC
Aegithalos	caudatus	LC	Motacilla	alba	LC
Aegolius	funereus	LC	Motacilla	cinerea	LC
Alauda	arvensis	NT	Muscicapa	striata	LC
Alectoris	graeca	NT	Mycena	adonis	
Anas	platyrhynchos	LC	Nucifraga	caryocatactes	LC
Anthus	spinoletta	LC	Oenanthe	oenanthe	LC
Anthus	trivialis	LC	Parus	ater	LC
Apus	apus	LC	Parus	caeruleus	LC
Apus	melba	NT	Parus	cristatus	LC
Aquila	chrysaetos	VU	Parus	major	LC
Asio	otus	VU	Parus	montanus	LC
Bonasa	bonasia	VU	Parus	palustris	LC
Bubo	bubo	VU	Passer	domesticus	
Caprimulgus	europaeus	EN	Pernis	apivorus	NT
Carduelis	cabaret	LC	Phoenicurus	ochrurus	LC
Carduelis	cannabina	LC	Phoenicurus	phoenicurus	NT
Carduelis	carduelis	LC	Phylloscopus	bonelli	LC
Carduelis	chloris	LC	Phylloscopus	collybita	LC
Carduelis	spinus	LC	Phylloscopus	sibilatrix	NT
Certhia	familiaris	LC	Pica	pica	LC
Cinclus	cinclus	LC	Picoides	tridactylus	LC
Coccothraustes	coccothraustes	LC	Picus	viridis	LC
Columba	palumbus	LC	Prunella	collaris	LC
Corvus	corax	LC	Prunella	modularis	LC
Corvus	corone		Ptyonoprogne	rupestris	LC
Coturnix	coturnix	LC	Pyrrhocorax	graculus	LC
Cuculus	canorus	NT	Pyrrhocorax	pyrrhocorax	EN
Delichon	urbica	LC	Pyrrhula	pyrrhula	LC
Dendrocopos	major	LC	Regulus	ignicapillus	LC
Dicranum	bonjeanii	LC	Regulus	regulus	LC
Dryocopus	martius	LC	Saxicola	rubetra	NT
Emberiza	cia	LC	Scolopax	rusticola	VU
Emberiza	citrinella	LC	Serinus	citrinella	LC
Emberiza	hortulana	VU	Serinus	serinus	LC
Erithacus	rubecula	LC	Sitta	europaea	LC
Falco	peregrinus	VU	Strix	aluco	LC
Falco	tinnunculus	NT	Sturnus	vulgaris	LC
Ficedula	hypoleuca	LC	Sylvia	atricapilla	LC
Fringilla	coelebs	LC	Sylvia	borin	LC
Garrulus	glandarius	LC	Sylvia	curruca	LC
Glaucidium	passerinum	NT	Tetrao	tetrix	NT
Grimmia	muehlenbeckii	LC	Tichodroma	muraria	LC
Hygrocybe	unguinosa		Troglodytes	troglodytes	LC
Jynx	torquilla	VU	Turdus	merula	LC
Lagopus	mutus	LC	Turdus	philomelos	LC
Lanius	collurio	LC	Turdus	pilaris	LC
Loxia	curvirostra	LC	Turdus	torquatus	LC
Lullula	arborea	VU	Turdus	viscivorus	LC

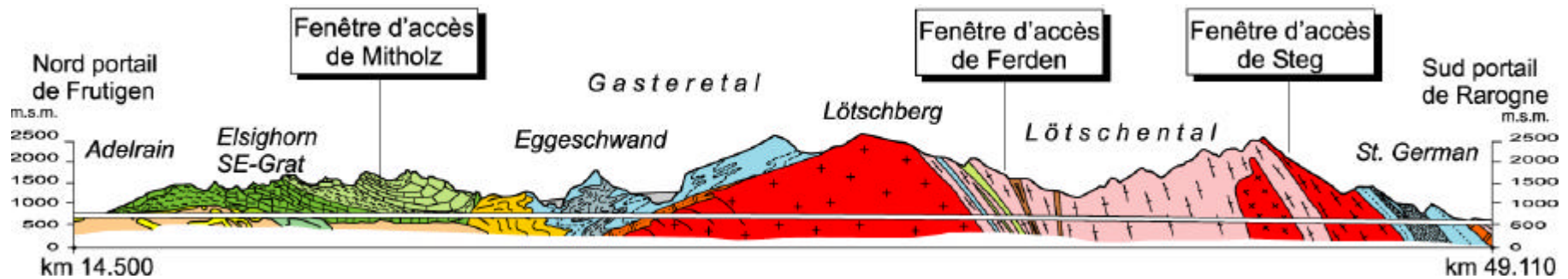
Geologisches Längenprofil Lötschberg - Basistunnel

Coupe géologique du tunnel de base du Lötschberg



- | | | | | | |
|---|---|--|--|--|--|
| q Quartäre Talfüllungen
Remplissage quaternaire | Mélange
Mélange | Autochthone Trias
Trias autochtone | <i>Dolomit, Schiefer, Gips/Anhydrit, Sandstein
Dolomies, schistes, gypse/anhydrite, grès</i> | Aar - Massiv
Massif de l'Aar | <i>Altkristallin: Gneise und Schiefer
Socle cristallin: gneiss, schistes</i> |
| Taveyannaz-Serie
Série de Taveyanne | Gellihorn-Decke (GD)
Nappe du Gellihorn (GD) | Jungfrau keil
Cône de la Jungfrau | | Sedimenteinschuppung
Ecaillés de sédiment | |
| Flysch ungeklärter Stellung
Flysch d'origine incertaine | Flysch der Doldenhorn-Decke
Flysch de la nappe du Doldenhorn | +
x
x Aar - Massiv
Massif de l'Aar | <i>Gastern-Granit
Granite de Gastern</i> | Amphibolgneiss, Amphibolit
Gneiss à amphibole • Amphibolite | |
| Wildhorn-Decke
Nappe du Wildhorn | Doldenhorn-Decke und Autochthon
<i>Vorwiegend Mergelkalk (im Süden harte Tonschiefer)
Prédominant calcaire marneux (au Sud: Schistes argileux durs)</i>
Nappe du Doldenhorn et Autochtone | | <i>Zentraler Aare-Granit
Granite central de l'Aar</i> | 1 Dornbach-/2 Faldumbach-Störung (mit Phylliten)
Zônes de phyllites 1 Dornbach/2 Faldumbach | |
| <i>Oberes, verfallenes Stockwerk
Partie supérieure plissée</i> | <i>Vorwiegend Kalke
Prédominant calcaire</i> | | <i>Baltschieder Granodiorit
Granodiorite de Baltschieder</i> | | |
| <i>Unteres, verschupptes Stockwerk
Partie inférieure écaillée</i> | | | | | |

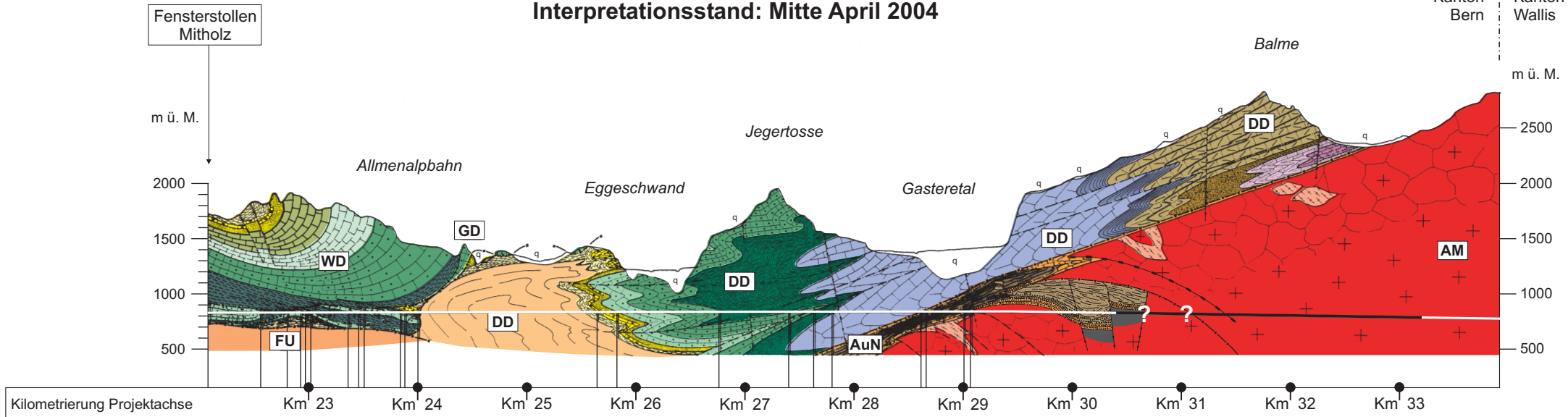
Profil géologique longitudinal



Ausschnitt Geologisches Prognoseprofil 1:50'000
 Ausbruchstand 19. April 2004 (Weströhre)
Interpretationsstand: Mitte April 2004

Lötschenpass

Kanton Bern Kanton Wallis



Lithostratigraphische Einheiten

Sedimentbedeckung

Tertiär

- Flysch der Doldenhorn-Decke
- Flysch ungeklärter Stellung
- Globigerinenschiefer
- Lithothamnienkalk, Hohgant-/Quarzsandstein

Kreide

- Schrattenkalk
- Drusberg-Schichten
- Kieselkalk und Sichel-Kalk (Valanginienkalk)
- Öhrli-Kalk, Betlis-Kalk
- Öhrli-Mergel (und Zementsteinschichten)
- Palfris-Schiefer

Malm

- Quintner- bzw. Hochgebirgskalk

Dogger

- Schilt-Schichten s.l.
- Kalke und Mergelschiefer
- Aalénienschiefer

Lias

- Kalke/Kalksandstein ("Oberer Lias")
- Tonschiefer/Mergelkalke ("Unterer Lias")

Trias

- Schiefer und Sandsteine des Rhät
- Anhydritmergel, Dolomit, Rauhucke/Anhydrit, Basis-Sandstein/Quarzit

Karbon

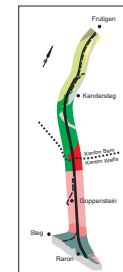
- Sandsteine, schwarze Schiefer und Anthrazitlinsen

Grundgebirge

**Hercynischer
Granitkörper**

- Gastern-Granit (inkl. Randfazies)
- Altkristallin im allg.

- FU **Flysch ungeklärter Stellung**
- WD **Wildhorn-Decke**
- GD **Gellihorn-Decke**
- DD **Doldenhorn-Decke**
- AuN **Autochthon Nordabdachung**
- AM **Aar-Massiv**



**Jungfrau - Aletsch - Bietschhorn
UNESCO World Natural Heritage**

Charter of Konkordiaplatz

Preamble

We – the 15 communes of Bellwald, Fieschertal, Betten, Ried-Mörel, Naters, Birgisch, Mund, Baltschieder, Eggerberg, Ausserberg, Raron, Niedergesteln, Blatten im Lötschental, Lauterbrunnen and Grindelwald – form a network of "Jungfrau-Aletsch-Bietschhorn" communes. As members of this network, we undertake to promote the development of the region in accordance with the principle of sustainability. We are aware that we live in a landscape of outstanding beauty. The Jungfrau-Aletsch-Bietschhorn region is of great aesthetic value and of major ecological and cultural importance. The Charter of Konkordiaplatz is the result of discussions and a constructive approach to fundamental ecological, economic and social issues relating to the Jungfrau-Aletsch-Bietschhorn region. The designation "Konkordiaplatz" symbolizes the coming together of different philosophies to form one of "concord", just as a number of glaciers combine to form the Great Aletsch Glacier.

We are proud that our Jungfrau-Aletsch-Bietschhorn region has been nominated for inscription in the UNESCO World Heritage List. This nomination testifies to our past efforts – undertaken in conjunction with the cantonal and federal authorities, the regions and environmental associations – to protect, conserve and enhance this landscape. This charter is an expression of our determination to continue to seek and to promote sustainable landscape development. The inclusion of the region on the list of UNESCO World Heritage sites would be a mark of international recognition for these endeavours.

By signing this Charter, we are expressing our commitment to continue to promote the conservation and sustainable management of our environment, so that its quality and diversity may be bequeathed to future generations.

Foundations

This Charter is based on Agenda 21, the key document adopted at the UN "Earth Summit" held in Rio de Janeiro in 1992. The communes joined together in the network undertake to meet the requirements of Agenda 21 and to cooperate with all elements of our society – citizens, companies and special-interest groups – in establishing a "local Agenda 21". The network of communes undertakes to become involved in the processes of the local Agenda 21 and in the long term to develop action plans designed to promote sustainability.

Definition of sustainability

Development is sustainable if it meets the needs of all segments of the population of the present generation without compromising the ability of future generations to meet their own needs. At the same time, it ensures that the diversity of the natural environment, including flora and fauna, is preserved, together with the cultural heritage (adapted from the Brundtland Commission Report, 1987).

Charter of Konkordiaplatz

This Charter lays the foundations for sustainable development in the Jungfrau-Aletsch-Bietschhorn UNESCO World Natural Heritage site and is to be understood as the "regional conscience" of the area in question. It rests on three pillars **of equal status** – ecological, social and economic.

We, the members of the network of Jungfrau-Aletsch- Bietschhorn communes, hereby declare:

- ◆ that we wish to survive as centres of community life, as supporters of the local economy, and as guardians of our natural and cultural heritage and traditions. We shall develop and put into effect long-term action plans, thereby strengthening our cooperation and creating links between the process of sustainability and the political authorities, the cantons of Bern and Valais, and all other interested parties;
- ◆ that the family and the commune represent the basic elements of our society within the cantons and the Confederation;
- ◆ that we aspire to social justice, viable economic systems and sustainable management of the natural environment;
- ◆ that we shall seek to reconcile the satisfaction of fundamental needs and the quality of life with conservation of the environment;
- ◆ that we shall endeavour to preserve existing jobs and to create new ones that cement social bonds within the community and are in accordance with the principles of sustainability;
- ◆ that we support measures to protect the climate and are committed to the promotion of renewable sources of energy as sustainable alternatives;
- ◆ that we are committed to the environmentally sound disposal of unavoidable waste and wish to avoid the release of toxic substances into the atmosphere, water, soil or foodstuffs;
- ◆ that we shall enable all citizens to obtain access to information and allow them to participate in local decision-making processes;
- ◆ that we shall seek to provide information, training and continuing education for the general public;

- ◆ that, in order to achieve the goals of sustainability, we shall review the measures taken (by collecting and processing environmental data, etc.) so that any necessary adjustments can be made to the action plans;
- ◆ with regard to the proposed Jungfrau-Aletsch-Bietschhorn UNESCO World Natural Heritage site, the network undertakes in particular:
 - ◆ to spell out the protection goals already defined for the proposed World Heritage site, and to show how these goals can be achieved;
 - ◆ following the inscription of the proposed site in the List, to pursue the question of possible extensions and/or the addition of buffer zones;
 - ◆ and to promote sustainable management of the landscape, especially with regard to agriculture, forestry and tourism.

This Charter may be supplemented or further elaborated in accordance with discussions conducted within the network of communes.

Issued at Konkordiaplatz, 26 September 2001

Signed by the Chairman (or Secretary) of the network of "Jungfrau-Aletsch-Bietschhorn" communes

Charter of Konkordiaplatz

Declaration of Signature of the Charter by Additional Communes

On 26 September 2001, the communes of Bellwald, Fieschertal, Betten, Ried-Mörel, Naters, Birgisch, Mund, Baltschieder, Eggerberg, Ausserberg, Raron, Niedergesteln, Blatten im Lötschental, Lauterbrunnen and Grindelwald signed the Charter of Konkordiaplatz on the Jungfrauoch, thereby testifying to their willingness to support the sustainable future development of this World Heritage Region. On 13 December 2001, the World Heritage Committee inscribed the Jungfrau-Aletsch-Bietschhorn site on the UNESCO World Heritage List – the first Alpine area to be inscribed on the famous list of world heritage sites. This network of “Jungfrau-Aletsch-Bietschhorn” communes has pledged to UNESCO that it will undertake to establish an association, a financial mechanism, and a management plan for the World Heritage Site. In the context of developing this plan, it is foreseen that the perimeter of the site will be expanded to the east and the west, and that its southern border will be optimised in the Lötschental and the Lötschbergsüdrampe region. This expansion process was completed in mid-December 2004. The 11 communes below have confirmed this arrangement. By so doing, they become members of the network of World Heritage Region communes and, by signing the Charter of Konkordiaplatz, testify to their willingness to support and promote the sustainable development of the Region.

Preamble

We, the 11 additional communes of the Jungfrau-Aletsch-Bietschhorn World Heritage Region – Steg, Hohtenn, Wiler, Kippel, Ferden, Schattenalpb, Guttannen, Innertkirchen, Meiringen, Reichenbach i.K. and Kandersteg – hereby join the network of “Jungfrau-Aletsch-Bietschhorn” communes. As members of this network, we pledge to support the development of the Region in accordance with the principles of sustainability. We are aware that we live in a landscape of outstanding beauty. The Jungfrau-Aletsch-Bietschhorn region is of great aesthetic value and of major ecological and cultural importance. The Charter of Konkordiaplatz is the result of discussions and a constructive approach to fundamental ecological, economic and social issues relating to the Jungfrau-Aletsch-Bietschhorn region. The designation “Konkordiaplatz” symbolizes the coming together of different philosophies to form one of “concord”, just as a number of glaciers combine to form the Great Aletsch Glacier.

We are proud that our communes will be included in the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site. This inclusion testifies to our past efforts – undertaken in conjunction with the cantonal and federal authorities, the regions and environmental associations – to protect, conserve and enhance this landscape. Our signatures on the Charter are an expression of our determination to

continue to seek and to promote sustainable landscape development. Inclusion on the list of UNESCO World Heritage sites would be a mark of international recognition for these endeavours.

By signing this Charter, we are expressing our commitment to continue to promote the conservation and sustainable management of our environment, so that its quality and diversity may be bequeathed to future generations.

Foundations

This Charter is based on Agenda 21, the key document adopted at the UN "Earth Summit" held in Rio de Janeiro in 1992. The communes joined together in the network undertake to meet the requirements of Agenda 21 and to cooperate with all elements of our society – citizens, companies and special-interest groups – in establishing a "local Agenda 21". As members of this network, we pledge to become involved in the processes of the local Agenda 21, and, in the long term, to develop action plans designed to promote sustainability.

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Charter of Konkordiaplatz

This Charter lays the foundations for sustainable development in the Jungfrau-Aletsch-Bietschhorn UNESCO World Natural Heritage Region and is to be understood as the "regional conscience" of the area in question. It rests on three pillars **of equal status** – ecological, social and economic.

We, the members of the network of Jungfrau-Aletsch- Bietschhorn communes, hereby declare:

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 - ◆ following the inscription of the site in the List, to pursue the question of possible extensions and/or the addition of buffer zones;
 - ◆ and to promote sustainable management of the landscape, especially with regard to agriculture, forestry and tourism.

This Charter may be supplemented or further elaborated in accordance with discussions conducted within the network of communes.

Issued at the City of Berne UNESCO World Heritage Site , 1 March 2005

Signed by the Presidents (or Secretaries) of the communes of the expanded “Jungfrau-Aletsch-Bietschhorn” network:

Station ornithologique suisse de Sempach

Recensement des lagopèdes alpins et des tétras lyres en 2004 dans une sélection de régions des Alpes suisses



Réalisation du projet

***Andreas Bossert
Matthias Reitze
Künzler Bossert und Partner GmbH***

***Christian Marti
Station ornithologique suisse de Sempach***

Mandant

***OFEFP
Section Chasse et faune sauvage***

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Photo de la page de couverture: coq de tétras lyre en train de quitter son iglou nocturne. Photo Jürg Zettel.

1 Introduction

En 2004, des comptages ont été effectués dans 28 régions de recensement du lagopède alpin et dans 48 régions de recensement du tétras lyre dans les Alpes suisses. En raison des grosses quantités de neige et du danger d'avalanche subsistant début mai, il n'a pas été possible de procéder à tous les comptages prévus.

En 2003, les données des comptages des tétras lyres ont été évaluées à l'aide du programme de biostatistique TRIM3. Les résultats indiquent que nos comptages doivent être effectués à très long terme si l'on désire en tirer un diagnostic de portée générale. Il est aussi important que les comptages se fassent toujours dans les mêmes régions sur l'ensemble du périmètre. Nous nous considérons surtout comme des « collecteurs de données ». Un groupe d'accompagnement Tétracidés nous aidera à l'avenir dans l'appréciation des résultats et des éventuelles tendances. Les experts suivants font partie du

groupe: Rolf Anderegg et Joya Müller (OFEFP), Niklaus Zbinden et Christian Marti (Station ornithologique suisse de Sempach), Hannes Jenny (Service de la chasse des Grisons), Andreas Bossert et Matthias Reitze (KB+P GmbH).

Remerciements

Nous remercions les gardes-faune et les nombreux recenseurs qui ont mené une fois de plus le comptage, ainsi que les 13 services cantonaux de la chasse des cantons alpins pour l'aide apportée à l'organisation des recensements. Le professeur P. Ingold et ses collaborateurs ont à nouveau aimablement mis à disposition les résultats des recensements effectués dans la région de l'Augstmatthorn (BE). Nous sommes aussi reconnaissants des résultats des comptages de lagopèdes et de tétras lyres effectués au Tessin (M. Salvioni / N. Zbinden et collaborateurs) et dans la région d'Aletsch (H.R. Pauli, A. Bossert et collaborateurs). Nos remerciements s'adressent aussi à l'OFEFP, Section Chasse et faune sauvage, qui contribue au financement du projet.

2 Conditions atmosphériques en 2003 / 2004

L'évaluation des formulaires de recensement donne de l'évolution du temps l'image suivante: La fonte de la neige en 2003 a été généralement précoce ou dans la moyenne (normale). L'été 2003 a été extrêmement sec et très chaud (été du siècle). Les chutes de neige en automne se sont produites au moment habituel (environ à mi-novembre). L'hiver 2003 / 04 a été dans la moyenne, mais assez rigoureux dans la région Nord des Alpes. Les recensements ont eu lieu alors que la neige, tombée début mai, était encore abondante. Pour cette raison, la fonte des neiges a partout été signalée comme tardive à très tardive en 2004. Sur le plan des températures, l'hiver n'a pas été extraordinairement froid.

3 Résultats

3.1 Recensement des lagopèdes alpins en 2004, par canton

Canton de Fribourg

Dans le district franc de Hochmatt, on a observé un coq apparié. Depuis le début des recensements, 1 à 3 coqs sont présents. En raison des conditions météorologiques défavorables, il n'a pas été possible de procéder au recensement dans la région du Moléson.

Canton de Vaud

Un mâle appelant a été entendu dans la région de recensement de La Berneuse. Dans le cadre des relevés (seulement à partir de 06h00), un lagopède indéterminé a été recensé dans la région du lac Lioson et un autre dans celle du col des Andérets.

Canton de Berne

Aucun recensement n'a été effectué dans le canton de Berne.

Canton d'Uri

Deux recensements. Dans la région de recensement de l'Urirotstock, 4 coqs appariés ont été relevés lors de 2 comptages. Dans la région de Windgällen, 4 couples ont aussi été recensés. De 1995 à 2004, on a enregistré dans cette région une diminution de 10 à 4 coqs.

Canton de Glaris

Deux recensements. 4 couples ont été relevés dans la région du Gandstock. Seulement 2 coqs l'année passée. Au Muttsee, à nouveau 6 coqs; effectif égal à celui du début des comptages.

Canton de Schwyz

Un recensement. 6 coqs dans le district franc de Silberer am Bietstock – Butzen. Effectif à peu près égal à celui du début des comptages.

Canton de Lucerne

Un comptage dans le district franc de Tannhorn. 3 couples ont été observés.

Canton d'Obwald

Un recensement dans le district franc de Hahnen Ruggubel: seulement 6 coqs par rapport à un effectif maximal de 25 coqs (1997). On n'a observé qu'une faible activité de parade.

Canton de Nidwald

Deux recensements. Dans la région du Pilate, 2 coqs comme l'année précédente; 1 couple observé. Dans le district franc du Huetstock, observation d'un couple et de 2 coqs appelant.

Canton de St-Gall

Trois recensements. 18 coqs au Leistchamm. Forte densité autour du sommet du Leistchamm avec un coq appelant tous les 300 m environ horizontalement et verticalement. La région était difficile d'accès. En raison de l'approche d'un orage, le recensement a été interrompu à 07h30. Effectif à peu près équivalent à celui des années précédentes. 2 coqs et un lagopède indéterminé à l'Augstchamm. 10 coqs ont été observés au Margelkopf. L'effectif de 2001 est ainsi presque retrouvé. L'effectif varie beaucoup malgré un périmètre de recensement constant.

Cantons d'Appenzell et de St-Gall (district franc du Säntis)

Un recensement. Sur le Säntis, 4 coqs ont été relevés en commun par AI, AR et SG. Ce chiffre correspond approximativement à l'effectif des dernières années.

Canton du Tessin**Tableau 1: Effectif de lagopèdes alpins en 2000 – 2004. Synthèse de M. Salvioni et N. Zbinden.**

Région	2000	2001	2002	2003	2004
Val Malvaglia, A. di Quarnei	9	7	5	9	8
Val di Peccia, A. Serodano	15	14	10	12	10
Saint-Gothard	8	9	Non recensé	12	12
Val Bavona, Robiei	12	6	9	9	9
Lucmanier, V. Termine	13	10	12	15	16

5 recensements ont été effectués. Le tableau montre que les effectifs n'ont pas notablement changé ces dernières années.

Canton du Valais

Cinq recensements. 5 coqs ont été observés dans le val d'Hérémence, soit la moitié seulement de l'année précédente. Dans la région d'Aletsch, il y avait en 2004 encore 6 ou 7 coqs dans les zones supérieures du périmètre initial de recherche. Cela représente environ le tiers des coqs relevés en 1974. Un recensement dans la région limitrophe du versant nord du Bettmerhorn a donné des valeurs comparables à celles du début des recensements dans la région avec environ 7 coqs par km² (cf. chapitre 4.3). Dans la région de Zinal, 3 coqs ont été recensés. L'année précédente, aucun coq n'avait pu être observé. Ils étaient 16 au début des recensements. Dans la région de Grächen – Seetalhorn, 14 coqs ont été relevés. Ils étaient 13 en 2003 et entre 15 et 22 de 1995 à 2000. La parade était faible, notamment en raison de la date tardive du recensement (13 juin). Dans le Lötschental, 7 coqs ont été observés. Au début des recensements, il y avait 13 coqs dans le même périmètre.

Canton des Grisons

11 coqs ont été relevés dans le Parc national (Munt la Schera).

3.2 Recensement des tétras lyres en 2004, par canton**Canton de Fribourg**

Quatre régions de recensement. Dans le district franc de Hochmatt, 15 coqs comme en 2003. Depuis le début des comptages réguliers, le nombre de coqs a légèrement augmenté. Dans la région d'Ättenberg, 2 coqs. Interruption de la parade, dérangée par un berger. Au Moléson, observation de 11 coqs paradant seuls. Au Vanil Noir, un grand groupe de parade de 8 coqs, plus un groupe de 4 coqs.

Canton de Vaud

Quatre recensements. 7 coqs dans la région de la Dent de Jaman et 12 au col de Chaude. Dans le district franc Grand Muveran – Culan, très bon résultat avec 20 coqs, dont 10 dans un groupe de parade. Dans la région de la Berneuse, 3 coqs isolés.

Canton de Berne

Le canton de Berne n'a pas mené de recensements cette année. Le recensement de l'Université de Berne à l'Augstmatthorn enregistre à nouveau avec 30 coqs une légère augmentation par rapport à 2003.

Canton d'Uri

Cinq recensements. Dans le district franc Uri Rotstock – Bywald, 3 coqs comme au début des recensements; dans la région de Chulm, 6 coqs. Au Riemenstalden, 6 coqs. Dans la région de recensement de Galtenäbnit, 9 coqs sur une arène de danse; en tout, 17 coqs. L'effectif du début des recensements est ainsi à nouveau atteint en 2004. La parade s'est poursuivie au-delà de 10h00. Cela a aussi été le cas dans la région d'Aletsch, par exemple. Dans la région de recensement de Windgällen, 11 coqs en groupes de 2 ou 3 ou paradant seuls.

Canton de Glaris

Deux recensements. Dans la région de Kärpf, Empächli – Bischof, 10 coqs, ce qui correspond à l'effectif de 1994 au début des recensements. Fuggstock – Sunnehörnli: 30, voire 37 coqs en tout. Changements assez fréquents sur les arènes de danse. Une arène de danse a accueilli jusqu'à 11 coqs.

Canton de Schwyz

Un recensement. 15 coqs. Deux arènes de danse à 2 coqs, une à 3 coqs et une à 5 coqs. Plus 3 coqs isolés. Après une diminution continue, cet effectif correspond à nouveau à celui du début des recensements.

Canton de Lucerne

Deux recensements. Dans la région de recensement de Schrattenfluh, deux groupes de parade de 3 et 2 coqs. Plus 3 coqs paradant seuls. En tout, de nouveau 8 coqs comme en 2002. Dans l'Eigental, 7 coqs.

Canton d'Obwald

Deux recensements. Dans la région de recensement du Nünalpstock, 10 coqs, la plupart paradant sur des arbres. Lors de la première visite, deux jeunes aigles tournoyaient au-dessus de la région de recensement sans que la parade n'en soit interrompue. Dans la région de recensement du Glaubenberg, 7 coqs comme l'année précédente.

Canton de Nidwald

Quatre recensements. Au Salistock, 2 coqs. Dans la région de recensement de Sinsgäu, 6 coqs, ce qui correspond à l'effectif au début des recensements. Avec 3 et 2 coqs, les résultats du Buochserhorn et de la Musenalp sont similaires à ceux des années précédentes.

Canton de St-Gall

Quatre recensements. Dans la région de recensement du Margelkopf, comme en 2003, 12 coqs en trois groupes de 5, 4 et 3. Dérangement de l'arène de danse à 05h45 par un photographe et son accompagnant avec interruption de la parade. Au Gamser Rugg, en tout 14

coqs, ce qui correspond à l'effectif au début des recensements. Après un relevé couvrant toute la région du Leischtamm en 2002 avec 17 coqs sur quelque 5 km², seulement 6 coqs recensés en 2003 et 2004.

Cantons d'Appenzell AR et IR

Deux recensements. Aucun tétras lyre observé lors de deux visites dans la région de recensement de Hoch Petersalp. Dans la région de Schwyzeräpli, 2 coqs, ce qui correspond à l'effectif des années précédentes.

Canton du Tessin

Neuf recensements sous la direction de M. Salvioni et de N. Zbinden. Dans le V. Leventina – V. di Blenio, 41 coqs relevés. Dans les autres régions de recensement, 16 à 26 coqs. En général, effectifs légèrement supérieurs à ceux des années précédentes.

Canton du Valais

Sept recensements. Dans le val de Morgins, 4 coqs ont été observés. Depuis le début des recensements, on y constate une diminution continue. Dans le val d'Hérémence, bon effectif avec 22 coqs répartis en deux groupes de parade de 6 coqs, un de 7 coqs et 3 coqs isolés. Dans la vallée de Conches à Ulrichen, 9 coqs. Un groupe de parade à 5 coqs. Déplacement par un promeneur à 07h00. Dans le val Ferret à Bavon, 8 coqs paradant; un groupe de 6 coqs. D'après les indications du garde-faune responsable, l'effectif est en diminution. Dans la région de recensement de Zinal, à nouveau 5 coqs seulement. Dans le Lötschental, seulement 2 coqs ont été relevés. Au début des recensements, on dénombrait jusqu'à 20 coqs. La création de zones de tranquillité et de protection de la faune sauvage serait urgente. Dans la région d'Aletsch, 25 coqs. L'effectif correspond approximativement aux chiffres relevés en 1994. Une arène de danse avec 12 coqs. Au cours des études, elle s'est déplacée vers le haut de la pente, probablement en raison de l'embuissonnement et du boisement de l'ancienne arène. Il est intéressant de relever que cette partie du versant nord est la dernière à être abandonnée par la neige au printemps et qu'elle est aussi très visible de loin. Dans le secteur de l'ancienne arène de danse du Riederhorn, plusieurs coqs (4 en 2004) paradent à nouveau depuis quelques années malgré le télési. A partir d'avril cependant, aucune remontée mécanique ne fonctionne plus et la région n'attire pas les promeneurs, les adeptes de VTT, etc., contrairement à la croupe Hohfluh – Moosfluh – Bettmerhorn.

Canton des Grisons

Le canton effectue ses propres recensements. Les résultats sont pris en compte dans notre évaluation TRIM3.

4 Discussion

4.1 Tendances dans l'évolution des effectifs du lagopède alpin entre 1994 et 2004

Dans toutes les régions de recensement à l'exception de la zone interne du Nord des Alpes, une densité de peuplement de 3 ou 4 coqs par km² est atteinte. Il est difficile d'émettre un diagnostic de portée générale sur l'évolution des effectifs car la densité de peuplement est stable ou a même augmenté dans certaines régions alors qu'elle a plus ou moins fortement

diminué dans d'autres. Souvent, ce sont d'abord les territoires situés à plus basse altitude et en périphérie qui ne sont plus régulièrement occupés. Après la fonte précoce de la neige en 2003 et un été extrêmement sec, on s'attendait à un succès élevé de la couvaison et de l'élevage. Effectivement, on a observé en 2004 dans certaines régions des effectifs supérieurs à ceux des années précédentes. En 2004, la fonte des neiges a été très tardive en raison de fortes chutes de neige au printemps. Cette situation peut être déterminante pour l'évolution des effectifs de lagopèdes alpins (cf. Bossert 1980). Les effets éventuels s'observeront lors du prochain recensement.

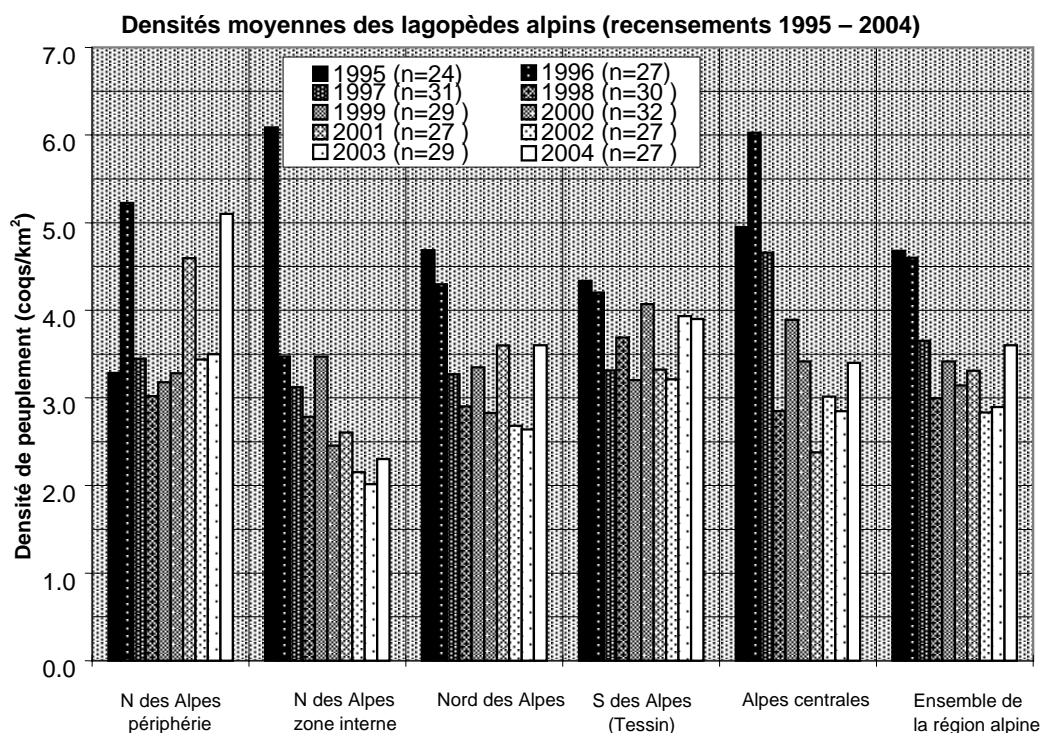


Figure 1: Densités moyennes des lagopèdes alpins. Résultats obtenus lors des recensements de 1995 à 2004. n = nombre de recensements analysés.

Tableau 2: Densités moyennes de lagopèdes alpins (coqs/km²) avec écarts-type. Résultats obtenus lors des recensements effectués de 1995 à 2004. Entre parenthèses: nombre de recensements effectués pendant l'année indiquée et pris en compte dans l'analyse.

Année	N des Alpes périphérie	N des Alpes zone interne	Nord des Alpes	Sud des Alpes (Tessin)	Alpes centrales	Ensemble de la région alpine
1995 (n=24)	3.3 ± 0.6	6.1 ± 3.3	4.6 ± 2.7	4.3 ± 2.0	4.9 ± 2.5	4.67 ± 2.4
1996 (n=27)	5.2 ± 3.1	3.5 ± 1.3	4.3 ± 2.4	4.2 ± 2.7	6.0 ± 2.7	4.6 ± 2.5

1997 (n=31)	3.4 ± 2.7	3.1 ± 2.4	3.3 ± 2.5	3.3 ± 2.9	5.2 ± 3.2	3.7 ± 2.7
1998 (n=30)	3.0 ± 2.2	2.8 ± 2.3	2.9 ± 2.2	3.7 ± 2.1	2.9 ± 1.7	3.0 ± 2.1
1999 (n=29)	3.2 ± 2.6	3.5 ± 2.5	3.3 ± 2.5	3.2 ± 1.3	3.9 ± 2.4	3.4 ± 2.3
2000 (n=32)	3.3 ± 3.7	2.3 ± 2.1	2.7 ± 2.9	4.1 ± 1.8	3.4 ± 2.1	3.0 ± 2.6
2001 (n=27)	4.6 ± 4.4	2.5 ± 2.1	3.5 ± 3.5	3.3 ± 1.0	2.4 ± 1.2	3.3 ± 2.8
2002 (n=27)	3.4 ± 2.4	2.2 ± 1.8	2.7 ± 2.1	3.2 ± 1.8	3.0 ± 2.2	2.8 ± 2.0
2003 (n=29)	3.5 ± 3.2	2.1 ± 1.3	2.7 ± 2.3	3.9 ± 1.3	3.1 ± 2.4	3.0 ± 2.2
2004 (n=27)	5.1 ± 4.2	2.3 ± 1.8	3.6 ± 3.3	3.9 ± 1.5	3.4 ± 2.0	3.6 ± 2.7

4.2 Tendances dans l'évolution des effectifs du tétras lyre entre 1994 et 2004

Les données du tétras lyre ont été traitées à l'aide du programme de biostatistique TRIM3. Pour que les résultats d'une région de recensement puissent être comparés entre eux et que l'évolution d'une année à l'autre puisse être évaluée, il est important que le recensement s'effectue toujours à l'intérieur du même périmètre. Le programme d'analyse TRIM demande l'introduction du nombre total de coqs recensés par région et par année. Pour que l'analyse de tendance soit probante, de longues séries de chiffres sont nécessaires. Dans le cadre de cette analyse, les résultats du recensement de 2004 ne constituent donc à nouveau qu'un modeste, mais indispensable élément. La forme des courbes d'évolution des effectifs est presque la même dans tous les secteurs. Après une valeur initiale relativement élevée en 1995, une rupture s'est produite en 1998 / 1999. Depuis, les effectifs sont de nouveau en augmentation. En 2004, après un été torride, les valeurs relevées en 1994 au début des recensements ont de nouveau été atteintes dans de nombreuses régions. Les effectifs de tétras lyres réagissent vite et fort aux variations météorologiques (cf. Glutz von Blotzheim 1973, Pauli 1974 et Zbinden 2003). Les courbes varient donc fortement si bien qu'aucune tendance précise ne peut en être déduite.

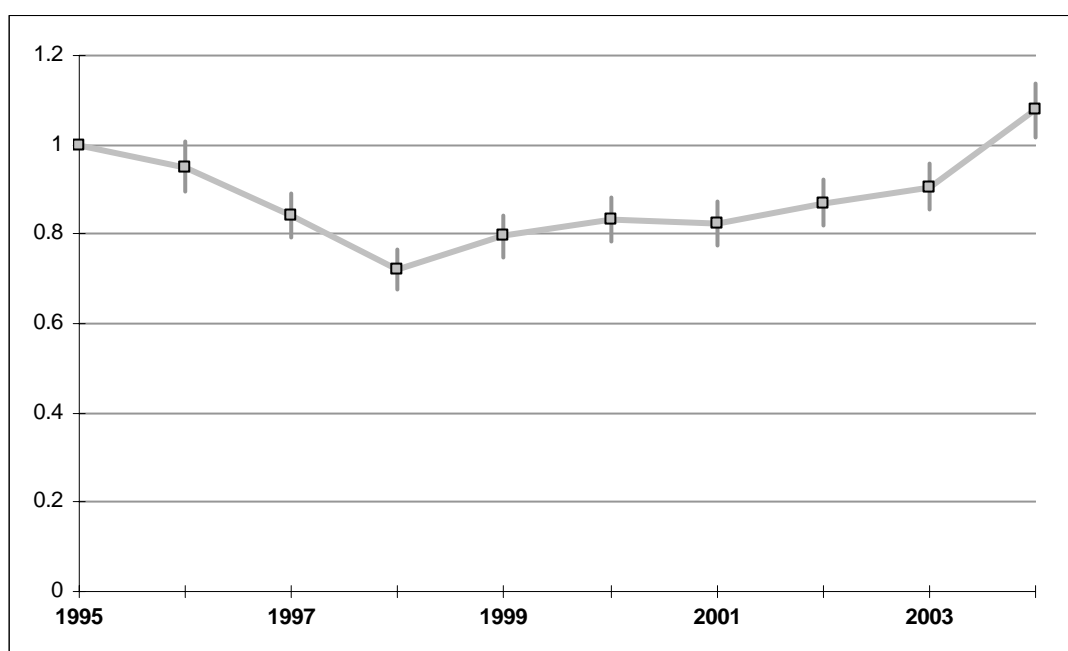


Figure 2: Évolution des effectifs du tétras lyre dans 58 régions de recensement des Alpes suisses. Indication du nombre indexé de coqs relevés lors des recensements (avec écart-type). Les résultats des recensements ont été standardisés (prise en compte des résultats des seules régions ou secteurs qui présentent un périmètre de recensement stable au cours des ans) et les valeurs manquantes (recensements non effectués) extrapolées statistiquement. Pour la période 1995 – 2004, aucune tendance significative ne se dessine.

4.3 Évolution des effectifs du lagopède alpin dans la région d'Aletsch de 1974 à 2004

Dans la région d'Aletsch, les effectifs de lagopèdes sont recensés chaque année depuis 30 ans. De 1974 à 1993, peu de changements sont survenus dans la région d'étude: les effectifs et la distribution des territoires restent à peu près constants avec un pic des effectifs au milieu des années quatre-vingt (Bossert 1995). Depuis, les effectifs de la région d'étude, qui couvre 4 km² entre 1900 et 2300 m d'altitude, ont fortement diminué. Cela pourrait être imputable au boisement des territoires les plus bas qui occupent des moraines du glacier et, directement ou indirectement, au réchauffement climatique dans les Alpes. Les étés très chauds pourraient avoir une influence directe sur le lagopède alpin, parfaitement adapté au froid: on a observé à plusieurs reprises dans la région d'Aletsch des poules fortement hale-tantes avec leurs petits. La fonte de la neige qui se produit souvent un mois plus tôt pourrait avoir un effet indirect, car de grandes parties de la région d'étude sont désormais accessibles sans difficultés à pied dès le mois d'avril. Les activités de loisirs et les nouveaux sports comme le VTT, le jogging (souvent avec des chiens) et le parapente entraînent des dérangements pendant la période de parade. Contrairement au ski et à la randonnée, ces dérangements ont souvent lieu tôt le matin et le soir durant les principales périodes d'activité du lagopède alpin. Les rapports de recensement pour 2001 et 2002 chiffrent les baisses d'effectifs et les représentent en fonction du lieu. L'analyse des recensements de lagopèdes alpins dans la région d'Aletsch à l'aide du programme de biostatistique TRIM3 montre une tendance significative à la baisse des effectifs. La figure montre aussi clairement que des recensements pendant cinq ou dix ans ne suffisent pas pour un diagnostic fiable de la tendance à long terme.

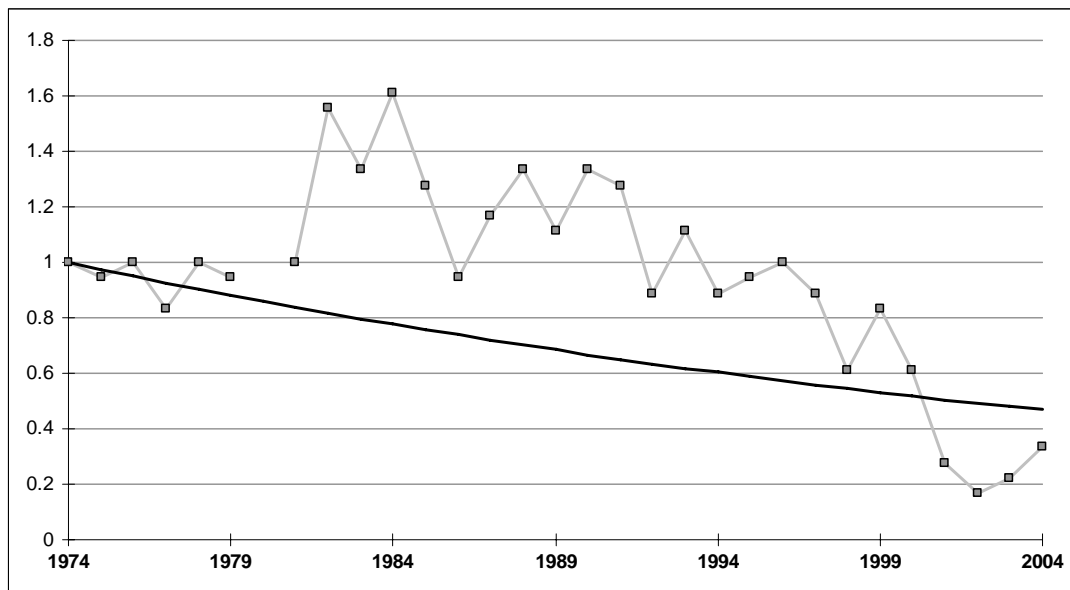


Figure 3: Évolution des effectifs du lagopède alpin (indice et tendance des taux de croissance) dans la région d'Aletsch de 1974 à 2004. Analyse à l'aide du programme de biostatistique TRIM3. Nette tendance à la baisse. Les données proviennent de A. Bossert, Chr. Marti, F. Niederhauser et collaborateurs.

La région de recensement comprend l'angle sud-ouest de la grande aire de répartition du lagopède Hohfluh - Moosfluh - Bettmerhorn - Eggishorn - Märjelensee. Après la période de reproduction, tous les lagopèdes alpins quittent la région d'étude et se tiennent dans les régions supérieures en groupes pouvant atteindre 40 individus. Avec l'apparition de la neige en automne, ils reviennent, seuls ou en plus petits groupes, dans la région de recensement, où les coqs réoccupent leurs territoires. Une parade automnale parfois intense se déroule. Elle peut aussi entraîner des conflits entre poules, qui s'accompagnent souvent d'appels.

Pour savoir si les lagopèdes alpins se sont simplement retirés de la région d'étude et comment les effectifs ont évolué depuis le dernier recensement couvrant toute la région en 1976 (Bossert 1977), une surface de 2 km² a aussi été étudiée en 2004 sur le Bettmerhorn (flanc nord et versant sud-ouest). En raison du danger d'avalanche, il n'a pas été possible d'effectuer de recensement dans une région plus grande. On a recensé 14 coqs pour une densité de peuplement d'environ 7 coqs / km². Ce chiffre correspond dans une large mesure aux résultats du recensement de 1976. Les territoires / postes des coqs paradant n'ont pas notablement changé – pour autant qu'une seule visite permette de l'affirmer. On relève un coq appelant tous les 300 à 500 m horizontalement et verticalement. Les grandes pentes d'éboulis sont évitées pendant la période de reproduction.

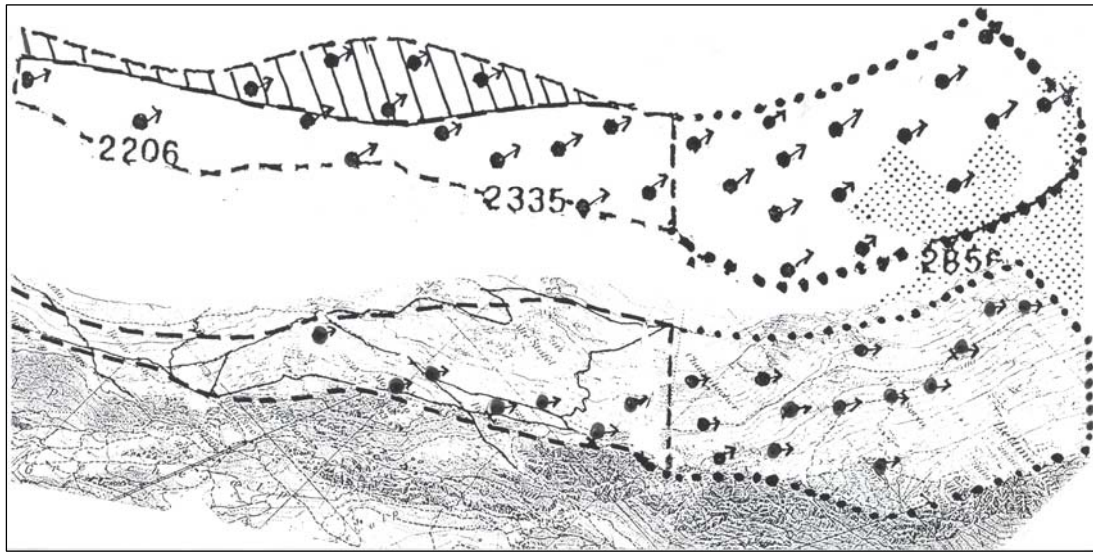


Figure 4: Comparaison des recensements de 1976 et 2004. En haut: extrait du recensement de 1976. En bas: recensement de 2004. Ligne discontinue = périmètre de la région habituelle de recensement; pointillé = périmètre de la région élargie de recensement; hachuré = boisement en augmentation, recouvrement actuel env. 25 %. Chaque point fléché représente un coq de lagopède recensé (contact visuel ou auditif). Échelle 1: 25'000.

Les résultats indiquent que dans la région d'Aletsch les effectifs du lagopède alpin sont en nette diminution à la périphérie de la région d'étude. Le versant voisin du Bettmerhorn est situé 200 à 500 m plus haut, orienté nord – nord-ouest et n'est normalement accessible qu'avec un équipement d'hiver pendant la période de reproduction (avril / mai). Il n'est pas boisé, mais recouvert de gazons alpins et de groupements d'arbrisseaux nains et traversé de vastes éboulis. Ici, les effectifs sont pratiquement les mêmes qu'il y a 30 ans. Les lagopèdes alpins ne se sont donc pas simplement repliés.

5 Suite des opérations

L'analyse des recensements de tétras lyres s'est faite pour la première fois en 2003 à l'aide du programme de statistique TRIM3. Il faut des relevés à très long terme pour émettre un diagnostic probant de l'évolution des effectifs. Il est aussi essentiel que le recensement se fasse toujours à l'intérieur du même périmètre. Pour le lagopède alpin, cette condition est largement remplie par le comportement de parade et le séjour dans certains territoires. Après discussion avec l'OFEFP et la commission d'accompagnement Tétraonidés, les recensements se poursuivront de 2005 à 2007 dans le cadre actuel. Les données du tétras lyre seront analysées à l'aide du programme de statistique TRIM3. Il faut veiller à ce qu'elles soient optimisées pour servir de base à l'évaluation biostatistique. Les résultats continueront à faire l'objet d'un bref rapport qui sera remis à tous les acteurs. Pour obtenir des diagnostics encore plus clairs, 1 ou 2 régions de référence plus grandes seront définies par zone

alpine. Après une nouvelle période de recensement de 10 ans, les services concernés (éventuellement aussi les gardes-faune) seront à nouveau contactés et informés personnellement.

Les recensements à long terme permettent de relever les tendances de l'évolution des effectifs de lagopèdes alpins et de tétras lyres dans les Alpes suisses. Les résultats peuvent servir de base de décision pour les mesures de protection et d'entretien et pour la définition d'une chasse respectueuse.

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Berne, début janvier 2005

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7 Annexe

7.1 Méthode de recensement

Dans les régions de recensement, les effectifs de coqs sont relevés pendant une activité matinale (éventuellement plusieurs) au cours de la période principale de parade. Cette dernière dépend des conditions météorologiques printanières et de l'état de la fonte de la neige. Pour le tétras lyre, le recensement s'effectue habituellement entre début et mi-mai; pour le lagopède alpin, environ deux semaines plus tard. L'altitude et l'exposition jouent aussi un rôle. Pour éviter les comptages à double et garantir la sécurité, il est recommandé de doter les recenseurs d'un téléphone portable ou d'un appareil radio. A la fin du recensement, on examine toutes les observations à l'intérieur de la région de recensement ainsi que les limites du périmètre effectivement analysé (pas de comptages à double) et on les reporte en commun sur une carte au 1: 25 000. Un procès-verbal d'observation est dressé. Les gardes-faune donnent des indications sur les conditions météorologiques depuis le dernier recensement et estiment en % la surface sans neige dans la région de recensement. Les éventuels dérangements et changements dans la région sont également notés.

Tétras lyre

Les observateurs gagnent leurs postes avant le début de l'activité (vers 04h30 à la mi-mai). Les postes doivent offrir une bonne vue sur les arènes de danse, sans toutefois occasionner de dérangement. Des postes supplémentaires doivent être choisis pour permettre de recenser les secteurs intermédiaires avec des coqs paradant seuls. Lors de conditions météorologiques favorables, la parade du tétras lyre peut être entendue jusqu'à 1 km. Tous les coqs présents dans la région de recensement sont relevés. Pour l'analyse à l'aide du programme de biostatistique, il est important que la même surface soit recensée chaque année depuis les mêmes postes.

Lagopède alpin

Les observateurs gagnent leurs postes avant le début de l'activité (vers 04h30 à fin mai). Les meilleurs postes sont ceux qui offrent une bonne vue d'ensemble (arête, sommet, avancée de rocher). Par conditions favorables, les strophes de parade et les appels peuvent être entendus à quelque 500 à 800 m. Tous les coqs présents dans la région de recensement sont relevés. Lorsque l'activité d'appel diminue (habituellement environ deux heures après le début de l'activité), la région de recensement est ratissée. Cela permet de confirmer les relevés et de découvrir d'éventuels individus ou couples supplémentaires. Pour l'analyse à l'aide du programme de biostatistique, il est important que la même surface soit recensée chaque année autant que possible depuis les mêmes postes. Comme les lagopèdes paradent dans leurs territoires, un recensement de l'ensemble du périmètre est effectué.

7.2 Régions de recensement des tétras lyres et des lagopèdes alpins en 2004

Régions de recensement des tétras lyres



Régions de recensement des lagopèdes alpins



North faces of the Bernese High Alps with Eiger and Wetterhorn (north-eastern part of the extension area), (T. Labhart, TL2)



The chain of peaks of the Bernese High Alps with Eiger, Mönch and Jungfrau (T. Labhart, TL1)



The whole Aletsch Glacier with the Jungfrau in the background (L. Fischer, LF11)

The impressive north wall and the greatest glacier in western Eurasia

The north-eastern part of the extension area



Upright Mesozoikum in Gross Wellhorn (part of the north-eastern extension area Wetterhorn-Engelhörner) (T. Labhart, TL3)



The Lower Aar Glacier (eastern part of the extension area), view from east, with Finsteraarhorn and Lauteraarhörner in the background (H. Zumbühl, HZ1)

The south-eastern part of the extension area

Grimsel lake (south-eastern part of the extension area) with Schreckhorn and Lauteraarhorn in the background(L. Fischer, LF4)



The edge of the glacier-polished surface in the Brunhorn-Brandlamhorn chain north of Grimsel Lake (south-eastern part of the extension area). The upper edge of the snow coincides with the highest level of the glacier during the ice age (T. Labhart, TL4)

Glaciations and Formation of Relief

Märjelensee surrounded by glacier ice (L. Albrecht, LA2)



The Trümmel brook fall, an example for a fluvatile gorge (L. Fischer, LF1)



Successional areas form
the typical habitats



The valais rock steppe (L. Albrecht, LA1)



Dwarf sedge community (Caricion) with Cotton Grass Eriophorum sp. near Märjelensee VS (S. Ehrenbold, SE1)



The valais rock steppe (Walliser Felsensteppe) with the small village of Erl (Baltschieder valley) (S. Eggel, STE3)



Aletsch forest (L. Albrecht, LA2)



Moraine of the lower Grindelwald glacier (H. Holzhauser, HH2)



Waterfall above the Oeschinen lake (north-western part of the extension area) (L. Fischer, LF4)



Gspaltenhorn, one of the highest north faces of the alps (part of the north-western extension area) (L. Fischer, LF9)

The alluvial site of the Gasteren valley (left side of the river is part of the western extension area) (T. Labhart, TL5)



The western part of the extension

Supplement 5**Relevant federal legislations**

Here are the most important legislations. All are available online under <http://www.admin.ch/ch/fr/rs/45.html>.

Loi fédérale du 1^{er} juillet 1966 sur la protection de la nature et du paysage (LPN, RS 451)

Ordonnance du 10 août 1977 concernant l'inventaire fédéral des paysages, sites et monuments naturels (OIFP, RS 451.11)

Loi fédérale du 20 juin 1986 sur la chasse et la protection des mammifères et oiseaux sauvages (LChP, RS 922.0)

Ordonnance du 30 septembre 1991 concernant les districts francs fédéraux (ODF, RS 922.31)

Ordonnance du 30 avril 1990 sur la régulation des populations de bouquetins (ORB, RS 922.27)

Ordonnance du 25 octobre 1995 sur la compensation des pertes subies dans l'utilisation de la force hydraulique (OCFH, RS 721.821)

**Loi fédérale
sur la protection de la nature et du paysage
(LPN)¹**

du 1^{er} juillet 1966 (Etat le 3 mai 2005)

L'Assemblée fédérale de la Confédération suisse,
vu l'art 24^{sexies} de la constitution^{2,3}
vu le message du Conseil fédéral du 12 novembre 1965⁴,
arrête

Art. 1⁵

But Dans les limites de la compétence conférée à la Confédération par l'article 24^{sexies}, al. 2 à 5, de la constitution⁶, la présente loi a pour but.

- a De ménager et de protéger l'aspect caractéristique du paysage et des localités, les sites évocateurs du passé, les curiosités naturelles et les monuments du pays, et de promouvoir leur conservation et leur entretien;
- b De soutenir les cantons dans l'accomplissement de leurs tâches de protection de la nature, de protection du paysage et de conservation des monuments historiques, et d'assurer la collaboration avec eux;
- c De soutenir les efforts d'organisations qui œuvrent en faveur de la protection de la nature, de la protection du paysage ou de la conservation des monuments historiques,
- d.⁷ de protéger la faune et la flore indigènes, ainsi que leur diversité biologique et leur habitat naturel,

RO 1966 1694

- ¹ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)
- ² [RS 1 3; RO 1962 783, 1988 352] A la disposition mentionnée correspond actuellement l'art 78 de la Constitution du 18 avril 1999 (RS 101)
- ³ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)
- ⁴ FF 1965 III 93
- ⁵ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)
- ⁶ [RS 1 3, RO 1962 783, 1988 352] Actuellement «l'art 78, al 2 à 5 de la Constitution du 18 avril 1999» (RS 101)
- ⁷ Nouvelle teneur selon le ch 2 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv 2004 (RS 814.91)

- e. D'encourager l'enseignement et la recherche dans les domaines de la protection de la nature, de la protection du paysage et de la conservation des monuments historiques, ainsi que la formation et le perfectionnement de spécialistes

**Chapitre premier:
Protection de la nature, protection du paysage et
conservation des monuments historiques dans
l'accomplissement des tâches de la Confédération⁸**

Art. 2

Accomplissement de tâches de la Confédération

¹ Par accomplissement d'une tâche de la Confédération au sens de l'art. 24^{sexies}, al. 2, de la constitution⁹, il faut entendre notamment:¹⁰

- a.¹¹ L'élaboration de projets, la construction et la modification d'ouvrages et d'installations par la Confédération, ses instituts et ses établissements, par exemple les bâtiments et les installations de l'administration fédérale, les routes nationales, les bâtiments et installations des Chemins de fer fédéraux;
- b L'octroi de concessions et d'autorisations, par exemple pour la construction et l'exploitation d'installations de transport et de communications (y compris l'approbation des plans), d'ouvrages et d'installations servant au transport d'énergie, de liquides ou de gaz, ou à la transmission de messages, ainsi que l'octroi d'autorisation de défrichements;
- c. L'allocation de subventions pour des mesures de planification, pour des installations et des ouvrages, tels que les améliorations foncières, l'assainissement de bâtiments agricoles, les corrections de cours d'eau, les installations de protection des eaux et les installations de communications.

² Les décisions des autorités cantonales concernant les projets qui, selon toute vraisemblance, ne seront réalisés qu'avec les subventions visées à l'al. 1, let. c, sont assimilées à l'accomplissement de tâches de la Confédération ¹²

⁸ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

⁹ [RS 13, RO 1962 783] Actuellement «l'art 78, al 2 de la Constitution du 18 avril 1999» (RS 101)

¹⁰ Nouvelle teneur selon le ch 2 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv. 2004 (RS 814.91)

¹¹ Nouvelle teneur selon le ch 7 de l'appendice à la loi du 30 avril 1997 sur l'entreprise de télécommunications, en vigueur depuis le 1^{er} janv. 1998 (RS 784.11)

¹² Introduit par le ch I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

Art. 3Devoirs de la
Confédération et
des cantons¹³

¹ Les autorités, services, instituts et établissements fédéraux ainsi que les cantons doivent, dans l'accomplissement des tâches de la Confédération, prendre soin de ménager l'aspect caractéristique du paysage et des localités, les sites évocateurs du passé, les curiosités naturelles et les monuments historiques et, lorsque l'intérêt général prévaut, d'en préserver l'intégrité.¹⁴

² Ils s'acquittent de ce devoir

- a En construisant et en entretenant de manière appropriée leurs propres bâtiments et installations ou en renonçant à construire (art 2, let. a),
- b. En attachant des charges ou des conditions aux autorisations et aux concessions, ou en refusant celles-ci (art 2, let. b);
- c En n'allouant des subventions que sous conditions ou en refusant d'en allouer (art. 2, let c)

³ Ce devoir existe quelle que soit l'importance de l'objet au sens de l'art. 4. Une mesure ne doit cependant pas aller au-delà de ce qu'exige la protection de l'objet et de ses environs.

⁴ Les autorités fédérales consultent les cantons concernés avant de rendre leur décision. L'Office fédéral de l'environnement, des forêts et du paysage (OFEP), l'Office fédéral de la culture (OFC), l'Office fédéral des routes (OFROU)¹⁵ et les autres autorités fédérales concernées collaborent à l'exécution de la présente loi conformément aux articles 62a et 62b de la loi du 21 mars 1997 sur l'organisation du gouvernement et de l'administration^{16,17}

Art. 4Catégories
d'objets

S'agissant des paysages et des localités caractéristiques, des sites évocateurs du passé, des curiosités naturelles ou des monuments selon l'art. 24^{sexies}, al 2, de la constitution¹⁸, il faut distinguer.

¹³ Nouvelle teneur selon le ch. I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

¹⁴ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

¹⁵ La désignation de l'ensemble des unités administratives concernées a été adaptée selon l'art. 16 al 3 de l'O du 17 nov. 2004 sur les publications officielles (RS 170.512.1) Il a été tenu compte de cette modification dans tout le présent texte

¹⁶ RS 172.010

¹⁷ Introduit par le ch. I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

¹⁸ [RS 13, RO 1962 783] Actuellement «l'art. 78, 2^e al de la Constitution du 18 avril 1999» (RS 101)

- a. Les objets d'importance nationale;
- b. Les objets d'importance régionale et locale.

Art. 5

Inventaires
fédéraux d'objets
d'importance
nationale

¹ Le Conseil fédéral établit, après avoir pris l'avis des cantons, des inventaires d'objets d'importance nationale; il peut se fonder à cet effet sur des inventaires dressés par des institutions d'Etat ou par des organisations œuvrant en faveur de la protection de la nature, de la protection du paysage ou de la conservation des monuments historiques.¹⁹ Les critères qui ont déterminé le choix des objets seront indiqués dans les inventaires. En outre, ceux-ci contiendront au minimum:

- a. La description exacte des objets;
- b. Les raisons leur conférant une importance nationale;
- c. Les dangers qui peuvent les menacer;
- d. Les mesures de protection déjà prises;
- e. La protection à assurer;
- f. Les propositions d'amélioration.

² Les inventaires ne sont pas exhaustifs. Ils seront régulièrement réexaminés et mis à jour; le Conseil fédéral décide de l'inscription, de la modification ou de la radiation d'objets, après avoir pris l'avis des cantons. Les cantons peuvent, de leur propre chef, proposer un nouvel examen.

Art. 6

Importance de
l'inventaire

¹ L'inscription d'un objet d'importance nationale dans un inventaire fédéral indique que l'objet mérite spécialement d'être conservé intact ou en tout cas d'être ménagé le plus possible, y compris au moyen de mesures de reconstitution ou de remplacement adéquates²⁰

² Lorsqu'il s'agit de l'accomplissement d'une tâche de la Confédération, la règle suivant laquelle un objet doit être conservé intact dans les conditions fixées par l'inventaire ne souffre d'exception, que si des intérêts équivalents ou supérieurs, d'importance nationale également, s'opposent à cette conservation

¹⁹ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

²⁰ Nouvelle teneur selon le ch. I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

- Art. 7²¹**
- Expertise de la commission
- ¹ Si l'accomplissement d'une tâche de la Confédération incombe à la Confédération, L'OFEFP ou l'OFC, ou l'OFROU, selon le domaine de compétence, détermine s'il est nécessaire qu'une expertise soit établie par la commission visée à l'art. 25, al. 1. Si le canton est compétent, c'est le service cantonal visé à l'article 25, al. 2, qui détermine la nécessité d'une expertise
- ² Si l'accomplissement de la tâche de la Confédération peut altérer sensiblement un objet inscrit dans un inventaire fédéral en vertu de l'article 5 ou soulève des questions de fond, la commission établit une expertise à l'intention de l'autorité de décision. Cette expertise indique si l'objet doit être conservé intact ou de quelle manière il doit être ménagé.
- Art. 8²²**
- Expertise facultative
- Dans des cas importants, une commission au sens de l'art. 25, al. 1, peut effectuer une expertise de son propre chef à tous les stades de la procédure, sur la manière de ménager des objets ou d'en préserver l'intégrité. Le cas échéant, elle le fait, mais le plus tôt possible. Sur demande, tous les documents nécessaires sont mis à sa disposition
- Art. 9²³**
- Autres expertises
- Le service fédéral compétent peut aussi demander une expertise au service cantonal (art. 25, al. 2), à la commission cantonale chargée de la protection de la nature, de la protection du paysage ou de la conservation des monuments historiques ou à un autre organe désigné par le canton, ou encore consulter des organisations œuvrant en faveur de la protection de la nature, de la protection du paysage ou de la conservation des monuments historiques.
- Art. 10²⁴**
- Avis des gouvernements des cantons
- Dans les cas prévus aux art. 7, 8 et 9, l'avis des gouvernements des cantons doit toujours être requis. Ceux-ci invitent les communes concernées à donner leur avis.

²¹ Nouvelle teneur selon le ch. I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

²² Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

²³ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

²⁴ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

Art. 11

Réserve concernant les ouvrages militaires

Pour les constructions et ouvrages militaires qui ne sont pas soumis à autorisation en vertu de l'art. 126, al 4, de la loi fédérale du 3 février 1995 sur l'armée et l'administration militaire²⁵, l'autorité fédérale compétente n'a pas l'obligation de demander une expertise.²⁶ Elle n'est pas tenue non plus de remettre des documents pour les expertises facultatives.

Art. 12²⁷

Voies de droit des communes et des organisations reconnues

¹ Les communes et les organisations d'importance nationale à but non lucratif qui existent depuis dix ans au moins et se vouent à la protection de la nature, à la protection du paysage, à la conservation des monuments historiques ou à des tâches semblables ont qualité pour recourir contre les décisions du canton ou des autorités fédérales si ces décisions peuvent, en dernière instance, faire l'objet d'un recours au Conseil fédéral ou d'un recours de droit administratif au Tribunal fédéral.

² Le Conseil fédéral désigne les organisations qui ont qualité pour recourir.

³ Les communes et les organisations reconnues sont en outre habilitées:

- a. A faire usage des voies de droit cantonales;
- b. A faire opposition et à formuler des demandes en vertu des art. 9, 35 et 55 de la loi fédérale du 20 juin 1930 sur l'expropriation²⁸.

⁴ Le recours contre une décision portant octroi d'une subvention fédérale n'est pas recevable lorsque les mesures de planification, les ouvrages ou les installations ont par ailleurs fait l'objet, dans l'accomplissement d'une tâche de la Confédération, d'une décision au sens de l'al. 1.

⁵ Le recours contre une décision portant octroi d'une subvention fédérale n'est en outre pas recevable lorsque les communes et les organisations qui avaient qualité pour recourir n'ont pas formé de recours contre la première décision notifiée conformément à l'ar. 12a, al. 1, et qui ne répondait pas à leurs demandes dans une procédure cantonale relative aux mesures de planification, aux ouvrages et aux installations

²⁵ RS 510.10

²⁶ Nouvelle teneur selon le ch 6 de l'annexe à la LF du 3 fév 1995 sur l'armée et l'administration militaire, en vigueur depuis le 1^{er} janv 1996 (RS 510.10)

²⁷ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

²⁸ RS 711

Art. 12a²⁹

Communication
de la décision et
intervention

¹ Lorsque la procédure comporte un droit de recours au sens de l'art 12, al 1, l'autorité communique sa décision aux communes et aux organisations reconnues par une notification écrite ou par une publication dans la Feuille fédérale ou dans l'organe officiel du canton. En règle générale, la durée de l'enquête publique est de 30 jours.³⁰

² Lorsque le droit fédéral ou cantonal prévoit une procédure d'opposition antérieure à la prise de décision, les communes et les organisations n'ont qualité pour recourir que si elles sont intervenues dans la procédure d'opposition à titre de partie. Dans ce cas, la demande doit être publiée conformément aux règles énoncées à l'al 1.

³ Les communes et les organisations qui n'ont pas formé de recours ne peuvent intervenir comme partie dans la suite de la procédure que si la décision est modifiée en faveur d'une autre partie et qu'elle leur porte atteinte.

⁴ Les al. 1 et 3 ne sont pas applicables lorsque la décision sur le projet est rendue dans la procédure prévue par la loi fédérale du 20 juin 1930 sur l'expropriation³¹.

Art. 12b³²

Voies de droit
des cantons et de
l'office fédéral
compétent

¹ Les cantons ont qualité pour recourir contre les décisions d'autorités fédérales au sens de l'art 12, al. 1.

² L'office fédéral compétent a qualité pour recourir contre les décisions cantonales au sens de l'art. 12, al 1; il peut faire usage des voies de droit fédérales et cantonales.

²⁹ Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

³⁰ Phrase introduite par le ch I 3 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision, en vigueur depuis le 1^{er} janv. 2000 (RO 1999 3071 3124, FF 1998 2221)

³¹ RS 711

³² Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

**Chapitre 2:
Soutien accordé par la Confédération à la protection de la nature, à la protection du paysage et à la conservation des monuments historiques, et mesures de la Confédération³³**

Art. 13

Subventions pour la conservation d'objets dignes de protection

¹ La Confédération peut soutenir la protection de la nature et du paysage et la conservation des monuments historiques par l'allocation de subventions; celles-ci s'élèvent au plus à 35 % des frais imputables à la conservation, à l'acquisition et à l'entretien des paysages, des localités caractéristiques, des sites évocateurs du passé, des curiosités naturelles et des monuments dignes de protection, ainsi qu'aux travaux d'exploration et de documentation liés à ces activités.³⁴ Ces subventions ne sont accordées que si le canton participe aussi aux frais dans une mesure équitable. Leurs taux se déterminent d'après l'importance de l'objet à protéger; (art. 4), la somme des frais et la capacité financière du canton.³⁵

^{1bis} Le taux de subvention peut s'élever au plus à 45 % des frais s'il est établi que le taux prévu à l'al. 1 ne permet pas de financer les mesures dont l'exécution est indispensable.³⁶

² Les subventions peuvent être liées à des conditions concernant la conservation et l'entretien de l'objet et de ses environs.

³ Les mesures de protection et d'entretien prescrites constituent des restrictions de droit public à la propriété (art. 702 CC³⁷) Elles engagent les propriétaires fonciers intéressés; les cantons doivent les faire mentionner au registre foncier. Le Conseil fédéral fixe les cas où il peut être dérogé à cette obligation.³⁸

⁴ Les cantons examinent les projets, les évaluent et les échelonnent dans le temps. Sur cette base, la Confédération et les cantons établissent un plan de financement commun. Le Conseil fédéral règle la procédure et la participation des cantons à l'exécution de mesures qu'il a décidées.³⁹

³³ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

³⁴ Nouvelle teneur selon le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224; FF 1991 III 1137)

³⁵ Nouvelle teneur selon le ch. I 421 de la LF du 5 mai 1977 instituant des mesures propres à équilibrer les finances fédérales, en vigueur depuis le 1^{er} janv. 1978 (RO 1977 2249, FF 1977 I 809)

³⁶ Introduit par le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224; FF 1991 III 1137)

³⁷ RS 210

³⁸ Introduit par le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

³⁹ Introduit par le ch. I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

Art. 14⁴⁰Subventions
accordées à des
organisations

La Confédération peut accorder des subventions à des organisations d'importance nationale qui se vouent à la protection de la nature, à la protection du paysage ou à la conservation des monuments historiques pour les frais occasionnés par les activités d'intérêt public qu'elles exercent.

Art. 14^a⁴¹Recherche,
formation,
relations
publiques

¹ La Confédération peut allouer des subventions pour promouvoir

- a Des projets de recherche,
- b La formation et le perfectionnement de spécialistes;
- c Les relations publiques.

² Lorsqu'il existe un intérêt national, la Confédération peut assumer elle-même ces tâches ou les faire exécuter à ses frais.

Art. 15Achat et sauve-
garde d'objets
dignes de
protection

¹ La Confédération peut procéder par voie contractuelle ou, si c'est impossible, par voie d'expropriation pour acquérir ou sauvegarder des sites naturels, des curiosités naturelles, des sites évocateurs du passé ou des monuments d'importance nationale. Elle peut en confier l'administration à des cantons, à des communes ou à des organisations.⁴²

² La loi fédérale du 20 juin 1930 sur l'expropriation⁴³ est applicable.

Art. 16Mesures conser-
vatoires

Si un danger imminent menace un site naturel selon l'art 15, un site évocateur du passé ou un monument d'importance nationale, le Département fédéral de l'environnement, des transports, de l'énergie et de la communication ou le Département fédéral de l'intérieur⁴⁴ peuvent, par des mesures temporaires, placer l'objet sous la protection de la Confédération et ordonner que les dispositions nécessaires à sa conservation soient prises⁴⁵

⁴⁰ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁴¹ Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁴² Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁴³ RS 711

⁴⁴ Nouvelle teneur selon le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁴⁵ La désignation de l'ensemble des unités administratives concernées a été adaptée selon l'art 16 al 3 de l'O du 17 nov 2004 sur les publications officielles (RS 170.512.1)

Octroi de subventions	<p>Art. 16a⁴⁶</p> <p>L'Assemblée fédérale fixe dans le budget le volume maximal des subventions qui peuvent être allouées durant l'exercice.</p>
Restitution de subventions	<p>Art. 17⁴⁷</p> <p>Si un objet ne mérite plus d'être protégé, la restitution, tout ou partie, de la subvention allouée peut être requise</p>
Expertises spéciales	<p>Art. 17a⁴⁸</p> <p>Le Conseil fédéral définit les cas dans lesquels une commission peut, avec l'accord du canton, procéder à une expertise de son propre chef ou à la demande de tiers.</p>

Chapitre 3: Protection de la faune et de la flore du pays

Protection d'espèces animales et végétales	<p>Art. 18</p> <p>¹ La disparition d'espèces animales et végétales indigènes doit être prévenue par le maintien d'un espace vital suffisamment étendu (biotopes), ainsi que par d'autres mesures appropriées. Lors de l'application de ces mesures, il sera tenu compte des intérêts dignes de protection de l'agriculture et de la sylviculture.</p> <p>^{1bis} Il y a lieu de protéger tout particulièrement les rives, les roselières et les marais, les associations végétales forestières rares, les haies, les bosquets, les pelouses sèches et autres milieux qui jouent un rôle dans l'équilibre naturel ou présentent des conditions particulièrement favorables pour les biocénoses ⁴⁹</p> <p>^{1ter} Si, tous intérêts pris en compte, il est impossible d'éviter des atteintes d'ordre technique aux biotopes dignes de protection, l'auteur de l'atteinte doit veiller à prendre des mesures particulières pour en assurer la meilleure protection possible, la reconstitution ou, à défaut, le remplacement adéquat.⁵⁰</p>
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⁴⁶ Introduit par le ch 9 de l'annexe à la loi du 5 oct 1990 sur les subventions, en vigueur depuis le 1^{er} avril 1991 (RS 616.1)

⁴⁷ Nouvelle teneur selon le ch 9 de l'annexe à la loi du 5 oct 1990 sur les subventions, en vigueur depuis le 1^{er} avril 1991 (RS 616.1)

⁴⁸ Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

⁴⁹ Introduit par l'art 66 ch 1 de la loi du 7 oct 1983 sur la protection de l'environnement, en vigueur depuis le 1^{er} janv. 1985 (RS 814.01)

⁵⁰ Introduit par l'art 66 ch 1 de la loi du 7 oct 1983 sur la protection de l'environnement, en vigueur depuis le 1^{er} janv 1985 (RS 814.01)

² Dans la lutte contre les ravageurs, notamment dans la lutte au moyen de substances toxiques, il faut éviter de mettre en danger des espèces animales et végétales dignes de protection

³ La Confédération peut favoriser la réacclimatation en des lieux appropriés d'espèces ne vivant plus à l'état sauvage en Suisse ou menacées d'extinction.

⁴ La législation fédérale sur la chasse et la protection des oiseaux ainsi que sur la pêche est réservée

Art. 18a⁵¹

Biotopes
d'importance
nationale

¹ Le Conseil fédéral, après avoir pris l'avis des cantons, désigne les biotopes d'importance nationale. Il détermine la situation de ces biotopes et précise les buts visés par la protection.

² Les cantons règlent la protection et l'entretien des biotopes d'importance nationale. Ils prennent à temps les mesures appropriées et veillent à leur exécution

³ Le Conseil fédéral peut, après avoir pris l'avis des cantons, fixer des délais pour la mise en place des mesures de protection. Si, malgré les avertissements, un canton ne prescrit pas à temps les mesures de protection, le Département fédéral de l'environnement, des transports, de l'énergie et de la communication⁵² peut prendre à sa place les mesures nécessaires et mettre à sa charge une part équitable des frais correspondants

Art. 18b⁵³

Biotopes
d'importance
régionale et
locale et
compensation
écologique

¹ Les cantons veillent à la protection et à l'entretien des biotopes d'importance régionale et locale

² Dans les régions où l'exploitation du sol est intensive à l'intérieur et à l'extérieur des localités, les cantons veillent à une compensation écologique sous forme de bosquets champêtres, de haies, de rives boisées ou de tout autre type de végétation naturelle adaptée à la station. Ce faisant, ils tiennent compte des besoins de l'agriculture.

⁵¹ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév. 1988 (RO 1988 254 258, FF 1985 II 1449)

⁵² La désignation de l'unité administrative a été adaptée selon l'art 16 al 3 de l'O du 17 nov. 2004 sur les publications officielles (RS 170.512.1)

⁵³ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév. 1988 (RO 1988 254 258, FF 1985 II 1449)

Situation des propriétaires fonciers et des exploitants	<p>Art. 18c⁵⁴</p> <p>¹ La protection des biotopes et leur entretien seront, si possible, assurés sur la base d'accords conclus avec les propriétaires fonciers et les exploitants et par l'adaptation des modes d'exploitation agricole et sylvicole.</p> <p>² Les propriétaires fonciers ou les exploitants qui, par souci de garantir la protection visée, limitent leur exploitation actuelle ou assurent une prestation sans avantage lucratif correspondant, ont droit à une juste indemnité ⁵⁵</p> <p>³ Si, contrairement à ce qui serait indispensable à la réalisation des buts visés par la protection, un propriétaire néglige d'exploiter son bien-fonds, il doit en tolérer l'exploitation par des tiers ordonnée par les autorités.</p> <p>⁴ Pour autant que les buts visés par la protection exigent l'acquisition de terres, les cantons ont la compétence de recourir à l'expropriation. Dans leurs dispositions d'exécution, ils peuvent déclarer applicable la loi fédérale du 20 juin 1930 sur l'expropriation⁵⁶, la décision sur les oppositions restées en litige revenant au gouvernement cantonal. La loi fédérale du 20 juin 1930 sur l'expropriation est applicable lorsque l'objet à placer sous protection s'étend sur le territoire de plusieurs cantons.</p>
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Financement	<p>Art. 18d⁵⁷</p> <p>¹ La Confédération finance l'inventaire des biotopes d'importance nationale et participe au financement des mesures de protection et d'entretien par une indemnité couvrant de 60 à % des frais. Elle peut, exceptionnellement, prendre à sa charge la totalité des frais</p> <p>² Les cantons supportent les coûts de la protection et de l'entretien des biotopes d'importance régionale et locale et ceux des mesures de compensation écologique. La Confédération participe à leur couverture sous la forme d'indemnités allant jusqu'à 50 % des frais</p> <p>³ Pour le calcul des indemnités visées aux al. 1 et 2, la Confédération tient compte de la capacité financière des cantons et de la charge globale que leur occasionne la protection des sites marécageux et des biotopes.</p>
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⁵⁴ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁵⁵ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

⁵⁶ RS 711

⁵⁷ Introduit par le ch I de la LF du 19 juin 1987 (RO 1988 254, FF 1985 II 1449) Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224; FF 1991 III 1137)

Art. 19

Récolte de
plantes sauvages
et capture
d'animaux,
autorisation
obligatoire

Une autorisation de l'autorité cantonale compétente est nécessaire pour récolter des plantes sauvages et capturer des animaux vivant en liberté à des fins lucratives. L'autorité peut la limiter à certaines espèces, contrées, saisons et quantités, ou d'une autre manière, et interdire la récolte ou la culture organisées ainsi que la publicité à cet effet. La présente disposition ne concerne pas les produits ordinaires de l'agriculture et de la sylviculture, ni la cueillette de champignons, de baies et de plantes utilisées en herboristerie, effectuée dans une mesure conforme à l'usage local, sauf s'il s'agit de plantes protégées.

Art. 20

Protection de
plantes et
d'animaux rares

¹ Le Conseil fédéral peut interdire totalement ou partiellement la cueillette, la déplantation, l'arrachage, le transport, la mise en vente, la vente, l'achat ou la destruction de plantes rares. Il peut également prendre des mesures adéquates pour protéger les espèces animales menacées ou dignes de protection ⁵⁸

² Les cantons peuvent édicter des interdictions semblables pour d'autres espèces.

³ Pour des raisons inhérentes à la protection des espèces, le Conseil fédéral peut subordonner à certaines conditions, limiter ou interdire la production, la mise en circulation, l'importation, l'exportation et le transit de plantes ou de produits végétaux ⁵⁹

Art. 21⁶⁰

Végétation des
rives

¹ La végétation des rives (roselières et jonchères, végétation alluviale et autres formations végétales naturelles riveraines) ne doit pas être essartée ni recouverte ou détruite d'une autre manière

² Dans la mesure du possible, les cantons veillent à ce que les rives soient couvertes d'une végétation suffisante ou du moins à ce que soient réalisées les conditions nécessaires à son développement ⁶¹

⁵⁸ Nouvelle teneur de la phrase selon le ch 2 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv 2004 (RS 814.91)

⁵⁹ Introduit par le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

⁶⁰ Nouvelle teneur selon l'art 66 ch 1 de la loi du 7 oct 1983 sur la protection de l'environnement, en vigueur depuis le 1^{er} janv 1985 (RS 814.01)

⁶¹ Introduit par l'art 75 ch 2 de la LF du 24 janv 1991 sur la protection des eaux (RS 814.20) Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

Art. 22

Exceptions autorisées

¹ L'autorité cantonale compétente peut, à des fins scientifiques, pédagogiques et thérapeutiques, et sur des territoires déterminés, permettre des exceptions pour la récolte et la déplantation de plantes protégées ainsi que pour la capture d'animaux.

² Elle peut autoriser la suppression de la végétation existant sur des rives dans le cas de projets qui ne peuvent être réalisés ailleurs et qui ne contreviennent pas à la législation en matière de police des eaux et de protection des eaux.⁶²

³ Si une autre norme juridique attribue à une autorité fédérale la compétence de décider au sujet d'un projet, l'autorisation exceptionnelle est octroyée par cette autorité. ...⁶³

Art. 23⁶⁴

Espèces animales et végétales étrangères, autorisation obligatoire

L'acclimatation d'espèces, sous-espèces et races d'animaux et végétaux étrangères au pays ou à certaines régions nécessite une autorisation du Conseil fédéral. Cette disposition ne concerne pas les enclos, les jardins et les parcs, ni les exploitations agricoles et forestières

Chapitre 3a:⁶⁵**Marais et sites marécageux d'une beauté particulière et d'importance nationale****Art. 23a**

Protection des marais

Les art. 18a, 18c et 18d s'appliquent à la protection des marais d'une beauté particulière et d'importance nationale.

Art. 23b

Définition et délimitation des sites marécageux

¹ Par site marécageux, on entend un paysage proche de l'état naturel, caractérisé par la présence de marais. Une étroite relation écologique, visuelle, culturelle ou historique unit les marais au reste du site.

² Un site marécageux est d'une beauté particulière et d'importance nationale lorsqu'il.

⁶² Nouvelle teneur selon l'art 75 ch 2 de la LF du 24 janv 1991 sur la protection des eaux, en vigueur depuis le 1^{er} nov. 1992 (RS 814.20)

⁶³ Phrase abrogée par le ch 13 de la LF du 18 juin 1999 sur la coordination et la simplification des procédures de décision (RO 1999 3071; FF 1998 2221)

⁶⁴ Nouvelle teneur selon l'art 27 ch 2 de la loi du 20 juin 1986 sur la chasse, en vigueur depuis le 1^{er} avril 1988 (RS 922.0)

⁶⁵ Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

- a Est unique en son genre ou
- b Fait partie des sites marécageux les plus remarquables, dans un groupe de sites comparables.

³ Le Conseil fédéral désigne les sites marécageux d'une beauté particulière et d'importance nationale et en détermine la situation en tenant compte de l'utilisation du sol et des constructions existantes. Ce faisant, il travaille en étroite collaboration avec les cantons qui, pour leur part, prennent l'avis des propriétaires fonciers concernés.

⁴ La Confédération finance l'inventaire des sites marécageux d'une beauté particulière et d'importance nationale.

Art. 23c

Protection des sites marécageux

¹ La protection a pour but général de sauvegarder les éléments naturels et culturels des sites marécageux qui leur confèrent leur beauté particulière et leur importance nationale. Le Conseil fédéral fixe des buts de protection adaptés aux particularités des sites marécageux.

² Les cantons veillent à la concrétisation et à la mise en œuvre des buts de la protection. Ils prennent à temps les mesures de protection et d'entretien qui s'imposent. Les art. 18a, al. 3, et 18c sont applicables par analogie.

³ La Confédération participe au financement des mesures de protection et d'entretien par une indemnité couvrant de 60 à 90 pour cent des frais. Pour le calcul de l'indemnité, elle tient compte de la capacité financière des cantons et de la charge globale que leur occasionne la protection des sites marécageux et des biotopes.

Art. 23d

Amenagement et exploitation des sites marécageux

¹ L'aménagement et l'exploitation des sites marécageux sont admissibles, dans la mesure où ils ne portent pas atteinte aux éléments caractéristiques des sites marécageux.

² Sont en particulier admis à la condition prévue à l'al. 1:

- a L'exploitation agricole et sylvicole;
- b L'entretien et la rénovation de bâtiments et d'installations réalisés légalement;
- c Les mesures visant à protéger l'homme contre les catastrophes naturelles,
- d Les installations d'infrastructure nécessaires à l'application des let. a à c ci-dessus.

Chapitre 4: Dispositions pénales

Art. 24⁶⁶

Délits

¹ Sera puni de l'emprisonnement jusqu'à un an ou de l'amende jusqu'à 100 000 francs celui qui, intentionnellement et sans autorisation, aura.⁶⁷

- a.⁶⁸ Détruit ou endommagé sérieusement une curiosité naturelle ou un monument protégés en vertu de la présente loi, un site protégé évocateur du passé, un site naturel protégé ou un biotope protégé;
- b. Essarté, recouvert ou anéanti d'une autre manière la végétation riveraine au sens de l'art. 21;
- c.⁶⁹ détruit ou endommagé sérieusement des curiosités naturelles ou des antiquités enfouies qui offrent un intérêt scientifique⁷⁰ (art. 724, al. 1, CC⁷¹),
- d.⁷² Importé ou exporté, transporté ou détenu des plantes ou des produits végétaux au sens des annexes I à III de la Convention du 3 mars 1973⁷³ sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction, en violation de ses dispositions.

² Si le délinquant agit par négligence, il est passible d'arrêts ou d'une amende jusqu'à 40 000 francs.

Art. 24^{a74}

Contraventions

Sera puni d'une amende jusqu'à 20 000 francs celui qui ⁷⁵

- a. Nonobstant le renvoi à la présente disposition pénale, n'aura pas respecté une condition ou une charge à laquelle a été lié l'octroi d'une subvention fédérale;

⁶⁶ Nouvelle teneur selon le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév. 1988 (RO 1988 254 258, FF 1985 II 1449)

⁶⁷ Nouvelle teneur selon le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

⁶⁸ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996 (RO 1996 214 224, FF 1991 III 1137)

⁶⁹ Introduite par le ch I de la LF du 24 mars 1995 (RO 1996 214, FF 1991 III 1137)
Nouvelle teneur selon l'art 32 ch 4 de la loi du 20 juin 2003 sur le transfert des biens culturels, en vigueur depuis le 1^{er} juin 2005 (RS 444.1)

⁷⁰ Rectifié par la Commission de rédaction de l'Ass féd (art 58, al 1, LParl - RS 171.10)

⁷¹ RS 210

⁷² Introduite par le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

⁷³ RS 0.453

⁷⁴ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁷⁵ Nouvelle teneur selon le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

- b ⁷⁶ Aura enfreint une disposition d'exécution édictée en vertu des art 16, 18, 18a, 18b, 18c, 19, 20, 23c, 23d, et 25a et dont la violation a été déclarée punissable,
- c. Se sera livré sans droit à un acte soumis à une autorisation en vertu des articles 19, 22, al 1, ou 23.

Art. 24b⁷⁷

Application aux personnes morales et aux sociétés commerciales

Les articles 6 et 7 de la loi fédérale du 22 mars 1974 sur le droit pénal administratif⁷⁸ sont applicables

Art. 24c⁷⁹

Confiscation

L'art. 58 du code pénal suisse⁸⁰ sur la confiscation d'objets et d'avantages pécuniaires obtenus illicitement est applicable.

Art. 24d⁸¹

Poursuite pénale

¹ La poursuite pénale incombe aux cantons.

² Les infractions visées à l'art. 24, al. 1, let. d, sont poursuivies et jugées par l'Office vétérinaire fédéral⁸² dans les conditions définies par la loi fédérale du 22 mars 1974 sur le droit pénal administratif⁸³. S'il s'y ajoute une infraction à la législation douanière, il appartient à l'Administration des douanes de mener l'enquête et de décerner un mandat de répression selon une procédure abrégée.⁸⁴

Art. 24e⁸⁵

Remise en état

Indépendamment d'une procédure pénale, celui qui porte atteinte à une curiosité naturelle ou à un monument protégés en vertu de la présente loi, à un site protégé évocateur du passé, à un site naturel pro-

⁷⁶ Nouvelle teneur selon le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

⁷⁷ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁷⁸ RS 313.0

⁷⁹ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁸⁰ RS 311.0

⁸¹ Introduit par le ch I de la LF du 19 juin 1987, en vigueur depuis le 1^{er} fév 1988 (RO 1988 254 258, FF 1985 II 1449)

⁸² La désignation de l'unité administrative a été adaptée selon l'art 16 al. 3 de l'O du 17 nov. 2004 sur les publications officielles (RS 170.512.1)

⁸³ RS 313.0

⁸⁴ Introduit par le ch I de la LF du 21 juin 1996, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1152 1153, FF 1995 IV 621)

⁸⁵ Introduit par le ch I de la LF du 19 juin 1987 (RO 1988 254, FF 1985 II 1449) Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

tégé, à un biotope protégé ou à la végétation protégée des rives peut être tenu:

- a. D'annuler les effets des mesures prises illicitement;
- b. De prendre à sa charge les frais occasionnés par la réparation du dommage;
- c. De fournir une compensation appropriée lorsque le dommage ne peut être réparé.

Chapitre 5: Organisation et information⁸⁶

Art. 25⁸⁷

Organisation⁸⁸

¹ Le Conseil fédéral nomme une ou plusieurs commissions consultatives pour la protection de la nature, la protection du paysage et la conservation des monuments historiques.

² Les cantons désignent des services chargés de la protection de la nature, de la protection du paysage et de la conservation des monuments historiques

Art. 25a⁸⁹

Information et conseils

¹ La Confédération et les cantons veillent à informer et à conseiller les autorités et le public sur l'état et l'importance de la nature et du paysage.

² Ils recommandent des mesures de protection et d'entretien appropriées

⁸⁶ Nouvelle teneur selon le ch 1 de l'annexe à la LF du 21 déc 1995, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1155 1176, FF 1993 II 1337)

⁸⁷ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁸⁸ Introduit par le ch 1 de l'annexe à la LF du 21 déc 1995, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1155 1176, FF 1993 II 1337)

⁸⁹ Introduit par le ch 1 de l'annexe à la LF du 21 déc 1995, en vigueur depuis le 1^{er} juillet 1997 (RO 1997 1155 1176, FF 1993 II 1337)

Chapitre 6: Dispositions finales⁹⁰**Art. 25b^{91 92}**Rétablissement
de marais et de
sites marécageux

¹ Les cantons désignent les installations, les bâtiments et les modifications de la configuration du terrain réalisés après le 1^{er} juin 1983 dans les marais et les sites marécageux d'une beauté particulière et d'importance nationale, qui sont contraires aux buts visés par la protection et qui n'ont pas été autorisés avec force de chose jugée sur la base de zones d'affectation conformes à la loi fédérale du 22 juin 1979 sur l'aménagement du territoire⁹³.

² Dans le site marécageux de Rothenthurm, les cantons de Schwyz et de Zoug désignent les installations, les bâtiments et les modifications de la configuration du terrain réalisés après le 1^{er} juin 1983 et qui tombent sous le coup de la disposition transitoire de l'art 24^{sexies}, al. 5, de la constitution⁹⁴.

³ L'autorité cantonale ou fédérale compétente pour prendre les décisions concernant les autorisations et l'exécution des projets décide du rétablissement de l'état initial. Lors du rétablissement de l'état initial, on tient compte du principe de la proportionnalité.

Art. 25c⁹⁵

Voies de droit

¹ La procédure de recours est régie par la loi fédérale du 20 décembre 1968 sur la procédure administrative⁹⁶ et l'organisation judiciaire du 16 décembre 1943⁹⁷.

² Un recours peut être formé devant la commission de recours DETEC contre les décisions prises en application de la présente loi par l'OFEFP ou par des tiers assumant des tâches d'exécution incombant à l'OFEFP.

³ Les autorités de recours de première instance consultent l'office fédéral concerné avant de rendre leur décision.

⁹⁰ Nouvelle teneur selon le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁹¹ Anciennement art 25a

⁹² Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév 1996 (RO 1996 214 224, FF 1991 III 1137)

⁹³ RS 700

⁹⁴ [RS 1 3, RO 1962 783, 1988 352] Actuellement "l'art 78 al 5 de la Constitution du 18 avril 1999" (RS 101)

⁹⁵ Introduit par le ch 2 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv 2004 (RS 814.91)

⁹⁶ RS 172.021

⁹⁷ RS 173.110

Art. 26Entrée en
vigueur⁹⁸

Le Conseil fédéral fixe la date de l'entrée en vigueur de la présente loi
Il édicte les dispositions d'exécution nécessaires

Date de l'entrée en vigueur 1^{er} janvier 1967⁹⁹

⁹⁸ Introduit par le ch I de la LF du 24 mars 1995, en vigueur depuis le 1^{er} fév. 1996
(RO 1996 214 224, FF 1991 III 1137)

⁹⁹ ACF du 27 déc 1966 (RO 1966 1702)

**Ordonnance
concernant l'inventaire fédéral des paysages,
sites et monuments naturels
(OIFP)**

du 10 août 1977 (Etat le 10 mars 1998)

Le Conseil fédéral suisse,

vu l'art 5 de la loi fédérale du 1^{er} juillet 1966¹ sur la protection de la nature
et du paysage (LPN),

arrête:

Art. 1

¹ L'inventaire fédéral des paysages, sites et monuments naturels d'importance nationale (IFP), au sens de l'art 5 LPN, comprend les objets énumérés dans l'annexe.

² . 2

Art. 2

La description et la représentation cartographique des divers objets portés à l'IFP, ainsi que les critères selon lesquels ces objets ont été reconnus d'importance nationale seront publiés séparément, cette publication relève des attributions du Département fédéral de l'environnement, des transports, de l'énergie et de la communication³. Il mentionnera dans le commentaire accompagnant l'inventaire les autres principes et indications dont celui-ci doit faire état conformément à l'art 5, al 1, LPN.

Art. 3

La présente ordonnance entre en vigueur le 21 novembre 1977.

RO 1977 1962

¹ RS 451

² Abrogé par le ch I de l'O du 15 déc 1997 (RO 1998 788)

³ La désignation de l'unité administrative a été adaptée selon l'art 4a de l'O du 15 juin 1998 sur les publications officielles (RS 170.512.1)

Annexe I⁴
(art. 1^{er})

Paysages, sites et monuments d'importance nationale

		Inscription	Révisions
1001	Linkes Bielerseeufer	1977	
1002	Le Chasseral	1977	
1003	Tourbière des Ponts-de-Martel	1977	
1004	Creux du Van et gorges de l'Arcuse	1977	
1005	Vallée de la Brévine	1977	
1006	Vallée du Doubs	1977	1983
1007	La Dôle	1977	1998
1008	Franches-Montagnes	1977	1983
1009	Gorges du Pichoux	1977	1983
1010	Weissenstein	1977	1996
1011	Lägeregebiet	1977	
1012	Belchen-Passwang-Gebiet	1983	
1013	Les Roches de Châtoillon	1983	1996
1014	Chassagne	1983	1998
1015	Pied sud du Jura proche de La Sarraz	1983	1998
1016	Aarewaage Aarburg	1996	
1017	Aargauer und östlicher Solothurner Faltenjura	1996	
1018	Aareschlucht Brugg	1996	
1019	Wasserschloss (Zusammenfluss Aare/Reuss/Limmat)	1996	
1020	Ravellenflue und Chluser Roggen bei Oensingen	1996	
1021	Gorges de Moutier	1996	
1022	Vallée de Joux et Haut-Jura vaudois	1998	
1023	Le Mormont	1998	
1101	Etangs de Bonfol et de Vendlincourt	1977	1983
1102	Randen	1977	
1103	Koblener Laufen	1977	
1104	Tafeljura nördlich Gelterkinden	1983	
1105	Baselbieter und Fricktaler Tafeljura	1983	1996
1106	Chilpen bei Diegten	1983	1996
1107	Gempenplateau	1983	
1108	Aargauer Tafeljura	1996	
1109	Aarelandschaft bei Klingnau	1996	
1110	Wangen- und Osterfingertal	1996	
1201	La Côte	1977	1998
1202	Lavaux	1977	1998
1203	Grèves vaudoises de la rive gauche du lac	1977	1998

⁴ Nouvelle teneur selon le ch. II de l'O du 15 déc. 1997, en vigueur depuis le 1^{er} avril 1998 (RO 1998 788)

		Inscription	Révisions
	de Neuchâtel		
1204	Le Rhône genevois-Vallons de l'Allondon et de La Laire	1977	1996
1205	Bois de Chênes	1977	
1206	Coteaux de Cortaillod et de Bevaix	1977	
1207	Marais de la haute Versoix	1977	1998
1208	Rive sud du lac de Neuchâtel	1983	1998
1209	Mont Vully	1983	
1210	Chanivaz – delta de l'Aubonne	1996	
1301	St. Petersinsel-Heidenweg	1977	
1302	Alte Aare/Alte Zihl	1977	1996
1303	Hallwilersee	1977	
1304	Baldeggersee	1977	
1305	Reusslandschaft	1977	
1306	Albiskette-Reppischtal	1983	
1307	Glaziallandschaft zwischen Lorzentobel und Sihl mit Höhronenkette	1993	
1308	Moorlandschaft Rothenthurm-Altmat-Biberbrugg	1983	
1309	Zugersee	1983	
1310	Gletschergarten Luzern	1983	
1311	Napfbergland	1983	
1312	Wassermatten in den Talern der Langete, der Rot und der Onz	1983	1996
1313	Steinhof-Steinberg-Burgäschisee	1983	
1314	Aarelandschaft Thun-Bern	1983	
1315	Amsoldinger- und Uebesichisee	1983	
1316	Stausee Niederried	1983	
1317	Endmoränenzone von Staffelbach	1996	
1318	Wauwilermoos-Hagimoos-Mauensee	1996	
1319	Aareknie Wolfwil-Wynau	1996	
1320	Schwarzenburgerland mit Sense- und Schwarzwasser-Schluchten	1996	
1321	Emmentallandschaft mit Rabloch, Schopfgraben und Ramisgummen	1996	
1401	Drumlinlandschaft Zürcher Oberland	1977	
1402	Imenberg	1977	
1403	Glaziallandschaft zwischen Thur und Rhein mit Nussbaumer Seen und Andelfinger Seenplatte	1977	1983
1404	Glaziallandschaft Neerach-Stadel	1977	
1405	Frauenwinkel-Ufenau-Litzelau	1977	
1406	Zürcher Obersee	1977	1996
1407	Katzenseen	1977	
1408	Unteres Fallander Tobel	1977	
1409	Pfäffikersee	1977	

		Inscription	Révisions
1410	Irchel	1977	
1411	Unterse- Hochrhein	1983	
1412	Rheinfall	1983	
1413	Thurgauisch-fürstenländische Kulturlandschaft mit Hudelmoos	1983	
1414	Thurlandschaft Lichtensteig-Schwarzenbach	1983	1996
1415	Böllenberg Tobel bei Uznach	1983	
1416	Kaltbrunner Riet	1983	
1417	Lütelsee-Seeweidsee-Uetziker Riet	1983	
1418	Espi-Hölzli	1983	
1419	Pflugstein ob Erlenbach	1983	
1420	Hörnli-Bergland (Quellgebiete der Töss und der Murg)	1996	
1501	Gelten-Iffigen	1977	
1502	Les Grangettes	1977	1998
1503/1713	Diablerets-Vallon de Nant-Derborence (partie ouest)	1977	1998
1504	Vanil Noir	1977	1996/98
1505	Hohgant	1977	
1506	Chaltenbrunnenmoor-Wandelalp	1977	
1507/1706	Berner Hochalpen und Aletsch-Bietschhorn-Gebiet (nördlicher Teil)	1983	1996
1508	Weissenau	1983	
1509	Luegibodenblock	1983	
1510	La Pierreuse-Gummfluh-Vallée de l'Etivaz	1983	1998
1511	Giessbach	1996	
1512	Aareschlucht Innertkirchen-Meiringen	1996	
1513	Engstligenfälle mit Engstligenalp	1996	
1514	Breccaschlund	1996	
1515	Tour d'Ai-Dent de Corjon	1998	
1601	Silberer	1977	
1602	Murgtal-Murtschentel	1977	
1603	Maderanertal-Fellital	1977	
1604	Lauerzersee	1977	
1605	Pilatus	1977	
1606	Vierwaldstättersee mit Kernwald, Burgenstock und Rigi	1983	
1607	Bergsturzgebiet von Goldau	1983	
1608	Flyschlandschaft Hagleren-Glaubenberg-Schlieren	1983	
1609	Schrattenflue	1983	
1610	Scheidnossli bei Erstfeld	1983	
1611	Lochseite bei Schwanden	1983	
1612	Säntisgebiet	1996	
1613	Speer-Churfürsten-Alvier	1996	
1614	Taminaschlucht	1996	

		Inscription	Révisions
1615	Melser Hinterberg-Flumser Kleinberg	1996	
1701	Binntal	1977	
1702	Lac de Tanay	1977	
1703	Val de Bagnes	1977	
1704	Mont d'Orge près de Sion	1977	
1705	Valère et Tourbillon	1977	
1706/1507	Berner Hochalpen und Aletsch-Bietschhorn-Gebiet (südlicher Teil)	1983	1998
1707	Dent Blanche-Matterhorn-Monte Rosa	1983	1998
1708	Pyramides d'Euseigne	1983	
1709	Blocs erratiques au-dessus de Monthey et de Collombey	1983	
1710	Rhonegletscher mit Vorgelände	1996	
1711	Raron-Heidnischbiel	1996	1998
1712	Les Follatères-Mont du Rosel	1996	
1713/1503	Diablerets-Vallon de Nant-Derborence (partie est)	1996	
1714	Bergj-Platten	1998	
1715	Gorges du Trient	1998	
1716	Pfynwald-Iligraben	1998	
1717	Laggintal-Zwischbergental	1998	
1718	Val de Réchy-Sasseneire	1998	
1801	Piora-Lucomagno-Dotra	1977	
1802	Delta del Ticino e della Verzasca	1977	
1803	Monte Generoso	1977	
1804	Monte San Giorgio	1977	
1805	Monte Caslano	1977	
1806	Ponte Brolla-Losone	1977	
1807	Val Verzasca	1983	
1808	Val Bavona	1983	
1809	Campolungo-Campo Tencia-Piumogna	1983	
1810	San Salvatore	1983	
1811	Arbòstora-Morcote	1983	
1812	Gandria e dintorni	1983	
1813	Denti della Vecchia	1983	
1814	Paesaggio fluviale e antropico della Valle del Sole (Blenio)	1996	
1901	Lag da Toma	1977	
1902	Runaulta	1977	
1903	Auenlandschaft am Unterlauf des Hinterrheins	1977	
1904	Val di Campo	1977	
1905	Kesch-Ducan-Gebiet	1977	
1906	Trockengebiet im unteren Domleschg	1977	
1907	Quellgebiet des Hinterrheins und San Bernardino Passhöhe	1977	
1908	Oberengadiner Seenlandschaft und	1983	

		Inscription	Révisions
	Berninagruppe		
1909	Piz Arina		1983
1910	Silvretta-Vereina		1983
1911	Tomalandschaft bei Domat/Ems		1983
1912	Paludi del San Bernardino		1996
1913	Greina-Piz Medel		1996
1914	Plasseggen-Schijenflue		1996
1915	Schweizerischer Nationalpark und Randgebiete		1996
1916	Val Bondasca-Val da l'Albigna		1998

**Loi fédérale
sur la chasse et la protection des mammifères
et oiseaux sauvages
(Loi sur la chasse, LChP)**

du 20 juin 1986 (Etat le 22 décembre 2003)

L'Assemblée fédérale de la Confédération suisse,
vu les art 24^{sexies}, al. 4, 24^{septies}, 25 et 25^{bis} de la constitution^{1,2}
vu le message du Conseil fédéral du 27 avril 1983³,
arrête:

Chapitre 1 But et champ d'application

Art. 1 But

¹ La loi vise à:

- a La conservation de la diversité des espèces et celle des biotopes des mammifères et oiseaux indigènes et migrateurs vivant à l'état sauvage;
- b La préservation des espèces animales menacées;
- c La réduction à une proportion supportable des dégâts causés par la faune sauvage aux forêts et aux cultures;
- d L'exploitation équilibrée par la chasse des populations de gibier.

² Elle fixe les principes selon lesquels les cantons doivent réglementer la chasse

Art. 2 Champ d'application

La loi concerne les animaux suivants vivant en Suisse à l'état sauvage:

- a Les oiseaux;
- b Les carnivores;
- c Les artiodactyles,
- d Les lagomorphes;
- e Le castor, la marmotte et l'écureuil.

RO 1988 506

¹ [RS 13, RO 1962 783, 1971 905, 1974 721] Aux dispositions mentionnées correspondent actuellement les art 74, 78, al. 4, 79 et 80 de la Constitution du 18 avril 1999 (RS 101)

² Nouvelle teneur selon le ch VIII 1 de la LF du 24 mars 2000 sur la création et l'adaptation de bases légales concernant le traitement de données personnelles, en vigueur depuis le 1^{er} sept 2000 (RO 2000 1891 1914, FF 1999 8381)

³ FF 1983 II 1229

Chapitre 2 Chasse

Art. 3 Principes

¹ Les cantons réglementent et organisent la chasse. Ce faisant, ils tiennent compte des conditions locales ainsi que des exigences de l'agriculture et de la protection de la nature. Le traitement soutenu des forêts et la régénération naturelle par des essences en station doivent être assurés.

² Ils fixent les conditions de l'autorisation de chasser, déterminent le régime et le territoire de chasse, et pourvoient à une surveillance efficace.

³ Ils établissent, conformément aux prescriptions du Conseil fédéral, une statistique du nombre des animaux tirés et de la population des espèces les plus importantes.

⁴ Le Conseil fédéral détermine les moyens et engins de chasse dont l'usage est prohibé. Il fait établir une statistique fédérale de la chasse

Art. 4 Autorisation de chasser

¹ Celui qui désire chasser a besoin d'une autorisation du canton

² L'autorisation est accordée à celui qui prouve, lors d'un examen dont les modalités sont fixées par le canton, qu'il possède les connaissances nécessaires

³ Les cantons peuvent octroyer à des personnes qui se préparent à passer l'examen de chasseur ainsi qu'à des hôtes une autorisation de chasser limitée à quelques jours.

Art. 5 Espèces pouvant être chassées et périodes de protection

¹ Les espèces suivantes peuvent être chassées, sauf pendant les périodes de protection qui sont fixées comme il suit:

- a. Le cerf élaphe
du 1^{er} février au 31 juillet
- b. Le sanglier
du 1^{er} février au 30 juin
- c. Le daim, le cerf Sika et le mouflon
du 1^{er} février au 31 juillet
- d. Le chevreuil
du 1^{er} février au 30 avril
- e. Le chamois
du 1^{er} janvier au 31 juillet
- f. Le lièvre commun, le lièvre variable et le lapin de garenne
du 1^{er} janvier au 30 septembre

- g. La marmotte
du 16 octobre au 31 août
- h. Le renard
du 1^{er} mars au 15 juin
- i. Le blaireau
du 16 janvier au 15 juin
- k. La martre et la fouine
du 16 février au 31 août
- l. Le coq du tétras lyre, le lagopède et la perdrix
du 1^{er} décembre au 15 octobre
- m. Le pigeon ramier, la tourterelle turque, le grand corbeau et la corneille mantelée
du 16 février au 31 juillet
- n. Le faisan
du 1^{er} février au 31 août
- o. Le grèbe huppé, la foulque macroule, le cormoran et les canards sauvages
du 1^{er} février au 31 août
- p. La bécasse des bois
du 15 décembre au 15 septembre.

² Parmi les canards sauvages, les espèces suivantes sont protégées: les oies sauvages, la Tadorne de Belon, la Tadorne casarca, les harles et les cygnes, ainsi que la sarcelle marbrée, l'eider de Steller, le garrot arlequin, l'érisimature à tête blanche, le garrot d'Islande et la nette rousse

³ Les espèces suivantes peuvent être chassées toute l'année:

- a. Le chien viverrin, le raton laveur et le chat haret;
- b. La corneille noire, la pie, le geai des chênes et le pigeon domestique retourné à l'état sauvage.

⁴ Les cantons peuvent prolonger les périodes de protection ou réduire la liste des espèces pouvant être chassées. Ils sont tenus de le faire lorsque la protection d'espèces localement menacées l'exige.

⁵ Ils peuvent, avec l'assentiment préalable du Département fédéral de l'environnement, des transports, de l'énergie et de la communication (Département)⁴, écourter temporairement les périodes de protection, dans le but de réduire des populations trop importantes ou de conserver la diversité des espèces

⁴ La désignation de l'unité administrative a été adaptée selon l'art 4a de l'O du 15 juin 1998 sur les publications officielles (RS 170.512.1)

⁶ Le Conseil fédéral peut, après avoir entendu les cantons, réduire la liste des animaux dont la chasse est autorisée dans l'ensemble de la Suisse lorsque cela s'impose pour protéger des espèces menacées, ou la compléter en indiquant les périodes de protection, dès lors que les populations des espèces protégées permettent qu'on les chasse à nouveau.

Art. 6 Lâcher d'animaux pouvant être chassés

¹ Les cantons peuvent lâcher des animaux pouvant être chassés à condition qu'existent des biotopes appropriés et la garantie d'une protection suffisante

² Le lâcher d'animaux qui peuvent causer d'importants dégâts ou menacer la diversité des espèces indigènes est interdit. Le Conseil fédéral désigne ces animaux.

Chapitre 3 Protection

Art. 7 Protection des espèces

¹ Tous les animaux visés à l'art. 2 qui n'appartiennent pas à une espèce pouvant être chassée, sont protégés (espèces protégées)

² Les cantons peuvent, avec l'assentiment préalable de l'Office fédéral de l'environnement, des forêts et du paysage (Office fédéral)⁵, prévoir le tir d'animaux protégés si la sauvegarde des biotopes ou le maintien de la diversité des espèces l'exige. Le Conseil fédéral désigne les animaux visés par cette disposition.

³ La chasse des bouquetins peut être autorisée du 1^{er} septembre au 30 novembre, lorsqu'elle vise à une régulation des populations. A cette fin, les cantons soumettent chaque année à l'approbation du Département une planification des tirs. Le Conseil fédéral arrête les prescriptions nécessaires.

⁴ Les cantons assurent une protection suffisante des mammifères et des oiseaux sauvages contre les dérangements

⁵ Ils règlent en particulier la protection des jeunes animaux et de leurs mères en période de chasse, ainsi que celle des oiseaux adultes pendant la couvaison.

⁶ Lors de l'élaboration et de la réalisation de projets qui peuvent compromettre la protection des mammifères et des oiseaux sauvages, la Confédération prend l'avis des cantons. Lorsque les projets affectent des zones protégées d'importance internationale et nationale, il y a lieu de demander le préavis de l'Office fédéral.

Art. 8 Tir d'animaux blessés et malades

Les gardes-chasse, les surveillants et les locataires d'une chasse sont autorisés à abattre des animaux blessés et malades également en dehors des périodes d'ouverture de la chasse. De tels tirs doivent être immédiatement annoncés à l'autorité cantonale de la chasse.

⁵ La désignation de l'unité administrative a été adaptée selon l'art. 4a de l'O du 15 juin 1998 sur les publications officielles (RS 170.512.1)

Art. 9 Autorisations de la Confédération

¹ Une autorisation de la Confédération est nécessaire pour:

- a. Importer, faire transiter ou exporter des animaux d'espèces protégées, de même que des parties ou produits tirés de ceux-ci,
- b. Lâcher des animaux d'espèces protégées;
- c. Importer, dans le but de les lâcher, des animaux pouvant être chassés;
- d. Utiliser, à titre exceptionnel, des moyens et engins de chasse dont l'usage est prohibé

² Le Conseil fédéral règle les compétences et la procédure.

Art. 10 Détention d'animaux protégés

¹ Une autorisation cantonale est nécessaire pour détenir des animaux protégés.

² Le Conseil fédéral fixe les conditions auxquelles les animaux protégés peuvent être détenus.

Art. 11 Zones protégées

¹ Le Conseil fédéral, après avoir consulté les cantons, délimite des réserves de sauvagine et d'oiseaux migrateurs, d'importance internationale.

² D'entente avec les cantons, il délimite des districts francs fédéraux ainsi que des réserves de sauvagine et d'oiseaux migrateurs, d'importance nationale

³ Les districts francs fédéraux ne peuvent être supprimés ou remplacés par un district franc équivalent qu'avec l'accord du Conseil fédéral.

⁴ Les cantons peuvent délimiter d'autres districts francs et réserves d'oiseaux.

⁵ La chasse est interdite dans les districts francs et les réserves d'oiseaux. Les organes cantonaux d'exécution peuvent cependant y autoriser le tir d'animaux non protégés lorsque l'exigent la sauvegarde des biotopes, la conservation de la diversité des espèces, des raisons cynégétiques ou la prévention de dommages excessifs causés par le gibier.

⁶ Le Conseil fédéral édicte les dispositions concernant la protection dans les réserves de sauvagine et d'oiseaux migrateurs, d'importance internationale et nationale, ainsi que dans les districts francs fédéraux. La Confédération prend à sa charge 30 à 50 pour cent des frais de surveillance.

Chapitre 4 Dommages causés par la faune sauvage

Art. 12 Prévention des dommages causés par la faune sauvage

¹ Les cantons prennent des mesures pour prévenir les dommages dus à la faune sauvage.

² Les cantons peuvent ordonner ou autoriser en tout temps des mesures contre certains animaux protégés ou pouvant être chassés, lorsqu'ils causent des dégâts importants. Seuls des personnes titulaires d'une autorisation de chasser ou des organes de surveillance peuvent être chargés de l'exécution de ces mesures ⁶

^{2bis} Le Conseil fédéral peut désigner des espèces protégées pour lesquelles la compétence d'ordonner les mesures prévues à l'al. 2 appartient à l'Office fédéral.⁷

³ Les cantons déterminent les mesures qui peuvent légalement être prises à titre individuel en vue de protéger du gibier les animaux domestiques, les biens-fonds et les cultures.⁸ Le Conseil fédéral désigne les espèces protégées contre lesquelles il est permis de prendre de telles mesures.

⁴ Lorsque la population d'animaux d'une espèce protégée est trop nombreuse et qu'il en résulte d'importants dommages ou un grave danger, les cantons peuvent prendre des mesures pour la réduire, avec l'assentiment préalable du Département.

Art. 13 Indemnisation des dégâts causés par la faune sauvage

¹ Les dommages causés par le gibier à la forêt, aux cultures et aux animaux de rente seront indemnisés de façon appropriée. Sont exceptés les dégâts causés par des animaux contre lesquels il est possible de prendre des mesures individuelles selon l'art. 12, al. 3.

² Les cantons règlent l'indemnisation. Les indemnités ne seront versées que pour autant qu'il ne s'agisse pas de dommages insignifiants et que des mesures de prévention raisonnables aient été prises. Les dépenses pour des mesures de prévention peuvent être prises en compte lors de l'indemnisation des dégâts causés par le gibier.

³ La Confédération prend à sa charge 30 à 50 pour cent des indemnités pour les dommages causés par le gibier dans les districts francs fédéraux

⁴ La Confédération et les cantons participent à l'indemnisation des dommages causés par certains animaux protégés. Le Conseil fédéral, après avoir consulté les cantons, détermine ces espèces protégées et fixe les conditions d'indemnisation

⁶ Nouvelle teneur selon le ch. II 11 de l'annexe à la LF du 22 mars 2002 sur l'adaptation de dispositions du droit fédéral en matière d'organisation, en vigueur depuis le 1^{er} fév. 2003 (RO 2003 187 188, FF 2001 3657)

⁷ Introduit par le ch. II 11 de l'annexe à la LF du 22 mars 2002 sur l'adaptation de dispositions du droit fédéral en matière d'organisation, en vigueur depuis le 1^{er} fév. 2003 (RO 2003 187 188, FF 2001 3657)

⁸ Nouvelle teneur selon le ch. II 11 de l'annexe à la LF du 22 mars 2002 sur l'adaptation de dispositions du droit fédéral en matière d'organisation, en vigueur depuis le 1^{er} fév. 2003 (RO 2003 187 188, FF 2001 3657)

Chapitre 5 Information, formation et recherche

Art. 14

¹ Les cantons veillent à ce que la population soit suffisamment informée sur le mode de vie, les besoins et la protection de la faune sauvage.

² Ils règlent la formation et le perfectionnement des surveillants de la faune sauvage et des chasseurs. La Confédération organise des cours pour la formation complémentaire du personnel affecté à la surveillance des zones protégées de la Confédération

³ La Confédération encourage l'étude des animaux sauvages, de leurs maladies et de leurs biotopes. A cet effet, l'Office fédéral peut déroger aux dispositions de la présente loi concernant les animaux protégés. Les dérogations qui ont trait aux animaux pouvant être chassés sont du ressort des cantons

⁴ La Confédération gère le Centre suisse de documentation sur la recherche concernant la faune sauvage. Elle encourage l'information du public et peut allouer des subventions à des centres de recherche et à d'autres institutions de formation et de recherche d'importance nationale

⁵ Le Conseil fédéral édicte des prescriptions sur le marquage des mammifères et des oiseaux sauvages

Chapitre 6 Responsabilité et assurance

Art. 15 Responsabilité

¹ Celui qui pratique la chasse est responsable des dommages qu'il cause.

² Pour le reste, les dispositions du code des obligations⁹ sur les actes illicites sont applicables.

Art. 16 Assurances

¹ Tous les titulaires d'une autorisation de chasser sont tenus de conclure une assurance-responsabilité civile. Le Conseil fédéral fixe le montant minimum de la couverture

² Dans les limites du montant de la couverture prévu par le contrat d'assurance, le lésé peut intenter une action directe contre l'assureur.

³ Les exceptions découlant du contrat d'assurance ou de la loi fédérale du 2 avril 1908 sur le contrat d'assurance¹⁰ ne sont pas opposables au lésé

⁹ RS 220

¹⁰ RS 221.229.1

⁴ L'assureur dispose d'un droit de recours contre le preneur d'assurance ou l'assuré pour autant qu'il soit habilité, en vertu du contrat d'assurance ou de la loi fédérale du 2 avril 1908 sur le contrat d'assurance, à refuser le versement de prestations ou à en réduire le montant.

Chapitre 7 Dispositions pénales

Art. 17 Délits

¹ Sera puni de l'emprisonnement jusqu'à un an ou de l'amende celui qui intentionnellement et sans autorisation:

- a. Aura chassé ou tué du gibier et des animaux d'espèces protégées, ou capturé, ou gardé en captivité des animaux protégés, ou se les sera appropriés;
- b. Aura déniché des œufs ou de jeunes oiseaux d'espèces protégées ou dérangé les oiseaux pendant la couvaison;
- c. Aura importé, fait transiter, exporté, mis en vente ou aliéné des animaux protégés vivants ou morts, des parties ou produits de ces animaux, ainsi que des œufs;
- d. Aura acquis, reçu en don ou en gage, pris sous sa garde, dissimulé, écoulé ou aidé à écouler des animaux vivants ou morts ou des produits de ceux-ci, qu'il savait ou devait présumer avoir été obtenus par un acte délictueux;
- e. Aura pénétré sans motif suffisant dans une zone protégée, muni d'une arme de tir;
- f. Aura rabattu ou attiré des animaux hors de zones protégées;
- g. Aura lâché des animaux;
- h. Aura enfumé, gazé, noyé ou empalé des renards, des blaireaux et des marmottes;
- i. Aura fabriqué, importé, fait transiter, exporté, utilisé, acheté ou mis en vente des moyens et engins de chasse prohibés.

² Si le délinquant a agi par négligence, il sera puni de l'amende.

Art. 18 Contraventions

¹ Sera puni des arrêts ou de l'amende jusqu'à 20 000 francs celui qui, intentionnellement et sans raison valable:

- a. Aura capturé, tenu en captivité ou se sera approprié des espèces pouvant être chassées, ou les aura importées dans le but de les lâcher;
- b. Aura pénétré sans motif suffisant sur le territoire de chasse, muni d'une arme de tir,
- c. Aura conservé, en dehors de la période de chasse, des armes ou des pièges sur les mayens et les alpages;

- d. Aura laissé chasser des chiens;
- e. N'aura pas observé les mesures visant à protéger les animaux contre les dérangements;
- f. Aura déniché des œufs ou de jeunes oiseaux d'espèces pouvant être chassées;
- g. Aura brûlé sur de grandes surfaces des talus, des lisières de champs ou des pâturages ou éliminé des haies;
- h. Aura entravé l'exercice de la chasse.

² La tentative et la complicité sont punissables.

³ Si le délinquant a agi par négligence dans les cas visés à l'al. 1, let a à g, il sera puni de l'amende.

⁴ Celui qui se sera livré à la chasse sans avoir sur lui les pièces de légitimation prescrites ou aura refusé de les montrer aux organes de surveillance compétents sera puni de l'amende.

⁵ Les cantons peuvent réprimer en tant que contravention d'autres infractions au droit cantonal.

Art. 19 Application aux personnes morales et aux sociétés commerciales

L'art. 6 de la loi fédérale du 22 mars 1974 sur le droit pénal administratif¹¹ est applicable.

Art. 20 Retrait et refus de l'autorisation de chasser

¹ Le retrait de l'autorisation de chasser est prononcé par le juge, pour une année au minimum et dix ans au maximum, lorsque le titulaire:

- a. Intentionnellement ou par négligence, a tué ou blessé grièvement une personne au cours de la chasse;
- b. A, intentionnellement, commis ou tenté de commettre un délit visé à l'art. 17, qu'il en soit l'auteur, l'instigateur ou le complice

² Le retrait de l'autorisation vaut pour toute la Suisse.

³ Les cantons peuvent prévoir d'autres motifs de retrait de l'autorisation ainsi que du refus de celle-ci. Les dispositions administratives édictées à ce sujet ne sont valables que pour le canton concerné.

¹¹ RS 313.0

Chapitre 8 Procédure pénale

Art. 21 Poursuite pénale

¹ La poursuite pénale et le jugement des infractions sont du ressort des cantons

² L'Office vétérinaire fédéral poursuit et juge les infractions en rapport avec l'importation, le transit ou l'exportation. S'il y a simultanément infraction à la loi fédérale du 1^{er} octobre 1925 sur les douanes¹² l'enquête est menée par l'Administration fédérale des douanes, qui décerne aussi le mandat de répression

³ Si un acte constitue à la fois une infraction selon l'al 2 et une infraction à la loi fédérale du 9 mars 1978¹³ sur la protection des animaux, à la loi fédérale du 1^{er} octobre 1925 sur les douanes, à la loi fédérale du 8 décembre 1905¹⁴ sur le commerce des denrées alimentaires et de divers objets usuels ou à la loi fédérale du 1^{er} juillet 1966¹⁵ sur les épizooties, qui doivent être poursuivies par les mêmes autorités administratives, la peine encourue est celle qui est prévue pour l'infraction la plus grave; cette peine peut être augmentée de façon appropriée.

Art. 22¹⁶ Communication obligatoire

¹ Tout retrait de l'autorisation de chasser prononcé par le juge doit être communiqué à l'Office fédéral.

² L'Office fédéral communique aux cantons la liste des personnes auxquelles l'autorisation a été retirée pour qu'ils puissent assurer le retrait de l'autorisation sur leur territoire.

³ Il peut conserver ces données dans un fichier électronique. A l'échéance du retrait de l'autorisation, il efface les inscriptions électroniques et détruit les décisions cantonales correspondantes. Il peut conserver celles-ci sous une forme anonyme à des fins scientifiques ou statistiques

Art. 23 Dommages-intérêts

Le locataire de la chasse, dans les régions où la chasse est affermée, le canton ou la commune, dans les autres régions, ont le droit d'exiger la réparation du dommage causé par un délit de chasse ou par une contravention. Pour le reste, les dispositions du code des obligations¹⁷ sur les actes illicites sont applicables

¹² RS 631.0

¹³ RS 455

¹⁴ [RS 4 475, RO 1979 1758, 1985 1992 ch I 1, 1991 362 ch II 404 RO 1995 1469 art 58 let a] Voir actuellement la loi du 9 oct 1992 sur les denrées alimentaires (RS 817.0)

¹⁵ RS 916.40

¹⁶ Nouvelle teneur selon le ch VIII 1 de la LF du 24 mars 2000 sur la création et l'adaptation de bases légales concernant le traitement de données personnelles, en vigueur depuis le 1^{er} sept 2000 (RO 2000 1891 1914, FF 1999 8381)

¹⁷ RS 220

Chapitre 9 Exécution et procédure¹⁸**Art. 24 Exécution par la Confédération¹⁹**

Le Conseil fédéral édicte les dispositions d'exécution

Art. 25 Exécution par les cantons²⁰

¹ Les cantons exécutent la présente loi, sous la surveillance de la Confédération. Ils délivrent toutes autorisations qui ne ressortissent pas à une autorité fédérale en vertu de la loi

² Les dispositions cantonales d'exécution concernant la prolongation de la période de protection, la réduction de la liste des espèces pouvant être chassées (art. 5, al. 4), la protection des animaux contre les dérangements (art. 7, al. 4), la protection des jeunes animaux, de leurs mères et des oiseaux adultes (art. 7, al. 5), ainsi que les mesures individuelles de protection (art. 12, al. 3) ne produisent effet qu'après avoir été approuvées par la Confédération²¹.

³ Toutes les prescriptions légales des cantons relatives à la chasse seront communiquées à l'Office fédéral avant leur entrée en vigueur.

Art. 25a²² Voies de droit

¹ La procédure de recours est régie par la loi fédérale du 20 décembre 1968 sur la procédure administrative²³ et l'organisation judiciaire du 16 décembre 1943²⁴.

² Un recours peut être formé devant la commission de recours DETEC contre les décisions prises par l'Office fédéral en application de la présente loi

³ Les autorités de recours de première instance consultent l'Office fédéral avant de rendre leur décision

Art. 26 Droit de perquisition et confiscation

Les cantons règlent le droit de perquisitionner dans les locaux et installations et de confisquer les véhicules et objets, afin d'assurer l'exécution de la présente loi. Ils confèrent aux personnes chargées de l'exécution la qualité de fonctionnaires de la police judiciaire.

¹⁸ Nouvelle teneur selon le ch. 10 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv. 2004 (RS 814.91)

¹⁹ Nouvelle teneur selon le ch. 10 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv. 2004 (RS 814.91)

²⁰ Nouvelle teneur selon le ch. 10 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv. 2004 (RS 814.91)

²¹ Modifié par le ch. III de la LF du 15 déc. 1989 relative à l'approbation d'actes législatifs des cantons par la Confédération, en vigueur depuis le 1^{er} fév. 1991 (RO 1991 362 369, FF 1988 II 1293)

²² Introduit par le ch. 10 de l'annexe à la loi du 21 mars 2003 sur le génie génétique, en vigueur depuis le 1^{er} janv. 2004 (RS 814.91)

²³ RS 172.021

²⁴ RS 173.110

Chapitre 10 Dispositions finales**Art. 27** Abrogation et modification de lois fédérales

1. La loi fédérale du 10 juin 1925²⁵ sur la chasse et la protection des oiseaux est abrogée.

2. La loi fédérale du 1^{er} juillet 1966²⁶ sur la protection de la nature et du paysage est modifiée comme il suit:

Art. 23

...

3. Le code des obligations²⁷ est modifié comme il suit:

Art. 56, 3^e al

Abrogé

Art. 28 Dispositions transitoires

¹ Les cantons règlent la validité des autorisations de chasser accordées avant l'introduction des examens de chasse.

² Sous réserve de l'art. 5, al. 4 à 6, la perdrix ne pourra être chassée qu'après un délai de dix ans à dater de l'entrée en vigueur de la présente loi.

Art. 29 Référendum et entrée en vigueur

¹ La présente loi est sujette au référendum facultatif.

² Le Conseil fédéral fixe la date de l'entrée en vigueur.

Date de l'entrée en vigueur 1^{er} avril 1988²⁸

²⁵ [RS 9 535, RO 1954 573 ch 17, 1959 961 art 11 let c, 1962 832, 1971 854, 1977 1907 art 1^{er}, 2, 1981 497 art 1^{er}]

²⁶ RS 451. La modification mentionnée ci-dessous est insérée dans ladite loi

²⁷ RS 220

²⁸ ACF du 29 fév 1988 (RO 1988 516)

**Ordonnance
concernant les districts francs fédéraux
(ODF)**

du 30 septembre 1991 (Etat le 9 mars 2004)

Le Conseil fédéral suisse,

vu l'art. 11 de la loi fédérale du 20 juin 1986¹ sur la chasse et la protection des mammifères et oiseaux sauvages (loi sur la chasse),
vu l'art. 26 de la loi fédérale du 1^{er} juillet 1966² sur la protection de la nature et du paysage (LPN),

arrête:

Section 1 Districts francs fédéraux

Art. 1 But

Les districts francs fédéraux (districts francs) ont pour but la protection et la conservation des mammifères et oiseaux sauvages rares et menacés ainsi que la protection et la conservation de leurs biotopes. Ils ont en outre pour but la conservation de populations saines d'espèces pouvant être chassées, adaptées aux conditions locales.

Art. 2 Définition

¹ Sont considérés comme districts francs les objets énumérés dans l'annexe 1.

² L'inventaire fédéral des districts francs fédéraux (Inventaire) comprend pour chaque district franc:

- a. une représentation cartographique du périmètre et une description de la zone;
- b. le but visé par la protection;
- c. des mesures particulières pour la protection des espèces et des biotopes et la régulation des populations d'animaux pouvant être chassés ainsi que la durée de validité de ces mesures;
- d. éventuellement un périmètre à l'extérieur du district franc, dans lequel les dégâts causés par la faune sauvage sont indemnisés.

³ L'inventaire, qui fait partie intégrante de la présente ordonnance n'est pas publié (art. 4 de la loi du 21 mars 1986³ sur les publications officielles) dans le Recueil officiel des lois fédérales (RO), mais paraît sous forme de tiré à part (annexe 2).

RO 1991 2304

¹ RS 922.0

² RS 451

³ RS 170.512

Art. 3⁴ Modifications minimales

Le Département fédéral de l'environnement, des transports, de l'énergie et de la communication est autorisé à modifier légèrement la définition des objets, d'entente avec les cantons, dès lors que la diversité des espèces est préservée. Constituent une modification légère:

- a. une modification du périmètre correspondant au maximum à cinq pour cent de la surface de l'objet,
- b. une réduction du périmètre correspondant au maximum à dix pour cent de la surface de l'objet si le périmètre est élargi à un nouveau secteur d'étendue au moins égale;
- c. les mesures de régulation des populations d'animaux pouvant être chassés

Art. 4 Mesures particulières en cas de suppression ou de modification de districts francs

Dans les zones nouvellement ouvertes à la chasse, les cantons veillent à ce que la chasse soit d'abord pratiquée avec modération, le plein déroulement de l'activité cynégétique ne devant intervenir qu'après une période de transition appropriée.

Section 2**Protection de la diversité des espèces et des biotopes****Art. 5** Protection des espèces

¹ Les dispositions ci-après s'appliquent d'une manière générale aux districts francs:

- a. la chasse est interdite, sous réserve de l'art. 2, al. 2, et de l'art. 9,
- b. les animaux ne doivent pas être dérangés, traqués, ni attirés hors du district franc;
- c. les chiens doivent être tenus en laisse; les dispositions particulières prises en vertu de l'art. 2, al. 2, et de l'art. 9 sont réservées;
- d. il est interdit de porter, de conserver ou d'utiliser des armes et des pièges. Les cantons peuvent accorder des dérogations aux personnes habitant à l'intérieur du district franc et pour les zones partiellement protégées. Les personnes autorisées à chasser et celles qui sont astreintes au service militaire ont le droit de traverser le district franc munies d'armes non chargées en empruntant des chemins et des routes, pendant la chasse ou pour remplir leurs obligations militaires (service, tir et inspection obligatoire). L'utilisation d'armes et de pièges est autorisée pour le personnel de surveillance de la faune;
- e. il est interdit de camper librement. L'utilisation de places de camping officielles est réservée. Les cantons peuvent accorder des dérogations;

⁴ Nouvelle teneur selon le ch. I de l'O du 18 fév. 2004 (RO 2004 1265)

- f. l'autorité cantonale compétente peut, d'entente avec le propriétaire foncier, promulguer une interdiction de pénétrer dans le district franc avec des ailes delta et des parapentes;
- g. le ski pratiqué en dehors de pistes et d'itinéraires balisés est interdit;
- h. il est interdit de circuler sur des routes d'alpage et des routes forestières et d'utiliser des véhicules en dehors des routes, des chemins forestiers et de ceux de campagne, excepté à des fins agricoles et sylvicoles ainsi que pour la surveillance de la faune. Les cantons peuvent prévoir des exceptions,
- i. les exercices militaires avec de la munition pour tir réel ou à blanc sont interdits. L'utilisation de places de tir et d'installations militaires particulières, selon des dispositions contractuelles, est réservée. Le service de garde de la troupe avec arme chargée ainsi que le port d'armes lors des tâches de contrôle du corps de gardes-fortifications et du corps de gardes-frontière sont autorisés.

² L'organisation de réunions sportives et d'autres manifestations collectives n'est admise que si celle-ci ne peut compromettre le but visé par la protection. Les organisateurs ont besoin d'une autorisation cantonale

³ D'autres mesures, d'une plus grande portée ou d'une autre teneur, visant la protection des espèces selon l'art. 2, al. 2, de la présente ordonnance sont réservées

Art. 6 Protection des biotopes

¹ Dans l'accomplissement de leurs tâches, la Confédération et les cantons veillent à ce que les buts visés par la protection des districts francs ne soient pas compromis par d'autres exploitations. S'il y a d'autres intérêts en présence, une pondération des intérêts permettra de trancher.

^{1bis} Lorsque des autorités fédérales autres que l'Office fédéral de l'environnement, des forêts et du paysage (office fédéral) sont compétentes pour l'exécution, la collaboration de ce dernier est régie par les art 62a et 62b de la loi fédérale du 21 mars 1997 sur l'organisation du gouvernement et de l'administration^{5,6}

² Les districts francs doivent être pris en considération lors de l'élaboration de plans directeurs et de plans d'affectation.

³ Dans les districts francs, une attention particulière sera accordée à la conservation des biotopes au sens de l'art 18, al 1^{bis}, LPN, notamment comme milieux vitaux des mammifères et des oiseaux sauvages indigènes et migrateurs. Les cantons veillent notamment à ce que de tels biotopes:

- a. bénéficient d'une exploitation agricole et sylvicole adaptée;
- b. ne soient pas fragmentés;
- c. bénéficient d'une offre suffisante en matière de pâture.

⁵ RS 172.010

⁶ Introduit par le ch II 20 de l'O du 2 fév 2000 relative à la loi fédérale sur la coordination et la simplification des procédures de décision (RO 2000 703)

⁴ D'autres mesures, d'une plus grande portée ou d'une autre teneur, visant la protection des biotopes selon l'art. 2, al 2, de la présente ordonnance ou prises conformément aux art 18 et suivants LPN sont réservées.

⁵ L'encouragement des mesures de protection des biotopes est régi par les art. 18 et suivants LPN.

Art. 7 Signalisation et information

¹ Les cantons veillent à ce que les titulaires d'une autorisation de chasser et le public soient informés sur les districts francs.

² Ils s'occupent de la signalisation des districts francs sur le terrain.

³ Aux entrées principales des districts francs ainsi que, dans le cas de biotopes dont la protection est particulièrement importante, à l'intérieur de ces zones, il y a lieu de placer des panneaux comportant des indications sur la zone protégée, sur le but visé par la protection et sur les principales mesures de protection.

Section 3 Prévention des dommages causés par la faune sauvage

Art. 8

¹ Les cantons veillent à ce que la faune sauvage n'occasionne pas des dégâts intolérables dans les districts francs. Le rajeunissement naturel des forêts doit être assuré.

² Les gardes-chasse des districts francs peuvent, à la requête du service cantonal compétent, prendre en tout temps des mesures contre certains animaux pouvant être chassés, lorsqu'ils causent des dégâts importants.

³ Dans les districts francs, l'affouragement constant de la faune et les saunières permanentes sont interdits. Le nourrissage dissuasif des sangliers est réservé.

⁴ Pour le reste, les dispositions cantonales concernant la prévention des dommages causés par la faune sauvage sont applicables.

Section 4 Mesures cynégétiques

Art. 9 Régulation des populations

¹ Les cantons veillent à ce que, dans les districts francs, les populations d'ongulés pouvant être chassés soient en tout temps adaptées aux conditions locales et aient une pyramide naturelle des classes d'âge et de sexe. Ce faisant, ils tiennent compte des intérêts liés à l'agriculture, à la protection de la nature et du paysage et à la conservation des forêts

² A cette fin, on délimite:

- a des zones dans lesquelles des mesures de régulation ne peuvent être prises qu'exceptionnellement (zones intégralement protégées);

- b. des zones dans lesquelles les populations de chevreuils, de chamois, de cerfs élaphe et de sangliers peuvent être soumises à une régulation ou réduites régulièrement (zones partiellement protégées).

³ Avant de prévoir des mesures de régulation dans des zones à protection intégrale, il y a lieu de prendre l'avis de l'office fédéral.

⁴ Pour les zones soumises à une protection partielle, les cantons établissent des plans de tir pour les diverses espèces de gibier et les communiquent à l'office fédéral. Si des districts francs de différents cantons ont des frontières communes, ces plans doivent être coordonnés.

⁵ L'utilisation de chiens pour la régulation des populations est interdite, excepté celle de chiens de rouge exercés, pour la recherche d'animaux blessés. Les cantons peuvent autoriser des dérogations.

⁶ Pour l'exécution des plans de tir, les cantons peuvent, en plus du personnel affecté à la surveillance des districts francs, faire appel à des titulaires d'une autorisation de chasser.

Art. 10 Tirs sélectifs

¹ Le personnel affecté à la surveillance des districts francs est tenu d'abattre les animaux malades, affaiblis ou blessés.

² Il annonce immédiatement ces tirs au service cantonal compétent

Section 5 Gardes-chasse

Art. 11 Statut et nomination

¹ Les cantons désignent un ou plusieurs gardes-chasse pour chaque district franc. Ils leur confèrent les droits de la police judiciaire selon l'art. 26 de la loi sur la chasse.

² Les gardes-chasse des districts francs sont des fonctionnaires cantonaux.

³ Ils sont subordonnés au service cantonal compétent

⁴ Ils sont nommés par le canton. Les dossiers de nomination doivent être soumis à l'office fédéral.

⁵ Lorsque les districts francs sont proches de frontières nationales, les gardes frontières remplissent également des tâches relevant de la police de la chasse

Art. 12 Tâches

¹ Le service cantonal compétent charge les gardes-chasse de l'accomplissement des tâches suivantes:

- a. police de la chasse, en vertu de la loi sur la chasse,
- b. recensement et surveillance des populations d'animaux sauvages dans les districts francs;

- c. participation à la planification de biotopes particuliers, aux soins à leur donner ainsi qu'à leur entretien;
- d. marquage et signalisation des districts francs sur le terrain,
- e. information et surveillance des visiteurs des districts francs;
- f. participation à la planification de mesures de prévention des dommages causés par la faune sauvage et à la régulation des populations d'ongulés ainsi, qu'à l'exécution de ces mesures;
- g. organisation de la recherche et recherche effective d'animaux blessés dans les districts francs;
- h. entretien de contacts, échange d'informations et collaboration avec les représentants des communes ainsi que des milieux de l'agriculture et de la sylviculture, de la protection de la nature et du paysage et de la chasse;
- i. représentation des intérêts liés à la protection des espèces lors de l'élaboration, à l'échelon communal et régional, de plans directeurs et de plans d'affectation qui concernent un district franc;
- k. prise de contact avec les services régionaux de coordination et les commandements de places de tir pour l'occupation des places d'armes et de tir, dans la mesure où des districts francs sont concernés, et conseils aux commandants d'unités sur le terrain;
- l. soutien et collaboration lors de recherches scientifiques effectuées de concert avec le service cantonal compétent

² Le service cantonal compétent peut, de son propre chef ou à la demande de l'office fédéral, confier d'autres tâches aux gardes-chasse.

³ Les gardes-chasse tiennent un journal des travaux exécutés.

⁴ Un rapport sur l'accomplissement de ces tâches est établi chaque année à l'intention de l'office fédéral.

Art. 13 Formation

¹ Les cantons assurent la formation de base des gardes-chasse

² L'office fédéral organise des cours de perfectionnement sur les problèmes relatifs aux districts francs

Section 6 Indemnités

Art. 14 Surveillance et formation

¹ La Confédération verse aux cantons, selon leur capacité financière, des indemnités globales représentant 30 à 50 pour cent des frais de surveillance dans les districts francs.

² L'indemnité est calculée en fonction de la superficie des districts francs et d'une durée de surveillance de neuf mois par an. Peuvent être indemnisés en général:

- a. pour tous les districts francs d'une superficie allant jusqu'à 20 km²: des charges salariales annuelles d'un montant de 45 000 francs;
- b. pour les districts francs de 20 à 100 km²: des charges salariales annuelles supplémentaires pouvant aller jusqu'à 45 000 francs, proportionnellement à la superficie dépassant 20 km²,
- c. des frais administratifs représentant 10 pour cent des frais indemnisables selon les lettres a et b.

³ Dans les limites des crédits alloués, la Confédération peut en outre soutenir les mesures suivantes par des subventions représentant 30 à 50 pour cent des frais, selon la capacité financière des cantons:

- a. formation de base et équipement du personnel chargé de la garde, ainsi que renforcement temporaire de celui-ci ou engagement de personnel auxiliaire,
- b. infrastructure pour la surveillance;
- c. signalisation des districts francs sur le terrain.

Art. 15 Dégâts causés par la faune sauvage

¹ La Confédération verse aux cantons, selon leur capacité financière, des indemnités représentant 30 à 50 pour cent des frais d'indemnisation des dégâts causés par la faune sauvage dans un district franc ou à l'intérieur d'un périmètre délimité conformément à l'art 2, al. 2, let d

² La Confédération peut prendre à sa charge 30 à 50 pour cent des dépenses occasionnées par les mesures de prévention des dégâts causés par la faune sauvage.

³ Les dépenses occasionnées par les mesures de prévention doivent être prises en compte lors de l'indemnisation

⁴ Il ne sera pas versé d'indemnités si les mesures prévues aux art. 8 ou 9 n'ont pas été prises

Art. 16 Disposition commune

La Confédération ne verse plus d'indemnité lorsque le but visé par la protection est trop fortement compromis par d'autres formes d'exploitation

Art. 17 Compétence

L'office fédéral prend les décisions concernant l'indemnisation.

Section 7 Dispositions finales

Art. 18 Abrogation du droit en vigueur

L'ordonnance du 19 août 1981⁷ concernant les districts francs fédéraux est abrogée.

Art. 19 Entrée en vigueur

La présente ordonnance entre en vigueur le 1^{er} janvier 1992.

⁷ [RO 1981 1452, 1986 1440, 1988 517 art 20 ch 3]

Annexe 1⁸
(art. 2, 1^{er} al.)

Districts francs fédéraux

1. Augstmatthorn, canton de Berne
2. Combe-Grède, canton de Berne
3. Kiental, canton de Berne
4. Schwarzhorn, canton de Berne
5. Tannhorn, canton de Lucerne
6. Urirotstock, canton d'Uri
7. Fellital, canton d'Uri
8. Mythen, canton de Schwyz
9. Silberm-Jägern-Bödmerenwald, canton de Schwyz
10. Hahnen, canton d'Unterwald-le-Haut
11. Hutstock, cantons d'Unterwald-le-Haut/Unterwald-le-Bas
12. Kärpf, canton de Glaris
13. Schilt, canton de Glaris
14. Rauti-Tros, canton de Glaris
15. Graue Hörner, canton de Saint-Gall
16. Säntis, cantons Appenzell Rh -Int /Appenzell Rh -Ext.
17. Bernina-Albris, canton des Grisons
18. Beverin, canton des Grisons
19. Campasc, canton des Grisons
20. Piz Ela, canton des Grisons
21. Triescolmen, canton des Grisons
22. Pez Vial/Greina, canton des Grisons
23. Campo Tencia, canton du Tessin
24. Greina, canton du Tessin
25. Dent de Lys, canton de Fribourg
26. Hochmatt-Motélon, canton de Fribourg
27. Creux-du-Van, canton de Neuchâtel
28. Grand Muveran, canton de Vaud

⁸ Mise à jour selon le ch I de l'O du 18 fév 2004 (RO 2004 1265)

-
29. Les Bimis-Ciernes Picat, canton de Vaud
 30. Le Noirmont, canton de Vaud
 31. Pierreuse-Gummfluh, canton de Vaud
 32. Forêt d'Aletsch, canton du Valais
 33. Alpjhorn, canton du Valais
 34. Wilerhorn, canton du Valais
 35. Bietschhorn, canton du Valais
 36. Mauvoisin, canton du Valais
 37. Val Ferret/Combe de l'A, canton du Valais
 38. Haut de Cry/Derborence, canton du Valais
 39. Loèche-les-Bains, canton du Valais
 40. Vallée de Tourtemagne, canton du Valais
 41. Dixence, canton du Valais

Annexe 2
(art. 2, 2^e et 3^e al.)

Districts francs fédéraux
Inventaire fédéral des districts francs fédéraux⁹

⁹ N'étant pas publiés au RO, à l'exception de la modification parue au RO 2004 1265, cet inventaire et ses modifications ne figurent pas dans le présent recueil. Le texte peut être obtenu, sous forme de tiré à part, auprès de l'OFCL, Diffusion publications, 3003 Berne (voir RO 1994 1902, 2000 2119, 2002 4340 4341, 2003 863)

**Ordonnance
sur la régulation des populations de bouquetins
(ORB)**

du 30 avril 1990 (Etat le 1^{er} octobre 1996)

Le Département fédéral de l'intérieur,

vu l'article 7, 3^e alinéa, de la loi du 20 juin 1986¹ sur la chasse (LChP);
vu l'article 4, 4^e alinéa, de l'ordonnance du 29 février 1988² sur la chasse (OChP),
arrête:

Section 1: Recensement des populations

Art. 1 Désignation des différentes colonies de bouquetins

¹ Les cantons désignent tous les cinq ans sur des cartes à l'échelle 1:25 000 ou 1:50000 l'habitat (demeures d'été et d'hiver) de chaque population de bouquetins (unité de reproduction).

² Les populations ainsi délimitées sont appelées colonies.

Art. 2 Indications relatives aux différentes colonies (formulaire I)

¹ Les cantons relèvent chaque année la grandeur de la population, la structure des sexes et des âges, l'accroissement, les pertes et l'évolution de la population

² Les données à communiquer concernent la population d'été, faons compris. Celle-ci est déterminée par recensement direct en été ou calculée sur la base de la population d'hiver (formulaire I)

³ La proportion de mâles et de femelles est déterminée sur la base des animaux qui ont plus de trois ans

⁴ Une distinction est faite entre les classes d'âge et de sexe suivantes:

- a. Faons;
- b. Jeunes animaux des deux sexes (de un et deux ans);
- c. Chèvres de trois ans et plus;
- d. Boucs de trois à cinq ans;
- e. Boucs de six à dix ans;
- f. Boucs de onze ans et plus.

RO 1990 1678

¹ RS 922.0

² RS 922.01

Art. 3 Colonies vivant sur le territoire de deux ou de plus de deux cantons

¹ Les données relatives aux colonies vivant sur le territoire de deux cantons ou plus sont relevées de manière coordonnée par les cantons concernés.

² Elles sont communiquées par l'un des cantons d'entente avec les autres cantons concernés.

Art. 4 Communication des données relatives aux différentes colonies

¹ Les données relatives aux colonies doivent être communiquées avant la fin de l'année à l'Office fédéral de l'environnement, des forêts et du paysage (Direction fédérale des forêts).

² La Direction fédérale des forêts élabore les formulaires nécessaires à cet effet et les met à la disposition des cantons

Section 2: Mesures de régulation**Art. 5** Justification des mesures de régulation

¹ Les cantons doivent fournir au Département fédéral de l'environnement, des transports, de l'énergie et de la communication (département)³, pour chaque colonie, des données concernant les effets de la population de bouquetins sur la forêt, les zones agricoles et d'autres espèces animales (concurrence) ainsi que des indications sur l'état général et l'état de santé de la population de bouquetins.

² Le bien-fondé des mesures de régulation prévues (tirs et captures) ainsi que les buts de ces mesures (stabilisation ou réduction de la population) doivent être démontrés.

Art. 6 Planification des tirs

¹ Une planification des tirs n'est généralement requise que pour les colonies dont l'effectif est supérieur à 50 animaux.

² Les tirs doivent être planifiés de manière que les structures naturelles des classes d'âge et de sexe soient garanties à long terme (formulaire II).

³ Les chèvres suitées en lactation sont à protéger

⁴ Les articles 8 et 12, 2^e alinéa, de la LChP sont réservés.

Art. 7 Planification des tirs pour les colonies vivant sur le territoire de deux ou plus de deux cantons

¹ Pour les colonies vivant sur le territoire de deux cantons et plus, les cantons concernés doivent planifier les tirs ensemble et selon les principes énoncés à l'article 6

² Ils fixent ensemble et conformément à la planification les quotas de tirs respectifs

³ La désignation de l'unité administrative a été adaptée selon l'art 4a de l'O du 15 juin 1998 sur les publications officielles (RS 170.512.1)

³ S'ils ne parviennent pas à une entente, c'est la Direction fédérale des forêts qui fixe les quotas correspondants

⁴ Il est souhaitable d'appliquer cette procédure par analogie aux colonies dont l'habitat est situé en partie hors des frontières du pays

Art. 8 Approbation des plans de tirs

¹ Les cantons présentent à la Direction fédérale des forêts, avant la fin de l'année, les planifications complètes des tirs pour chaque colonie.

² L'Office fédéral de l'environnement, des forêts et du paysage approuve les plans de tirs. Il peut émettre des conditions lorsque:⁴

- a La planification des tirs n'a pas été effectuée conformément à l'article 6;
- b. Le contrôle de la planification des tirs fait apparaître des lacunes dans l'exécution du plan de tirs de l'année précédente,
- c. Les dégâts causés par les bouquetins contrarient des projets forestiers subventionnés par la Confédération et qui ont pour but de protéger les routes et les agglomérations contre les glissements de terrain, les crues ou les avalanches.

³ Les plans de tirs approuvés sont valables pour l'année suivante.

⁴ Dans des cas particuliers, tels que maladies ou pertes importantes au cours de l'hiver, les cantons peuvent s'écarter des plans de tirs

Art. 9 Contrôle des tirs

¹ Tous les animaux abattus conformément aux plans de tirs doivent être contrôlés par des organes cantonaux de surveillance de la faune

² Pour chaque animal, il y a lieu de relever des indications sur le sexe, l'âge, le poids, le lieu et la date du tir.

³ Les cantons peuvent relever d'autres données

⁴ Les indications visées aux 1^{er} et 2^e alinéas, regroupées par colonie, doivent être transmises jusqu'à la fin de l'année à la Direction fédérale des forêts (formulaire III).

Art. 10 Annonces et approbations

L'article 3 s'applique par analogie aux annonces et aux approbations visées aux articles 8 et 9.

Art. 11 Autorisation de procéder à des tirs

¹ Les cantons règlent et organisent cette chasse. Ils instruisent les chasseurs

⁴ Nouvelle teneur selon le ch. I 29 de l'O du 26 juin 1996 sur l'attribution de nouvelles compétences de décision dans l'administration fédérale, en vigueur depuis le 1^{er} août 1996 (RO 1996 2243)

² Ils sont habilités à percevoir des droits.

³ Les cantons peuvent aussi prévoir des captures en lieu et place de tirs

⁴ En vertu de l'article 18, 5^e alinéa, de la LChP, les cantons ont le droit de réprimer les erreurs de tirs relatives aux classes d'âge et de sexe (art 2, 4^e al.).

Art. 12 Tirs dans des districts francs fédéraux

¹ Des tirs ou des captures peuvent aussi être entrepris dans les districts francs fédéraux.

² Le garde-chasse chargé de la surveillance doit superviser cette chasse.

Section 3: Entrée en vigueur

Art. 13

La présente ordonnance entre en vigueur le 1^{er} janvier 1991.

**Ordonnance
sur la compensation des pertes subies
dans l'utilisation de la force hydraulique
(OCFH)**

du 25 octobre 1995 (Etat le 11 juillet 2000)

Le Conseil fédéral suisse,

vu l'art. 22, al. 3 à 5, de la loi fédérale du 22 décembre 1916¹ sur l'utilisation des forces hydrauliques (LFH),

arrête

Section 1 But

Art. 1

La présente ordonnance règle le versement d'indemnités destinées à compenser des pertes substantielles subies par une collectivité dans l'utilisation des forces hydrauliques à la suite de la conservation et de la mise sous protection d'un site d'importance nationale.

Section 2 Conditions présidant à l'octroi d'indemnités

Art. 2 Collectivité ayant droit

A droit à une indemnité compensatoire la collectivité qui subit des pertes en rapport avec les redevances hydrauliques annuelles

Art. 3 Site digne d'être protégé

¹ Est réputé digne d'être protégé un site qui a une importance nationale au sens de la loi fédérale du 1^{er} juillet 1966² sur la protection de la nature et du paysage (LPN).

² Il n'est pas nécessaire que le site soit déjà répertorié dans un inventaire fédéral.

Art. 4 Possibilité technique et économique d'utiliser la force hydraulique

¹ La collectivité ayant droit doit rendre vraisemblable qu'il est possible d'utiliser la force hydraulique sur les plans technique, économique et juridique.

RO 1995 4856

¹ RS 721.80

² RS 451

² Le débit résiduel est déterminé conformément à l'art. 31, al. 1, de la loi fédérale du 24 janvier 1991³ sur la protection des eaux.

³ La faisabilité de l'utilisation est appréciée en fonction des conditions régnant au moment où la demande est déposée.

⁴ La protection de biotopes et de paysages d'importance nationale selon la LPN⁴ n'exclut pas les indemnités compensatoires, dans la mesure où cette protection n'est pas entrée en vigueur plus de cinq ans avant le dépôt de la demande.

Art. 5 Mise sous protection

¹ La collectivité ayant droit veille à ce qu'un paysage digne de protection bénéficie réellement de celle-ci

² La mise sous protection doit être illimitée dans le temps et prendre l'une des formes contraignantes pour la propriété foncière prévues par le droit sur la protection de la nature et du paysage ou sur l'aménagement du territoire; elle interdira toutes les interventions qui peuvent nuire à la valeur du site.

Section 3 Détermination et fixation des indemnités compensatoires

Art. 6 Détermination de la perte

¹ Sont pris en compte pour déterminer la perte:

- a. la redevance hydraulique annuelle perdue,
- b⁵ un forfait pour la non-perception des autres prestations, s'élevant à 25 % de la redevance hydraulique annuelle perdue;
- c. la probabilité de réaliser l'ouvrage du point de vue économique.

² L'annexe fait foi pour déterminer la perte.

Art. 7 Détermination des indemnités compensatoires

¹ Le montant des indemnités compensatoires dépend de la capacité financière de la collectivité ayant droit.

² Pour les cantons, il se situe entre 20 et 60 % de la perte déterminée. La fixation des indemnités compensatoires entre ces taux a lieu sur la base de l'ordonnance du 21 décembre 1973⁶ réglant l'échelonnement des subventions fédérales d'après la capacité financière des cantons.

³ Pour les districts et les communes, les indemnités compensatoires sont déterminées d'après le taux cantonal. Elles seront augmentées ou diminuées de 10 % au maximum pour tenir compte des différences de capacité financière à l'intérieur du canton.

³ RS 814.20

⁴ RS 451

⁵ Nouvelle teneur selon le ch. I de l'O du 19 juin 2000 (RO 2000 1753)

⁶ RS 613.12

⁴ Les subventions pour des paysages dignes de protection selon la LPN⁷ sont équitablement prises en considération.

⁵ Si plusieurs collectivités subissent des pertes, le montant des indemnités compensatoires sera calculé d'après leur part de redevance hydraulique annuelle.

Art. 8 Importance de la perte

¹ La perte subie n'est pas compensée si les indemnités calculées selon les art. 6 et 7 n'atteignent pas au moins 20 % de la redevance hydraulique annuelle perdue, 30 000 francs par année et 0,1 pour mille des recettes totales du budget de la collectivité ayant droit. En cas d'application du modèle comptable pour les cantons et les communes, les recettes totales du compte courant font foi

² Si plusieurs communes ou districts subissent des pertes, leur importance d'après l'al. 1 n'est pas déterminée séparément pour chaque commune ou chaque district, mais conjointement.⁸

Art. 9 Fixation des indemnités compensatoires

¹ Le montant des indemnités est fixé définitivement selon la situation au moment de la présentation de la demande

² Seules les modifications du taux maximal prévu par le droit fédéral pour la redevance hydraulique annuelle donnent lieu à une adaptation correspondante des indemnités compensatoires. Réserve est faite de l'art. 18.

Section 4 Compétence et procédure

Art. 10 Demande

¹ La collectivité ayant droit remet sa demande d'indemnités compensatoires à l'Office fédéral des eaux et de la géologie (office).⁹

² Si le requérant n'est pas un canton, la demande doit être présentée à ce dernier qui la transmet à l'office, accompagnée d'un préavis

³ La demande comportera en particulier:

- a. une étude de projet présentant les données techniques principales, y compris un plan de situation et un profil en long,
- b. des documents exposant la situation hydrologique (bassin versant, débits d'écoulement mensuels, débit résiduel, possibilités d'accumulation),
- c. des informations sur la production d'énergie, ainsi que, pour les aménagements de pompage-turbinage, sur leur consommation d'énergie;
- d. le coût des investissements et les charges annuelles,

⁷ RS 451

⁸ Introduit par le ch I de l'O du 19 juin 2000 (RO 2000 1753)

⁹ Nouvelle teneur selon le ch I de l'O du 19 juin 2000 (RO 2000 1753)

- e. des indications sur les possibilités légales d'utiliser l'ouvrage; en cas d'aménagement d'une puissance supérieure à 3 MW, la compatibilité de cette utilisation avec les prescriptions de la protection de l'environnement sera attestée par une étude préliminaire au sens des art. 3 et 8 de l'ordonnance du 19 octobre 1988¹⁰ relative à l'étude de l'impact sur l'environnement;
- f. des données sur la planification existant pour la région concernée;
- g. une documentation sur l'état et l'affectation du paysage au moment où la demande est présentée, et la justification de son importance nationale;
- h. des informations sur la mise sous protection décidée ou prévue,
- i. un dossier présentant le budget et la capacité financière de la collectivité requérante.

⁴ L'office peut exiger que ces informations et documents soient complétés lorsque cela est indispensable à l'examen du droit à l'indemnité.

Art. 11 Décision

¹ L'office se prononce sur la demande.

² Il consulte les services fédéraux intéressés.

³ Lorsqu'il n'est pas établi avec certitude qu'un site est d'importance nationale, la commission fédérale pour la protection de la nature et du paysage procède à une expertise.

Art. 12 Octroi des indemnités compensatoires

¹ Les indemnités compensatoires sont octroyées au moyen d'un contrat de droit public, conformément aux dispositions de la loi du 5 octobre 1990¹¹ sur les subventions.

² Dans le contrat, la collectivité ayant droit s'engage à garantir pendant 40 ans la protection selon l'art. 5 et à appliquer les dispositions relatives à cette protection

³ Le contrat stipule que les engagements des parties sont valables sous réserve de l'art. 18.

Art. 13 Exécution

¹ L'office met à exécution la présente ordonnance.

² Les cantons communiquent à l'office les actes législatifs cantonaux et communaux ainsi que les plans et les décisions des cantons et des communes qui ont pour objet les sites dignes d'être protégés. Il y a lieu de notifier également les faits qui peuvent nuire au site. L'office en informe l'Office fédéral de l'environnement, des forêts et du paysage (OFEP)

¹⁰ RS 814.011

¹¹ RS 616.1

³ Afin de faire respecter les obligations contractuelles relatives à la protection, l'office et l'OFEFP peuvent, en cas de nécessité, déposer une plainte.

Art. 14 Protection juridique

¹ En sa qualité de commission arbitrale, la commission de recours du DETEC statue sur les différends relevant des contrats selon l'art. 12.¹²

² Sont en outre applicables les dispositions générales relatives à l'organisation judiciaire

Section 5 Versement des indemnités compensatoires

Art. 15 Versement des indemnités compensatoires

¹ Le droit à une indemnisation s'étend sur 40 ans; il prend effet avec la mise sous protection au sens de l'art. 5, mais au plus tôt au moment du dépôt de la demande

² Les indemnités compensatoires sont versées annuellement, la première fois après la conclusion du contrat conclu aux termes de l'art. 12.

Art. 16 Remboursement

Si la mise sous protection selon l'art. 5 n'est pas dûment exécutée, le versement des indemnités compensatoires peut être suspendu et le remboursement partiel ou intégral des indemnités versées peut être ordonné. La mise en œuvre de la protection par voie juridique demeure réservée.

Art. 17 Fin de l'obligation de protection

¹ Le contrat selon l'art. 12 peut être abrogé par consentement mutuel entre les parties. Dans ce cas, le droit à l'indemnité s'éteint au moment de l'abrogation

² L'office consulte d'abord l'OFEFP.

Art. 18 Révision

Si les dispositions de la présente ordonnance relatives aux conditions ou à la détermination des indemnités doivent être modifiées du fait d'une révision des bases légales, les indemnités compensatoires préalablement fixées seront adaptées. Si dans un délai d'un an à compter d'une réduction, la collectivité ayant droit ne déclare pas renoncer aux indemnités, l'obligation de protection selon l'art. 12 est maintenue telle quelle.

¹² Nouvelle teneur selon le ch. I de l'O du 19 juin 2000 (RO 2000 1753)

Section 6 Dispositions finales**Art. 19** Disposition transitoire

La protection de biotopes et de paysages d'importance nationale selon la LPN¹³ qui a pris effet entre le 1^{er} janvier 1987 et l'entrée en vigueur de la présente ordonnance n'exclut pas le versement d'indemnités compensatoires, pour autant que la demande soit présentée dans les deux ans après l'entrée en vigueur de l'ordonnance.

Art. 20 Entrée en vigueur

La présente ordonnance entre en vigueur le 15 novembre 1995.

Dispositions transitoires de la modification du 19 juin 2000¹⁴

¹ Les demandes qui, au moment de l'entrée en vigueur de la présente modification, n'ont pas encore fait l'objet d'une décision, sont évaluées d'après le nouveau droit. Dans ce cas, le prix de l'énergie «non qualifiée» est fixé à 8 ct./kWh et la probabilité de réaliser l'ouvrage du point de vue économique est calculée d'après l'ancienne formule.

$$\text{p.r.e.} = \sqrt{1 - 9 * (1 - q)^2}$$

² Lorsque, dans le cadre de la procédure, la compensation des pertes a été formellement garantie sur la base d'une publication des projets de contrat la décision est prise d'après l'ancien droit.

³ Si les demandes sont rejetées sur la base de la présente modification, les collectivités concernées doivent être indemnisées d'une façon adéquate pour les dépenses qu'elles ont dû supporter en relation avec la présentation et le traitement de leur demande. L'office fixe les indemnités.

¹³ RS 451

¹⁴ RO 2000 1753

Calcul de la perte subie dans l'utilisation de la force hydraulique

(art 6, al. 1)

Le montant de la perte se calcule au moyen de la formule:

$$p = 1,25 * r.h * p.r.e.$$

Légende.

p = perte subie (en fr.)

1,25 = constante visant à compenser tous les avantages dont bénéficie une collectivité, au-delà de la redevance hydraulique, en accordant la concession d'utilisation des forces hydrauliques

r h = redevance hydraulique perdue (en fr)

p r e = probabilité de réaliser un ouvrage du point de vue économique C'est le rapport entre la valeur de l'énergie productible et le prix de revient

Calcul de la redevance hydraulique perdue

(art. 6, al 1, let. a)

La redevance hydraulique se calcule au moyen de la formule:

$$r.h. = p.b.m. * t.m.$$

Légende

r h = redevance hydraulique (en fr)

p b m = puissance brute moyenne (en kW) selon indications du requérant

t m = taux de la redevance hydraulique par kilowatt de puissance brute (en fr)

¹⁵ Nouvelle teneur selon le ch II de l'O du 19 juin 2000 (RO 2000 1753)

Calcul de la probabilité de réaliser l'ouvrage du point de vue économique

(art. 6, al. 1, let. c)

Les formules suivantes sont utilisées pour le calcul:

$$\text{p.r.e.} = 1 - (1 - q) * 3$$

$$q = \frac{p * f * i}{e}$$

$$i = \frac{\text{indice du mois de janvier de l'année de référence}}{101,6}$$

$$f = 1 + m_1 + m_2 + m_3 + m_4$$

$$e = \frac{G * 100}{C}$$

Restrictions.

si q est inférieur ou égal à $\frac{2}{3}$ p.r.e. = 0

si q est supérieur ou égal à 1 p.r.e. = 1,0

Légende:

Indications du requérant:

C = production annuelle moyenne escomptée (en millions de kWh)

G = coût annuel pour l'exploitation, l'entretien, l'amortissement, les intérêts, l'impôt, les redevances hydrauliques, l'administration et éventuellement l'énergie de pompage (en millions de fr)

Valeurs auxiliaires

p = prix de l'énergie «non qualifiée»

(fixé à 6 ct./kWh pour l'année de référence [janvier 2000])

i = indice du renchérissement

(la valeur de base est donnée par l'indice des prix à la production de l'énergie électrique pour l'artisanat, l'industrie et les services, indexé à 101,6 en janvier 2000)

Valeurs de calcul

e = prix de revient de l'énergie produite par kWh (en ct./kWh)

f = facteur de qualité de l'énergie

m₁ = majoration pour la quote-part de la production hivernale

m₂ = majoration pour l'amélioration de l'offre pendant les heures de forte consommation

m₃ = majoration pour la couverture de la puissance de pointe en hiver

m₄ = majoration pour la couverture de la puissance de pointe en été

q = quotient économique

p.r.e. = probabilité de réaliser l'ouvrage du point de vue économique

Calcul des majorations

Majoration	Formule	Valeur auxiliaire	Indications du requérant	Restrictions
m1 majoration pour la quote-part de la production hivernale	$m_1 = \frac{1,454 * d}{100}$	d quote-part de la production hivernale (en %)	B production moyenne escomptée pendant le semestre d'hiver (en millions de kWh)	m1 = 0 si d inférieur ou égal à 25 %
	$m_2 = \frac{b - 3}{160}$	d = $\frac{B * 100}{C}$	C production moyenne escomptée pendant toute l'année (en millions de kWh)	m1 = 0,8 si d supérieur ou égal à 80 %
m2 majoration pour l'amélioration de l'offre pendant les heures de forte consommation		b capacité d'accumulation en rapport avec la puissance maximale installée	F volume utilisable du (des) bassin(s) d'accumulation (en MWh)	m2 = 0 si b inférieur ou égal à 3 h
	$m_3 = \frac{1}{2} * \sin \frac{(c-200) * 3}{20}$	b = $\frac{F}{A}$	A puissance maximale installée aux bornes de l'alternateur (en MW)	m2 = 0,3 si b supérieur ou égal à 51 h
m3 majoration pour la couverture de la demande de puissance de pointe en hiver	si c inférieur ou égal à 800 h $m_3 = \frac{1}{2} * \sin \frac{(c-200) * 3}{20}$	c heures d'exploitation virtuelles en hiver	B production moyenne escomptée pendant le semestre d'hiver (en millions de kWh)	m3 = 0 si c inférieur ou égal à 200 h
	si c supérieur à 800 h $m_3 = \frac{1}{2} * \frac{(1500 - c) * 9}{70}$	c = $\frac{B * 1000}{A}$	A puissance maximale installée aux bornes de l'alternateur (en MW)	m3 = 0 si c supérieur ou égal à 1500 h

Supplement 6**Relevant cantonal and communal legislations, contracts and plan****Canton Valais**

Loi sur la protection de la nature, du paysage et des sites du 13 novembre 1998

Plan directeur cantonal, Fiche de coordination f.603/2 (état au 21.7.1999)

Décision déclarant la forêt d'Aletsch „réserve forestière absolue“ et „site à protéger“ du 5 mai 1933

Décision concernant la protection de la région du Märjelensee du 23 février 1938

Décision concernant la protection des quatre zones alluviales d'importance nationale et des marges glaciaires de Jegi et Langgletscher de la vallée de Lötschen du 20 mai 1998

Canton Berne

Loi sur la protection de la nature 15 septembre 1992

Plan directeur cantonal, Fiche de Mesure R_04

Naturschutzgebiet 4.1.1.39, Hinteres Lauterbrunnental, Extrait du procès verbal No 3804 du Conseil-exécutif du Canton de Berne, 21 Juin 1960

Naturschutzgebiet 4.1.1.206, Wengernalp, Extrait du procès-verbal No 3502 du Conseil-exécutif du Canton de Berne, 22 décembre 1999

Plan directeur région Oberland Ost (2004)

Loi sur la protection de la nature, du paysage et des sites

du 13 novembre 1998

Le Grand Conseil du canton du Valais

vu la législation fédérale sur la protection de la nature et du paysage;
vu les articles 31, alinéa 1, 42 et 69 à 71 de la Constitution cantonale;
sur la proposition du Conseil d'Etat,

ordonne:

Section 1: Dispositions générales

Article premier But et portée

¹ La présente loi a pour but de protéger et de permettre la mise en valeur de la diversité et de la richesse du patrimoine naturel, architectural et archéologique du canton, dans le respect de la propriété privée et en prenant en considération les besoins publics et individuels. Les bases naturelles de la vie humaine, animale et végétale seront ainsi protégées, et la beauté et les particularités de la nature, du paysage et des sites préservées.

² La loi vise notamment à:

- a) protéger la faune et la flore indigènes et leurs milieux naturels;
- b) sauvegarder l'harmonie et le cachet des paysages et des sites bâtis;
- c) conserver et ménager les monuments historiques et le patrimoine archéologique;
- d) favoriser la revitalisation et la reconstitution des milieux naturels modifiés et des sites;
- e) soutenir les efforts de protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique,
- f) favoriser dans ces domaines la connaissance et sa diffusion.

³ Elle complète la législation fédérale sur la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique et en assure également l'exécution.

⁴ Demeurent réservées les dispositions spéciales sur la protection de ces domaines contenues dans d'autres lois

Art. 2 Principes

¹ Chacun se doit, dans le cadre de ses activités privée et publique, d'avoir égard à la nature, au paysage, aux sites bâtis, aux monuments historiques et au patrimoine archéologique.

² L'application de cette loi est soumise:

- a) aux principes de développement durable, de prévention et de causalité;

451.1

- 2 -

- b) à l'obligation de coordonner les activités de l'administration;
- c) au principe de subsidiarité de l'intervention de l'Etat dans ses relations avec les communes et les particuliers.

Art. 3 Collaboration et information

¹ Le canton et les communes collaborent sur tous les aspects essentiels à l'application de la présente loi

² Ils veillent à ce que la population soit renseignée sur les objectifs et l'exécution des mesures, qu'elle y soit associée de façon adéquate et qu'elle ait accès à la documentation et aux résultats des travaux.

³ Le canton conseille les communes.

Section 2: Organisation

Art. 4 Administration cantonale

¹ Le Conseil d'Etat désigne les organes administratifs chargés de la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique.

² Ces organes collaborent en tenant compte de la connexité de la matière et de la spécificité des compétences.

³ Ils sont responsables de l'exécution des tâches attribuées au canton dans le cadre de la présente loi et pour autant que la législation ne réglemente pas autrement les compétences.

Art. 5 Commission cantonale

¹ Le Conseil d'Etat nomme une commission consultative pour la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique.

² Des tâches spécifiques peuvent lui être confiées.

³ Le Conseil d'Etat règle son organisation.

Art. 6 Organisation dans les communes

¹ Les communes désignent, dans le cadre de leurs attributions, les organes chargés de la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique. Elles définissent leurs tâches.

² Pour l'accomplissement de celles-ci, les communes collaborent selon les dispositions de la loi sur le régime communal.

Section 3: Objets de protection

Art. 7 Genres d'objets

¹ Les objets de protection de la nature à considérer principalement sont:

- a) les espèces menacées d'animaux, de plantes et de champignons ainsi que leurs milieux vitaux;
- b) les minéraux rares ou menacés;
- c) les sites se distinguant par leur diversité biologique, leur flore, leur faune ou leur géologie et dont le maintien doit être assuré;

- d) les surfaces nécessaires à l'équilibre écologique dans les territoires utilisés de façon intensive;
- e) les milieux artificiels, tels que canaux, gravières, carrières et talus, ayant acquis une valeur biologique particulière.

² Les objets de protection du paysage à considérer principalement sont:

- a) les espaces reconnus pour leur beauté, leur particularité topographique, géologique ou leur diversité naturelle;
- b) les paysages transformés ayant une valeur et leurs éléments, tels que vignobles et cultures en terrasses, bisses, chemins, lacs ou cours d'eau, allées d'arbres et parcs;
- c) les espaces de détente nécessaires au bien-être ou au ressourcement de l'homme et les espaces servant de transition en périphérie de réserves naturelles.

³ Les objets de protection des sites à considérer principalement sont:

- a) les ensembles bâtis et constructions qui doivent être préservés en raison de leur situation ou de leurs qualités spatiales, historiques, architecturales ou socioculturelles,
- b) les autres objets de valeur témoins des activités domestiques, agricoles, artisanales et sociales ainsi que du développement industriel et touristique;
- c) les constructions ou installations constituant des éléments caractéristiques de valeur pour le paysage dans lequel elles s'inscrivent;
- d) les monuments et ensembles historiques à conserver pour leur valeur architecturale, artistique, historique ou scientifique, ou pour leur agencement intérieur, leur équipement ou leur environnement;
- e) les objets du patrimoine archéologique ainsi que ses emplacements contenant les vestiges et le mobilier archéologiques connus ou présumés avec leur environnement proche.

Art. 8 Inventaire des objets de protection

¹ En collaboration avec les instances compétentes de la Confédération et des communes, les services cantonaux spécialisés veillent à établir l'inventaire des objets dignes de protection d'importance nationale et cantonale. Ils collaborent avec les communes pour l'établissement des inventaires des objets d'importance communale ou cantonale.

² Les inventaires décrivent l'importance de ces objets pour la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique et leur rapport avec le paysage environnant. Ils déterminent les buts visés par la protection, les conflits potentiels, les mesures nécessaires à la mise sous protection et leurs conséquences

Art. 9 Classement

¹ Le classement des objets à protéger d'importance nationale est effectué selon la législation fédérale.

² Le canton détermine les objets à protéger d'importance cantonale. Le Conseil d'Etat règle la procédure dans le respect de l'article 3.

³ Les communes déterminent les objets à protéger d'importance communale dans le cadre de leur aménagement du territoire et selon la législation sur les constructions. Elles coordonnent le classement des objets qui relèvent de l'intérêt de plusieurs communes.

⁴ Le dossier de classement précise les motifs qui confèrent aux objets de

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l'inventaire une importance cantonale ou communale, ainsi que les conséquences financières prévisibles de ce classement.

⁵ La documentation concernant les objets soumis au classement est accessible au public dès l'ouverture de la procédure.

⁶ En cas d'urgence, le Département ou le conseil municipal décide la mise sous protection immédiate des objets menacés d'importance nationale, cantonale ou communale. La durée de ces mesures provisoires est limitée à deux ans; ce délai est suspendu pendant la procédure ordinaire de mise sous protection.

Art. 10 Critères

Les critères déterminants pour le classement des objets à protéger sont leur rareté, leur beauté, leur diversité, leur originalité, leur emplacement, leur topographie, leur importance vitale comme liaison biologique entre deux objets classés, de même que leur valeur scientifique, pédagogique, économique, historique et architecturale.

Art. 11 Importance du classement

La description par catégorie des objets dans les inventaires et la justification du classement constituent une base pour l'évaluation du degré de protection nécessaire, la pesée des intérêts et le calcul des subventions.

Section 4: Réglementation des mesures de protection

Art. 12 Objets classés

¹ Après mise à l'enquête publique du projet, le Conseil d'Etat rend des décisions de protection en application de la législation fédérale et cantonale, les communes entendues. Les buts et mesures de protection pour des objets d'importance nationale sont déterminés en collaboration avec les instances fédérales compétentes.

² Les prescriptions de protection doivent indiquer quelles sont, dans le site concerné, les utilisations et modifications compatibles ou non avec les buts de protection fixés. Les décisions de protection sont publiées au Bulletin officiel et leur contenu essentiel porté à la connaissance du public sur le site même.

³ Toute modification ou construction se rapportant aux objets protégés par le canton ainsi qu'au voisinage immédiat des sites protégés nécessite l'avis du service spécialisé cantonal.

⁴ Les communes règlent la protection des objets d'importance communale selon la législation spéciale, en particulier celle sur les constructions et l'aménagement du territoire.

Art. 13 Faune et flore protégées

¹ Le Conseil d'Etat règle par voie d'ordonnance la protection de la faune et flore menacées. En complément du droit fédéral, il détermine les espèces protégées et règle l'octroi d'autorisations exceptionnelles.

² Les communes peuvent édicter des prescriptions avec des exigences renforcées.

Art. 14 Champignons

¹ Le Conseil d'Etat peut édicter par voie d'ordonnance des prescriptions de protection pour les champignons.

² Il peut, pour des espèces menacées, décider une interdiction de cueillette, permanente ou temporaire, absolue ou limitée en quantité, dans le canton ou une partie de celui-ci. Les communes concernées sont entendues avant la prise de mesures limitées géographiquement.

³ Les communes peuvent édicter des prescriptions avec des exigences renforcées. En l'absence de prescriptions cantonales, elles peuvent demander au Conseil d'Etat une réglementation régionale.

Art. 15 Minéraux

¹ La recherche, la récolte et l'appropriation de roches, minéraux et fossiles rares dans un but commercial sont soumises à une autorisation du Département compétent. L'autorisation est sujette à une taxe et peut être subordonnée à des conditions.

² L'usage d'explosifs ou de perforatrices est interdit sauf autorisation spéciale du Département

³ Toutes les trouvailles de valeur doivent être communiquées à la commune du territoire duquel elles proviennent. Si cette dernière renonce à les garder, elle en informera le Département qui pourra les acquérir contre indemnité. Les objets d'un intérêt scientifique considérable deviennent la propriété du canton, conformément à l'article 724 CCS

⁴ Le canton peut accorder une gratification à celui qui a contribué de façon importante à la découverte ou à la récupération d'objets de valeur scientifique.

Art. 16 Végétation riveraine

¹ La destruction de la végétation riveraine nécessite une autorisation du Département compétent

² L'autorisation ne sera octroyée que si des intérêts publics exigent un essartage et si ce dernier est imposé par sa destination à l'endroit prévu.

³ Une compensation en nature de qualité équivalente sera effectuée sur le même objet lors d'un changement de l'affectation du sol recouvert de végétation riveraine. En cas d'impossibilité, l'auteur de l'atteinte devra s'acquitter d'une compensation équivalente

⁴ Le Conseil d'Etat définit les mesures de protection nécessaires à la sauvegarde et à l'extension de la végétation riveraine.

Art. 17 Bosquets

¹ Les communes règlent la protection des haies ainsi que celle des buissons, arbres isolés et allées de valeur.

² L'élimination des objets protégés nécessite une autorisation de la commune. Celle-ci consulte l'inspecteur d'arrondissement compétent des forêts et du paysage.

³ Les prescriptions de la législation cantonale sur les constructions demeurent réservées. L'élimination de bosquets se trouvant dans des sites protégés d'importance nationale ou cantonale nécessite une autorisation du service cantonal.

Art. 18 Liaison et équilibre écologiques

Le canton et les communes, veillent, dans le cadre de l'aménagement du territoire et de leurs projets, au maintien de la diversité et de la mobilité des espèces.

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Art. 19 Curiosités naturelles

¹ Les curiosités naturelles sont les formations géologiques ainsi que les éléments dignes de protection relevant de l'histoire naturelle ou de l'esthétique paysagère.

² Selon leur importance, elles doivent être protégées par des décisions de protection ou par le plan d'affectation des zones.

Art. 20 Patrimoine archéologique

¹ Les fouilles, la prospection et les recherches archéologiques sont de la compétence du canton. Le Département peut autoriser des tiers à pratiquer ces activités.

² Les objets archéologiques mobiliers ainsi que les dossiers de fouille sont propriété de l'Etat. Le canton peut accorder une gratification appropriée à celui qui a contribué de façon importante à la découverte, à la sauvegarde ou à la récupération de tels objets.

³ Le Conseil d'Etat règle la procédure relative à l'établissement des secteurs archéologiques à protéger ainsi que celle des mesures de protection des objets du patrimoine archéologique et de leur environnement.

⁴ Toute découverte d'éléments archéologiques sera annoncée immédiatement par quiconque en aura connaissance. Les mesures d'urgence sont prises par le service en application de l'article 9, alinéa 6 de la présente loi.

Art. 21 Parcs naturels

¹ Les parcs naturels comprennent des sites naturels et de détente avec des secteurs protégés ainsi qu'un espace environnant approprié et aménagé pour le tourisme doux.

² Le Grand Conseil décide de la création de parcs naturels et règle la participation du canton à leur aménagement et leur gestion.

Section 5: Financement

Art. 22 Formation, recherche et études

¹ Le canton veille à la formation spécialisée du personnel accomplissant des tâches ayant des effets dans le domaine de la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique.

² Il peut participer à la création et à la gestion de lieux de formation correspondants.

³ Le canton encourage la recherche et la vulgarisation dans les domaines précités.

⁴ Il peut, dans le cadre de ses tâches, soutenir, ordonner, attribuer des mandats ou réaliser lui-même des études.

Art. 23 Indemnisation des restrictions à la propriété

¹ Les restrictions de droit public à la propriété résultant de la présente loi et d'ordonnances ou décisions fondées sur cette dernière donnent droit à une pleine indemnité:

- a) lorsque dans leurs effets elles équivalent à une expropriation ou
- b) lorsqu'une telle prétention est expressément prévue dans la loi.

² La détermination du moment décisif pour le calcul des intérêts, la prescription et le remboursement sont réglés par les dispositions correspondantes de la loi sur les routes.

³ Le canton prend à sa charge les frais restants après déduction des contributions fédérales pour les objets d'importance nationale et cantonale. Il peut exiger des communes une participation jusqu'à 40 pour cent des frais restants, notamment selon leur capacité financière, la charge globale que représentent pour elles les mesures de protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique ainsi que le montant concret des frais.

⁴ Les communes supportent les frais pour les objets d'importance communale après déduction des contributions fédérales et cantonales. Le canton peut participer aux frais restants jusqu'à un maximum de 40 pour cent, selon les mêmes critères que ceux fixés à l'alinéa 3.

Art. 24 Subventions

¹ Le canton soutient par des indemnités jusqu'à un maximum de 50 pour cent des coûts reconnus:

- a) l'acquisition de terrains et de droits réels destinés à garantir les objets de protection;
- b) la création, la conservation, l'entretien, la restauration, la remise en état d'objets protégés ou dignes de protection;
- c) les frais de surveillance et de contrôle dans les sites protégés;
- d) l'élaboration des études et des plans de protection;
- e) l'exploration ou la documentation des objets protégés ou dignes de protection selon la présente loi;
- f) d'autres mesures soutenues par des indemnités de la Confédération et correspondant aux buts visés par la présente loi.

² Le canton peut soutenir par des aides financières jusqu'à un maximum de 40 pour cent des coûts reconnus:

- a) la vulgarisation et les publications importantes;
- b) les installations et équipements nécessaires au maintien des sites et constructions protégés ou dignes de protection;
- c) d'autres mesures soutenues par des aides financières de la Confédération et correspondant aux buts visés par la présente loi.

³ Il peut faire dépendre l'octroi de subventions cantonales d'une participation des communes jusqu'à 40 pour cent des coûts reconnus et des tiers intéressés jusqu'à 20 pour cent des coûts reconnus.

⁴ Le taux des subventions cantonales pourra exceptionnellement être augmenté si l'octroi de subventions fédérales en dépend.

⁵ Les subventions peuvent être liées à la mention au registre foncier des mesures de protection et d'entretien ou à toute autre garantie.

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Art. 25 Prestations de caractère écologique

¹ Des contributions peuvent être versées pour des prestations de caractère écologique relatives à l'exploitation agricole de certaines surfaces sur la base de contrats.

² Peuvent notamment être conclus des contrats pour des prestations sur:

- a) les terrains secs et les prairies maigres;
- b) les prés à litière et les marais;
- c) les surfaces caractérisées par les éléments typiques des paysages agricoles traditionnels,
- d) les terrains de compensation écologique à l'intérieur des surfaces agricoles avec exploitation intensive;
- e) les terrains dotés d'une faune et d'une flore rares;
- f) les surfaces viticoles avec murs en pierres sèches, haies, bosquets et prairies sèches.

³ Les services concernés mènent une politique active d'information auprès des agriculteurs et des viticulteurs.

⁴ Le Conseil d'Etat édicte les prescriptions d'application par voie d'ordonnance.

Art. 26 Organisations spécialisées

¹ Le canton peut accorder aux organisations spécialisées des subventions pour des projets concrets correspondant à la présente loi. Les communes seront entendues avant le subventionnement de projets sur leur territoire.

² Le canton peut confier à ces organisations, contre indemnisation, des tâches de protection.

Art. 27 Suspension et restitution

La subvention pourra être totalement ou partiellement suspendue et sa restitution requise, si elle n'est pas utilisée conformément au but visé, lorsque les conditions et charges ne sont pas respectées ou si l'objet ne mérite plus d'être protégé.

Art. 28 Fonds

¹ Le canton crée un fonds pour la protection de la nature et du paysage et un fonds pour la protection des sites bâtis, des monuments historiques et du patrimoine archéologique.

² Y seront notamment déposés les paiements de compensation, les amendes, les restitutions de subventions et les contributions de tiers.

³ Les montants versés aux fonds et les intérêts usuels des dépôts seront utilisés conformément à leur but respectif.

Section 6: Obligations lors de l'accomplissement de tâches publiques

Art. 29 Tâches publiques

Sont considérées comme tâches publiques au sens de la présente loi les activités des communes et du canton, notamment:

- a) l'aménagement du territoire;

- b) la planification, la réalisation, la modification ainsi que l'entretien et l'exploitation de constructions et d'installations;
- c) l'octroi d'autorisations et de concessions;
- d) l'attribution de subventions.

Art. 30 Obligations générales

¹ Lors de l'accomplissement de leurs tâches publiques, les autorités et services du canton et des communes doivent viser les objectifs de la présente loi, ménager les objets à protéger et les préserver lorsque l'intérêt à leur maintien l'emporte.

² Dans ce but, l'autorité compétente consulte le service spécialisé cantonal ou communal. L'autorité compétente peut ordonner une expertise spécifique.

³ Lorsque, après pesée de tous les intérêts, une atteinte à un objet à protéger ne peut être évitée, l'autorité compétente en la matière ordonne les mesures nécessaires en vue de la meilleure protection possible, la reconstitution, le remplacement ou une compensation équivalente.

⁴ Lorsqu'une compensation en nature n'est pas possible, un montant en argent équivalent est perçu et versé au fonds correspondant.

Art. 31 Obligations particulières

¹ Les autorités ou services compétents remplissent leur tâche, notamment:

- a) en faisant examiner et traiter les problèmes relevant de la protection de la nature, du paysage, des sites bâtis, des monuments historiques et du patrimoine archéologique, dès le début des travaux de planification et d'établissement de projets;
- b) en soumettant les demandes d'autorisations, de concessions ou de subventions aux services spécialisés pour prise de position et, pour autant que les buts de protection l'exigent, en les refusant ou en ne les octroyant qu'avec des conditions ou des charges pouvant faire l'objet d'une mention au registre foncier;
- c) en sollicitant des garanties propres à faire respecter le financement des exigences posées.

² Le Conseil d'Etat précise les tâches des services cantonaux.

Section 7: Exécution et protection juridique

Art. 32 Surveillance

¹ Les obligations de la présente loi sont placées sous la surveillance des services compétents. Pour autant que cela soit nécessaire à leur accomplissement, elles sont assurées par l'introduction des procédures correspondantes.

² Tout agent d'une collectivité publique chargé de l'application de la présente législation est tenu de dénoncer les infractions à celle-ci auprès du service compétent.

³ Le canton et les communes peuvent nommer des surveillants auxiliaires pour le contrôle de territoires déterminés.

Art. 33 Mesures d'exécution

¹ Les services compétents en la matière sont autorisés à ordonner la suspension des travaux contraires à la présente législation.

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² Ils peuvent ordonner le rétablissement de l'état antérieur, donner des instructions de comportement avec indication des sanctions encourues et exiger les mesures de sécurité nécessaires.

Art. 34 Dispositions pénales

¹ Sera puni d'une amende jusqu'à 100 000 francs celui qui, intentionnellement ou par négligence:

- a) aura enfreint une interdiction ou une restriction édictée dans le cadre de la loi ou des prescriptions d'une décision de protection;
- b) n'aura pas respecté une condition ou une charge à laquelle a été lié l'octroi d'une autorisation ou d'une subvention cantonale ou communale;
- c) aura contrevenu aux ordres prononcés en application de la présente législation et signifiés avec indication de la sanction prévue au présent alinéa.

² Demeurent réservées les sanctions aux contraventions et délits prévus par la législation fédérale, ainsi que l'obligation de réparer le dommage causé et de rétablir l'état conforme à la législation.

³ Le Département est compétent pour réprimer les contraventions ainsi que les atteintes de moindre importance aux objets de protection par une amende jusqu'à 40 000 francs.

⁴ Les cas graves et de récidive de délits feront l'objet d'une dénonciation pénale à l'autorité judiciaire par le Département.

⁵ Les articles 6 et 7 de la loi fédérale sur le droit pénal administratif sont applicables. Les personnes morales ou les entreprises répondent solidairement des amendes et frais mis à charge lors d'infraction commise dans le cadre de leur gestion.

⁶ Les gains illicites seront confisqués conformément à l'article 59 du Code pénal suisse.

Art. 35 Procédure pénale

¹ Les procédures pénales relevant de la compétence du Département sont soumises aux dispositions de la loi sur la procédure et la juridiction administratives.

² L'action pénale et la peine se prescrivent selon les dispositions de la législation cantonale sur les constructions.

Art. 36 Voies de recours

¹ Les décisions administratives du Département et des communes peuvent faire l'objet d'un recours auprès du Conseil d'Etat. Les décisions du Conseil d'Etat peuvent être déférées par recours auprès du Tribunal cantonal. La loi sur la procédure et la juridiction administratives règle la procédure.

² Le Conseil d'Etat, respectivement les communes, ont qualité de partie dans les procédures relevant de leur matière. Les services compétents sont entendus.

Art. 37 Délégation de compétences

Pour des décisions de portée restreinte, les autorités cantonales peuvent, par domaine ou de cas en cas, déléguer à des instances inférieures leurs compétences de décision octroyées par la présente loi.

Section 8: Dispositions finales**Art. 38** Dispositions transitoires

Les dispositions de la présente loi sont applicables aux procédures déjà pendantes dès son entrée en vigueur, pour autant qu'elles soient plus favorables aux personnes concernées.

Art. 39 Dispositions d'exécution

¹ Le Conseil d'Etat édicte les prescriptions d'exécution nécessaires à l'application de la présente loi. Il veille à la simplification et à l'accélération des procédures.

² Dans le cadre de leurs attributions légales, le Conseil d'Etat, le Département, les Services concernés ainsi que les communes sont compétents pour conclure des conventions avec les autorités extracantonales voisines en vue de solutions à des problèmes communs

Art. 40 Abrogation et modification de lois

¹ Sont abrogées toutes dispositions contraires à la présente loi ainsi que notamment :

- a) les articles 167 à 169 de la loi d'application du code civil suisse du 24 mars 1998;
- b) la loi du 28 novembre 1906 concernant la conservation des objets d'art et des monuments historiques;
- c) le décret du 13 novembre 1992 relatif à l'octroi des contributions à l'exploitation agricole du sol pour des prestations de caractère écologique.

² Le décret du 21 juin 1990 concernant l'application de la législation fédérale sur la protection de l'environnement est modifié comme suit:

art. 40: les mots «24 LPN» et «24a LPN» sont supprimés

³ La loi d'application du code civil suisse du 24 mars 1998 est modifiée comme suit:

art 215 al 1 let. a): les mots «et de l'article 186» sont supprimés.

Art. 41 Votation populaire et entrée en vigueur

¹ La présente loi est soumise au référendum facultatif.

² Le Conseil d'Etat fixe la date de son entrée en vigueur¹.

Ainsi adopté en deuxième lecture au Grand Conseil, à Sion, le 13 novembre 1998.

Le président du Grand Conseil: **François Gay**
Les secrétaires: **Grégoire Dayer, Hans-Peter Constantin**

¹ Entrée en vigueur le 1^{er} janvier 2000



Nature, paysage
et forêt

Objet - IFP Aletsch

Etat au

21.07.1999

voir aussi fiches n°

D 4 / F.5 / F.6 / H 7

Instances

responsable de
l'objet ou du projet

- Service des forêts et du paysage

autres instances
concernées

- Office fédéral de l'environnement, des forêts et du paysage
- Service de l'aménagement du territoire
- Commission nature, paysage et sites
- Communes concernées

responsable
de la coordination

- Service de l'aménagement du territoire

Description

Les discussions avec les régions de Brigue - Rarogne Oriental et Viège - Rarogne Occidental ont soulevé un conflit d'intérêts dans l'utilisation du sol. La Commission cantonale pour la protection de la nature, du paysage et des sites a examiné ce conflit.

Le périmètre existant de l'objet IFP (Inventaire fédéral des paysages, sites et monuments naturels d'importance nationale), ainsi que le nouveau périmètre proposé, ont été analysés dans le cadre d'une étude détaillée. Cette étude a servi de base aux instances fédérales pour la délimitation du nouveau périmètre et pour apporter une solution à ce conflit.

Coordination

La coordination a abouti à la délimitation du nouveau périmètre qui est entré en force suite à la décision du Conseil Fédéral du 01.04.1998

L'instance compétente s'assure du respect des charges et conditions fixées par la décision du Conseil Fédéral du 01.04.1998

Decision

catégorie : Donnée de base

date de la décision du Conseil d'Etat : 13.01.1999

date de l'approbation par la Confédération : 22.12.1999 (OFAT)

Documentation

– Nature et Paysage, 1985



**Décision
déclarant la forêt d'Aletsch «réserve forestière
absolue» et «site à protéger»**

du 5 mai 1933

Le Conseil d'Etat du canton du Valais

vu la requête de la Ligue suisse pour la protection de la nature, de siège à Bâle, requête tendant à ce que le canton prenne toutes mesures utiles en vue de la protection et de la conservation de la forêt d'Aletsch;
vu la convention du 21-22 avril 1933, passée entre la ligue précitée, d'une part, et la bourgeoisie de Ried et le consortage de l'alpage de Ried, d'autre part, concernant la protection de dite forêt, homologuée par le Conseil d'Etat sous date du 25 avril 1933;
vu les dispositions de l'article 186 de la loi valaisanne d'application du C.C.S.;
sur la proposition du Département forestier,

décide.

Article premier

La forêt d'Aletsch est déclarée "Réserve forestière absolue" et "site à protéger", en vertu de l'article 186 de la loi valaisanne d'application du Code civil suisse.

Art. 2

En conséquence, il est interdit:

- a) d'en exploiter les bois et d'y ramasser la litière,
- b) d'y cueillir des plantes et des fleurs;
- c) d'y laisser parcourir tout bétail.

Art. 3

L'exercice de la chasse y est interdit.

Art. 4

Les droits de la bourgeoisie de Ried et du consortage de l'alpage de Ried, déterminés dans la convention du 21-22 avril 1933, sont réservés.

Art. 5

Les frais de gardiennage de la forêt pour le petit bétail, sont à la charge du canton.

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Art. 6

Les contraventions aux articles 2 et 3 de la présente décision seront punies d'une amende pouvant s'élever jusqu'à 500 francs à prononcer par le Département forestier, sauf recours au Conseil d'Etat dans la quinzaine.

Ainsi décidé en Conseil d'Etat, à Sion, le 5 mai 1933, pour être inséré dans le Bulletin officiel du canton du Valais.

Le président du Conseil d'Etat: **M. Troillet**
Le chancelier d'Etat: **R. de Preux**

**Décision
concernant la protection de la région du
Märjelensee**

du 23 février 1938

Le Conseil d'Etat du canton du Valais

vu les oppositions fondées de la Ligue Suisse pour la Protection de la Nature et du Club Alpin Suisse contre la construction d'une auberge et d'une grotte glaciaire dans la région du Märjelensee;
vu le rapport des experts sur ce sujet;
vu la nécessité incontestée de protéger un lieu considéré comme l'un des plus pittoresques de Suisse;
vu l'article 186 de la loi cantonale d'application du code civil;
sur la proposition du Département de l'éducation,

décide

La région du Märjelensee est protégée contre tout changement et enlaidissement. Il est ordonné une interdiction absolue de bâtir dans cette région et d'y réaliser une grotte glaciaire.

Cette interdiction concerne la zone qui, sur la carte Siegfried au 1:50 000, est décrite comme suit: «depuis le glacier au point 2350, monter le long de l'arête jusqu'à la pointe de l'Eggishorn, descendre à l'est du Tälligrat jusqu'au point 2448, de là en direction du nord vers la Märjelenalp, au point 2364, en direction nord-ouest en passant par les points 2605 et 2704 au contrefort du Strahlhörner et de là à l'ouest en ligne droite, descendre la pente en contrebas du glacier».

Ainsi décidé en Conseil d'Etat, à Sion, le 23 février 1938.

Le vice-président du Conseil d'Etat: **A. Fama**
Le chancelier d'Etat: **R. de Preux**

Décision
concernant la protection des quatre zones alluviales d'importance nationale et des marges glaciaires de Jegi et Langgletscher de la vallée de Lötschen

du 20 mai 1998

Le Conseil d'Etat du canton du Valais

vu la loi fédérale sur la protection de la nature et du paysage du 1er juillet 1966;
vu l'ordonnance fédérale sur la protection des zones alluviales d'importance nationale du 28 octobre 1992 (objets nos 134, 135, 136, 137);
vu la loi fédérale sur les forêts du 4 octobre 1991;
vu la loi forestière cantonale du 1er février 1985;
vu la loi fédérale sur l'aménagement du territoire du 22 juin 1979;
vu la loi du 23 janvier 1987 concernant l'application de la loi fédérale sur l'aménagement du territoire;
vu les dispositions de l'article 186 de la loi d'application du code civil suisse;
sur la proposition du Département des transports, de l'équipement et de l'environnement,

décide:

Article premier Sites protégés

¹Les zones alluviales d'importance nationale de la vallée de Lötschen (objets nos 134, 135, 136, 137), et les marges glaciaires de Jegi et Langgletscher, situées sur le territoire des communes de Wiler et Blatten, sont déclarées sites naturels protégés. Les extraits des plans topographiques au 1:25'000, et au 1:5'000, resp. du plan cadastral au 1:1'000, joints à l'original de la présente décision font foi

²Les sites protégés seront indiqués sur des panneaux d'information placés à des endroits bien accessibles et seront affectés, selon l'article 17 LAT, en zones de protection dans les plans d'affectation de zones des communes.

Art. 2 Buts

La protection de ces zones alluviales et de ces marges glaciaires a pour buts :

1. la conservation intégrale et la revitalisation des zones alluviales et de la dynamique naturelle des eaux et des graviers;

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2. la régénération des surfaces alluviales endommagées;
3. la protection, la mise en valeur et la conservation de ces paysages naturels et de leurs différents milieux;
4. la protection et la mise en valeur des richesses faunistiques et floristiques;
5. la conservation de la succession naturelle des associations végétales avec leurs différents stades de développement;
6. la prévention de toute atteinte nuisible;
7. l'information de la population sur les buts et les valeurs de la protection de la nature et du paysage.

Art. 3 Mise en valeur, gestion

Le département prend les mesures nécessaires pour la conservation intégrale et la revitalisation des sites protégés. Dans ce but, il peut conclure des accords et attribuer des mandats.

Art. 4 Interdictions

Dans les sites protégés sont interdites toutes activités allant à l'encontre des buts de protection, notamment:

- toutes nouvelles constructions et installations;
- le changement de la dynamique fluviale naturelle;
- tout prélèvement de gravier, de sable, de blocs ou de matière analogue;
- la correction des rives, sauf ponctuellement pour la sécurité des installations existantes;
- toute atteinte à la dynamique naturelle des eaux et des graviers;
- le changement du paysage par l'aménagement de cultures, par des modifications de terrain, des dépôts de matériaux ou tous autres travaux allant à l'encontre des buts de protection;
- toute atteinte à la faune et la flore;
- le camping;
- l'épandage d'engrais naturels et chimiques;
- toute activité sportive portant atteinte aux buts de protection;
- le lâchage des chiens (ceux-ci seront tenus en laisse);
- l'allumage de feux et l'installation de foyers à l'extérieur des emplacements autorisés et équipés.

Art. 5 Exploitation agricole

L'exploitation agricole extensive est autorisée.

Art. 6 Dérogations

Des autorisations exceptionnelles peuvent être accordées par le département pour le maintien et l'entretien des sites protégés, pour le prélèvement de gravier pour des raisons de sécurité des crues ainsi que pour des activités à buts scientifiques.

Art. 7 Surveillance

Le personnel de la protection de la nature, le personnel forestier, les gardes-chasse et les gardes champêtres sont tenus de dénoncer au Service des forêts et du paysage toute infraction à l'article 4.

451.335

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Art. 8 Sanctions

¹ Les infractions à la présente décision seront punies par le département ou par le juge, selon les prescriptions de la loi fédérale sur la protection de la nature et du paysage.

² L'auteur d'une atteinte aux sites protégés doit remettre les lieux en état à ses propres frais.

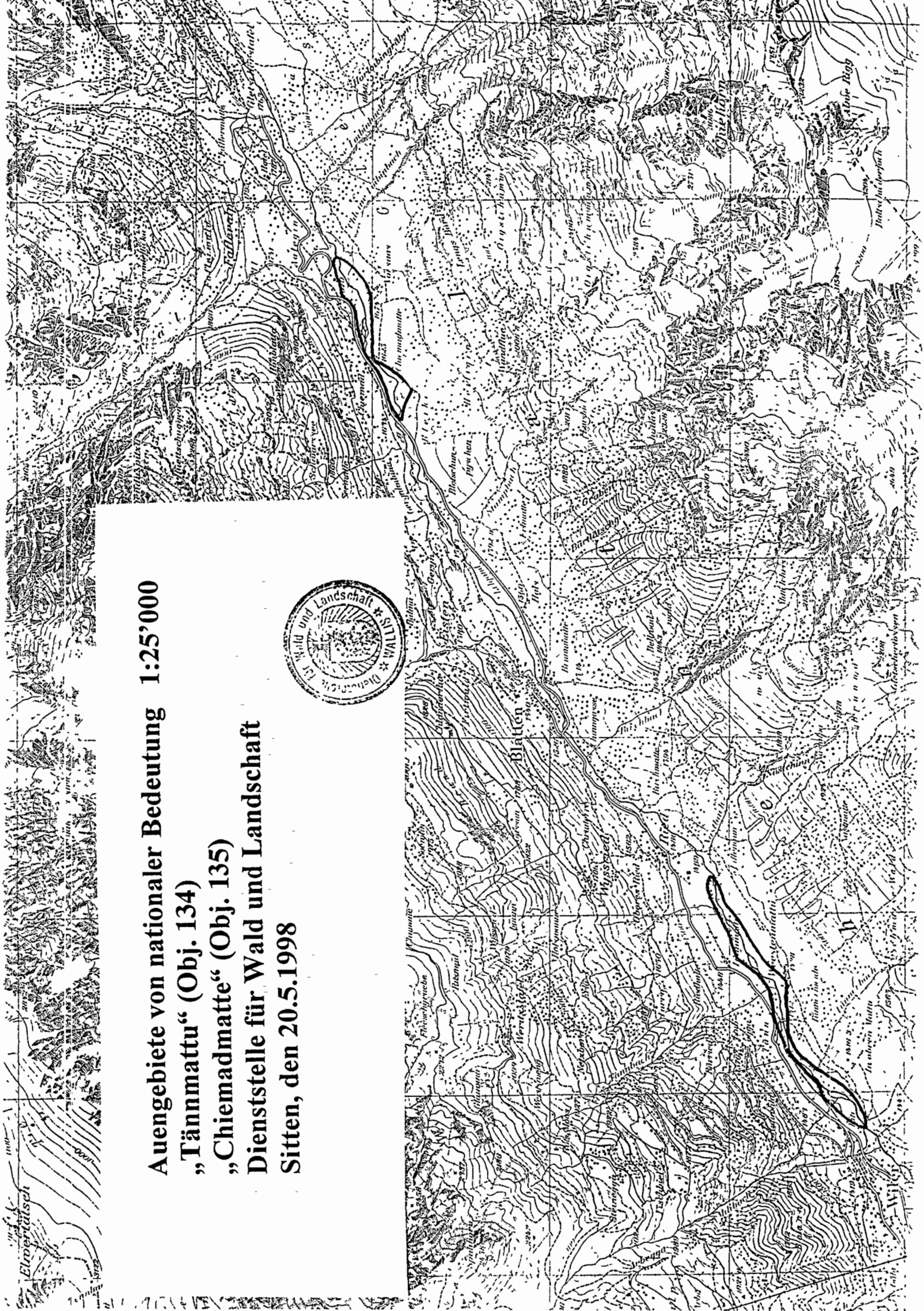
Art. 9 Entrée en force

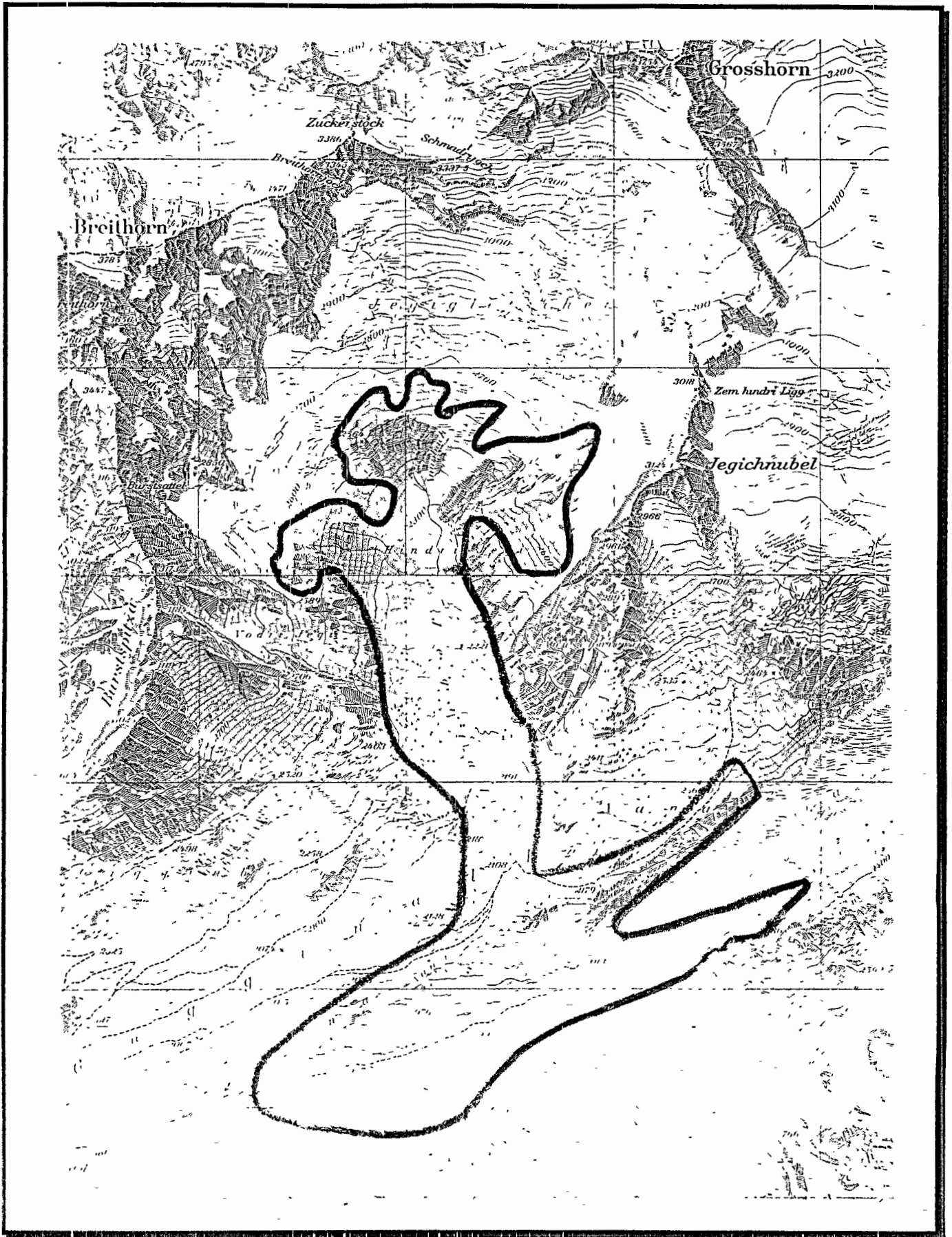
La présente décision entre en vigueur dès sa publication au Bulletin officiel.

Ainsi décidé en Conseil d'Etat, à Sion, le 20 mai 1998.

Le Président du Conseil d'Etat: **Serge Sierro**
Le Chancelier d'Etat: **Henri v. Roten**

**Auengebiete von nationaler Bedeutung 1:25'000
„Tännmattu“ (Obj. 134)
„Chiemadmatte“ (Obj. 135)
Dienststelle für Wald und Landschaft
Sitten, den 20.5.1998**





Auengbiet, von nationaler Bedeutung Ganderre (Obj. 136) und Jegital (Obj. 137)
 Geotisch - ortfelder des Lang- und Jegigletscher 1:25'000
 Dienststelle für Wald und Landschaft Sitten, den 20.5.1998



15 septembre 1992

Loi sur la protection de la nature

*Le Grand Conseil du canton de Berne,
sur proposition du Conseil-exécutif,
arrête:*

1. Généralités et organisation

1.1 Généralités

Article premier

But

La présente loi vise à

- a protéger les espaces vitaux naturels ou proches de l'état naturel propres aux animaux sauvages et à la flore indigènes, pour eux-mêmes et en tant que communauté d'espaces de vie, ainsi qu'à en rétablir ou à en créer si nécessaire;
- b conserver la faune et la flore indigènes et à en favoriser l'existence;
- c sauvegarder ou rétablir l'équilibre naturel;
- d éviter de porter atteinte à des espaces vitaux sensibles;
- e encourager des modes d'utilisation respectant l'environnement et le lieu de situation;
- f assurer la sauvegarde d'objets géologiques dignes de protection et à
- g éveiller la compréhension pour les interactions dans la nature.

Art. 2

Tâches générales des autorités

¹ Les autorités du canton et des communes tiennent compte, en exécutant leurs tâches, des exigences relatives à la protection de la nature. Elles veillent à une compensation lorsque des surfaces dignes de protection doivent être utilisées pour l'exécution de tâches publiques.

² Lorsqu'elles examinent des projets dont l'exécution implique des atteintes à la nature, elles collaborent étroitement avec les autorités chargées d'exécuter la présente loi.

Art. 3

Tâches et mesures

Les tâches et les mesures visant à protéger la nature consistent en particulier à

- a assurer la sauvegarde de zones dignes de protection;
- b assurer la sauvegarde d'objets botaniques et géologiques dignes de protection;
- c désigner les espèces végétales et animales rares ou menacées et à définir la nature de leur protection;
- d acquérir des terres pour l'application et l'exécution de tâches et de mesures relevant de la protection de la nature;
- e conclure des conventions stipulant l'utilisation de surfaces de compensation adaptée au but visé;
- f exécuter des mesures d'entretien, d'aménagement et de rétablissement destinées à assurer la protection de la nature;

- g* établir des inventaires;
- h* veiller à ce que les intérêts de la protection de la nature soient pris en considération lors de planifications et de l'établissement de projets;
- i* procurer les données nécessaires à la protection de la nature;
- k* soutenir l'activité des organisations pour la protection de la nature;
- l* développer dans la population la connaissance de la nature et des interactions d'ordre écologique et à
- m* contrôler le succès des mesures promulguées par la présente loi.

Art. 4

Contrats

1. Principe

- ¹ La sauvegarde de zones et d'objets dignes de protection est assurée en principe par la conclusion de contrats. Les mesures de protection prises par les communes en vertu de la législation sur les constructions sont réservées.
- ² La sauvegarde des surfaces de compensation est exclusivement assurée par contrat.
- ³ Les contrats prévoient des indemnités ou des dédommagements équitables lorsque l'exploitation actuelle doit être limitée par souci de garantir la protection visée ou qu'une prestation doit être fournie sans avantage lucratif correspondant. Ils fixent les charges imposées à l'exploitation et les restrictions de l'utilisation qui sont nécessaires.

Art. 5

2. Durée

- ¹ Les contrats sont en règle générale conclus pour une durée de six ans au moins.
- ² Faute de résiliation écrite intervenue trois mois au moins avant leur expiration, ils sont réputés renouvelés pour six nouvelles années.
- ³ Une durée de validité différente peut être convenue dans des cas particuliers.
- ⁴ Celui qui aménage une nouvelle surface de compensation écologique a droit, en principe et au minimum, à une double prolongation de son contrat.

Art. 6

Décisions de mise sous protection

- ¹ La sauvegarde de zones et d'objets dignes de protection est assurée par une décision de mise sous protection
 - a* lorsque les propriétaires fonciers et les communes touchés acceptent par déclaration écrite la mise sous protection;
 - b* lorsqu'une réglementation contractuelle est impossible ou inefficace dans une zone d'importance nationale ou régionale. Le Conseil-exécutif règle la participation des propriétaires fonciers et des communes touchés à cette procédure par voie d'ordonnance.
- ² Les zones et objets dignes de protection mis sous protection en vertu de la loi ou par décision sont désignés comme respectivement réserves naturelles et objets naturels protégés.

Art. 7

Dérogations

- ¹ Des dérogations aux prescriptions sur la protection peuvent être accordées pour des motifs importants, en particulier pour des dessertes sauvegardant la colonisation et l'exploitation de régions isolées, dans la mesure toutefois où les intérêts publics ne s'en trouvent pas lésés.
- ² Une autorisation de dérogation est notamment exigée pour des atteintes portées à des réserves naturelles ou à des objets naturels protégés telles que remblayages, destruction ou déboisement d'associations végétales, excavations, remplissage de cavités et modifications du régime des eaux.
- ³ Les autorisations de dérogation peuvent être assorties de conditions et de charges. Lorsque des

atteintes à un espace vital protégé ne peuvent pas être évitées, leur auteur sera tenu d'assurer la meilleure protection possible, de remettre les lieux en l'état ou de verser un dédommagement équitable.

Art. 8

Catégories

¹ Les zones et objets dignes de protection sont classés selon leur importance.

² Une distinction est faite entre objets d'importance nationale, d'importance régionale ou d'importance locale.

³ En l'absence de décision contraire de la Confédération ou du canton, les zones ou objets sont réputés d'importance locale.

Art. 9

Inventaires

1. Compétences

¹ Le canton établit et met à jour les inventaires des zones et des objets dignes de protection qui sont d'importance nationale ou régionale.

² Les communes peuvent établir et mettre à jour les inventaires des zones et objets dignes de protection qui sont d'importance locale.

³ La Direction de l'économie publique approuve les inventaires cantonaux, le conseil communal les inventaires communaux.

Art. 10

2. Fonction

¹ Les inventaires cantonaux et communaux concernant les zones et les objets dignes de protection n'ont qu'un caractère informatif et ne lient ni les autorités, ni les particuliers, sous réserve de dispositions légales particulières.

² Ils sont publics et peuvent être consultés librement.

Art. 11

Utilisation de produits toxiques et de substances dangereuses pour l'environnement

¹ Il est interdit d'utiliser des substances toxiques, des produits phytosanitaires, des engrais et des adjuvants fertilisateurs dans les réserves naturelles ou de les appliquer sur des objets naturels protégés.

² Les prescriptions et les réglementations contractuelles complémentaires relatives aux réserves naturelles et aux objets naturels protégés peuvent prévoir des dérogations pour certaines substances.

³ Les autorités compétentes peuvent, dans des cas particuliers, autoriser des dérogations selon l'article 7. Le service forestier statue, d'entente avec le service compétent de la Direction de l'économie publique dont relève la protection de la nature [Teneur du 29. 10. 1997], sur les dérogations à l'interdiction d'utiliser, dans les forêts, des produits toxiques et des substances dangereuses pour l'environnement, quelle que soit la catégorie à laquelle appartient l'objet protégé.

1.2 Organisation

Art. 12

Organes

¹ L'exécution de la législation sur la protection de la nature incombe en particulier

a au Conseil-exécutif,

b à la Direction de l'économie publique,

c au service compétent de cette Direction [Teneur du 29.10.1997],

d aux communes,

e aux organes de surveillance de la protection de la nature désignés par le Conseil-exécutif, et

f aux organisations pour la protection de la nature mandatées, dans les limites de leur mandat.

² Est réservée la compétence d'autres Directions et offices dans les cas prévus par la loi ou en vertu d'une réglementation particulière du Conseil-exécutif.

Art. 13

Tâches

1. Conseil-exécutif

¹ Le Conseil-exécutif exerce la haute surveillance sur l'exécution de la législation sur la protection de la nature.

² Le Conseil-exécutif

- a met sous protection les zones et les objets dignes de l'être qui sont d'importance nationale ou régionale et édicte les prescriptions de protection nécessaires;
- b statue sur l'octroi du droit d'expropriation à la Direction de l'économie publique ou à la commune lorsque, pour atteindre le but visé par la protection, il est nécessaire d'acquérir des immeubles ou des droits réels, contractuels ou de voisinage.

Art. 14

2. Direction de l'économie publique

¹ La Direction de l'économie publique est l'autorité de surveillance en matière de protection de la nature.

² Son service compétent nomme les surveillants cantonaux et les surveillants volontaires de la protection de la nature et fixe les conditions d'engagement, en accord avec la Direction des finances. [Teneur du 21. 6.1995]

³ Elle représente le canton dans les litiges.

Art. 15

3. Service cantonal spécialisé dont relève la protection de la nature [Teneur du 29. 10. 1997]

¹ Le service compétent de la Direction de l'économie publique [Teneur du 29.10.1997] est le service cantonal spécialisé dont relève la protection de la nature.

² Il exécute les prescriptions régissant la protection de la nature, de même qu'il en coordonne les mesures, pour autant que la loi n'en dispose pas autrement ou que le Conseil-exécutif n'adopte pas de réglementation particulière.

³ Le service compétent de la Direction de l'économie publique [Teneur du 29.10.1997]

- a prépare les décisions de mise sous protection par le Conseil-exécutif;
- b rend les décisions nécessaires;
- c accorde des dérogations dans la mesure où des réserves naturelles ou des objets naturels protégés d'importance locale ne sont pas touchés;
- d s'occupe des mesures d'aménagement et d'entretien nécessaires dans les réserves naturelles d'importance nationale et régionale;
- e conclut, dans les limites de sa compétence financière, des conventions stipulant la conservation, l'affectation et l'exploitation de réserves naturelles et d'objets naturels protégés ainsi que de surfaces de compensation d'importance nationale ou régionale;
- f verse, dans les limites de sa compétence financière, des dédommagements, des indemnités ou des contributions;
- g conseille et soutient les communes dans le domaine de la protection de la nature;
- h tient les inventaires des zones et des objets dignes de protection qui sont d'importance nationale ou régionale;
- i attribue des tâches de la protection de la nature aux organes de surveillance de la protection de la nature d'entente avec les services spécialisés; [Teneur du 25. 3. 2002]
- k rédige des corapports sur des plans et des projets;
- l procure les données nécessaires à la protection de la nature;
- m renseigne la population et les organes d'exécution sur les exigences de la protection de la nature et organise des cours de formation et

n contrôle le succès des mesures ordonnées.

Art. 16

4. Communes

¹ Les communes exécutent la législation sur la protection de la nature à l'échelon local.

² Les communes

- a* assurent la sauvegarde des zones et des objets dignes de protection qui sont d'importance locale et décident leur mise sous protection;
- b* rendent les décisions nécessaires;
- c* peuvent conclure des conventions sur la conservation, l'affectation et l'exploitation desdites zones et objets, en particulier s'il s'agit de surfaces de compensation d'importance locale;
- d* peuvent verser des dédommagements, des indemnités et des contributions;
- e* peuvent tenir les inventaires des zones et des objets dignes de protection qui sont d'importance locale.

Art. 17

5. Surveillance de la protection de la nature

¹ La surveillance de la protection de la nature est assurée par [Alinéa 1 selon teneur du 21. 6. 1995]

- a* les surveillants et surveillantes volontaires de la protection de la nature et, de manière subsidiaire, [Teneur du 25. 3. 2002]
- b* les autres organes de police du canton et des communes. [Teneur du 25. 3. 2002]
- c-d* ... [Abrogées le 25. 3. 2002]

² Les organes de surveillance de la protection de la nature assument les tâches qui leur sont conférées. [Ancien alinéa 1]

³ Ils se remplacent mutuellement lorsque la tâche le permet ou que la situation l'exige. [Teneur du 25. 3. 2002]

⁴ Ils font partie de la police judiciaire. [Ancien alinéa 3]

Art. 18

6. Organisations pour la protection de la nature

Le canton et les communes peuvent charger des organisations pour la protection de la nature, des services spécialisés et des spécialistes d'assumer des tâches consistant à

- a* donner des conseils;
- b* assurer la formation et l'information;
- c* procurer les données nécessaires;
- d* déterminer et inventorier des objets;
- e* préparer des conventions;
- f* assumer l'entretien et l'aménagement d'objets, ainsi qu'à
- g* procéder à des contrôles.

2. Domaines de protection et mise sous protection

2.1 Protection des biotopes

Art. 19

Compétence

¹ Le canton veille à la protection et à l'entretien des biotopes d'importance nationale ou régionale.

² Les communes veillent à la protection et à l'entretien des biotopes d'importance locale.

³ Le canton et les communes recourent à la collaboration du Service des forêts pour régler la

protection et l'entretien de biotopes dans les forêts.

⁴ Le Conseil-exécutif désigne les réserves naturelles dans lesquelles l'exercice de la chasse ou de la pêche est interdit.

Art. 20

Définition

¹ Sont réputés biotopes les espaces vitaux dignes de protection importants, naturels ou proches de l'état naturel, d'espèces animales et végétales indigènes tels que d'importantes zones d'habitat pour les animaux, des associations forestières rares, des prairies et des orées riches en espèces végétales, des vergers à hautes tiges ayant une valeur écologique, des tourbières et marais, des roselières et cariçaias, des rives, des ruisseaux, des mares et des étangs.

² Le canton et les communes s'efforcent d'assurer des possibilités d'interaction entre les biotopes.

Art. 21

Compensation écologique

¹ Afin d'assurer la compensation écologique, le canton et les communes concluent des contrats s'appliquant à certaines surfaces ou à des exploitations agricoles entières. Ils conviennent en particulier les restrictions de l'utilisation, les charges imposées à l'exploitation ainsi que les mesures d'entretien, d'aménagement et de plantation qui sont nécessaires.

² Les surfaces de compensation sont des surfaces exploitées de manière peu intensive ou se trouvant dans un état proche du naturel. Elles complètent les biotopes et ont pour but d'assurer judicieusement l'interaction écologique nécessaire en formant des îlots ou des bandes.

³ Elles servent de lieux de refuge et de voies de propagation devant contribuer à la survie d'espèces animales et végétales ainsi qu'à améliorer l'équilibre naturel, particulièrement dans les régions exploitées de manière intensive à l'intérieur ou hors des agglomérations.

⁴ En sus des surfaces dignes de protection, telles que les zones humides et mouillées, les rives de ruisseaux et les terrains maigres, il y a lieu de délimiter ou de réaménager des surfaces de compensation consistant en particulier en vergers à haute tige et en prairies irriguées, en lisières et bandes de buissons le long des ruisseaux, orées, haies, champs et espaces verts.

Art. 22

Terrains secs, zones humides et prairies grasses riches en espèces

1. Encouragement

¹ Le canton soutient par des contributions la conservation et l'entretien de terrains secs, de zones humides et de prairies grasses riches en espèces d'importance nationale ou régionale.

² A droit à une contribution celui ou celle qui exploite un terrain sec, une zone humide ou une prairie grasse riche en espèces et a conclu un contrat d'exploitation avec le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997].

³ Les mesures de protection prises en vertu de la présente loi ou de la législation sur les constructions sont réservées.

Art. 23

2. Définitions

¹ Les terrains secs sont des prés et des pâturages exploités de manière extensive où croissent sur sol sec des espèces végétales particulièrement dignes de protection.

² Les zones humides sont des espaces verts exploités de manière extensive où croissent sur sol humide à mouillé des espèces végétales particulièrement dignes de protection.

³ Les prairies grasses riches en espèces sont des prés et des pâturages modérément fumés et fauchés deux fois par an où croissent sur sol moyen des espèces végétales particulièrement dignes de protection.

Art. 24

3. Contributions

3.1. Contributions ordinaires

¹ Les contributions ordinaires du canton à l'exploitation sont déterminées selon

- a les frais d'exploitation,
- b la valeur biologique,
- c le mode d'exploitation et
- d la surface de la zone donnant droit à contribution.

² Le Conseil-exécutif fixe les taux de contribution et les adapte au début de l'année suivante au renchérissement dès que celui-ci a atteint dix pour cent. Il est habilité à prévoir une surface minimale.

³ Les sommes nécessaires au versement de contributions à l'exploitation figurent chaque année au budget du service compétent de la Direction de l'économie publique dont relève la protection de la nature [Teneur du 29.10.1997].

Art. 25

3.2 Contributions uniques

¹ Le canton peut verser des contributions uniques pour des mesures visant à réduire un embroussaillage excessif de stations sèches et de zones humides.

² Les contributions sont fixées d'après le coût d'amélioration de la surface.

Art. 26

4. Contrat d'exploitation

¹ L'exploitant d'une zone répertoriée dans l'inventaire cantonal peut exiger la conclusion d'un contrat d'exploitation avec le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997].

² Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] propose à l'exploitant d'une zone répertoriée la conclusion d'un contrat d'exploitation et l'informe du montant du dédommagement, des charges imposées à l'exploitation et des restrictions de l'utilisation.

³ L'exploitant souhaitant conclure un contrat d'exploitation, mais n'acceptant pas le dédommagement prévu, les charges imposées à l'exploitation ou les restrictions de l'utilisation, peut demander que l'Inspection de la protection de la nature les fixe dans une décision susceptible de recours.

Art. 27

Haies et bosquets

1. Protection

¹ Les haies et les bosquets sont protégés dans leur état actuel.

² Le préfet ou la préfète statue sur les dérogations à l'interdiction de les détruire. Il ou elle fait part aux organisations ayant qualité pour recourir et au service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] des dérogations accordées.

Art. 28

2. Définitions

¹ Sont réputés haies les peuplements rectilignes recouverts de buissons indigènes, voire de plantes sauvages et d'arbres.

² Sont réputées bosquets les surfaces peuplées de buissons indigènes, voire recouvertes de plantes sauvages et d'arbres.

2.2 Protection d'objets géologiques et botaniques

Art. 29

Compétence

¹ Le canton veille à la protection et à l'entretien d'objets géologiques et botaniques d'importance nationale ou régionale.

² Les communes veillent à la protection et à l'entretien des objets géologiques et botaniques d'importance locale.

Art. 30

Définitions

¹ Sont notamment réputés objets géologiques dignes de protection les blocs erratiques, les polis glaciaires, les moulins glaciaires, les affleurements géologiques, les lieux de découverte de minéraux et de fossiles, les cavernes et les sources présentant un intérêt pour l'orogénèse et la science en général, ou en raison de leur beauté particulière.

² Sont notamment réputés objets botaniques dignes de protection des arbres isolés ou des buissons, des groupes d'arbres et des allées significatifs ou de valeur.

2.3 Protection de la faune et de la flore

Art. 31

Protection d'espèces

1. Plantes et animaux protégés

¹ Le canton prend des mesures pour conserver des espèces de plantes et d'animaux rares ou menacées.

² Le Conseil-exécutif désigne par voie d'ordonnance les plantes et les animaux qui doivent être protégés en sus des espèces visées par le droit fédéral.

³ Il détermine les mesures de protection nécessaires pour autant qu'elles s'appliquent à l'ensemble du canton. La Direction de l'économie publique est compétente dans les autres cas.

⁴ Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] peut saisir les plantes cueillies ou les animaux détenus illicitement et contraindre les personnes fautives à en assurer le remplacement dans le délai imparti, sous commination d'exécution par substitution. Dans des cas exceptionnels, il peut fixer une réparation en argent équitable.

Art. 32

2. Dérogations

¹ Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] peut, pour des motifs importants, accorder des dérogations

a pour récolter des plantes protégées;

b pour capturer, garder en élevage, mettre à mort, empailler ou préparer des animaux protégés auxquels la législation sur la chasse ne s'applique pas.

² Sont notamment réputés motifs importants, des buts d'ordre scientifique, pédagogique ou thérapeutique.

Art. 33

Plantes sauvages

¹ La récolte de plantes sauvages (y compris de fruits, de champignons, de mousses et de lichens) à des fins lucratives est soumise à l'autorisation du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997]. Sont exceptées les exploitations agricole et sylvicole ordinaires ainsi que la récolte de champignons, de baies et d'herbes à tisanes et médicinales selon l'usage local.

² Le Conseil-exécutif édicte des prescriptions de détail.

Art. 34

Animaux sauvages

La capture d'animaux sauvages à des fins lucratives est soumise à l'autorisation du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997], pour autant qu'une autorisation délivrée en vertu de la législation sur la protection des animaux, sur la chasse ou sur la pêche ne soit pas nécessaire.

Art. 35

Acclimatation d'espèces animales ou végétales étrangères

¹ L'acclimatation des espèces d'animaux ou de plantes étrangères au pays ou au lieu fera l'objet d'une demande auprès du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997].

² Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] transmet les demandes aux autorités fédérales avec son corapport.

³ Lorsqu'il s'agit de l'acclimatation d'espèces animales étrangères au pays ou au lieu qui sont soumises à la législation sur la chasse ou la pêche, les services spécialisés de la chasse ou de la pêche interviennent en lieu et place du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997].

2.4 Mise sous protection

Art. 36

Décision cantonale de mise sous protection

1. Teneur

¹ Les zones et objets dignes de protection d'importance nationale ou régionale sont mis sous protection en vertu d'une décision cantonale.

² La décision de mise sous protection comprend un plan de protection et les prescriptions afférentes. Celles-ci précisent le but et les mesures de protection.

³ Les prescriptions régissant la mise sous protection s'appliquent par analogie à la modification des décisions de mise sous protection en vigueur.

⁴ Les mises sous protection peuvent être demandées auprès du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] ou auprès de la commune.

Art. 37

2. Procédure d'opposition

2.1. Mise à l'enquête

¹ Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] ordonne la publication du projet de plan ainsi que des prescriptions prévues dans les communes touchées et il renseigne les propriétaires fonciers concernés qui lui sont connus.

² La mise à l'enquête est publiée dans la Feuille officielle et dans la feuille d'avis officielle.

³ Après la communication ou la publication dans la Feuille officielle, rien qui puisse porter atteinte au but de la protection ne saurait être entrepris dans la zone protégée ou sur l'objet protégé en vertu du plan.

⁴ Le délai de mise à l'enquête est de 30 jours. Il commence à courir au moment de la publication de la mise à l'enquête dans la Feuille officielle.

Art. 38

2.2 Opposition

¹ Opposition peut être formée auprès de la commune durant le délai de mise à l'enquête.

² Ont qualité pour former opposition

- a les personnes touchées par la décision de mise sous protection dans leurs intérêts propres et dignes de protection;
- b les organisations privées dotées de la personnalité morale à la condition qu'elles existent depuis cinq ans au moins et que la sauvegarde d'impératifs relevant de la protection de la nature compte au nombre de leurs tâches statutaires principales;
- c les autorités des communes et les organes d'associations de communes, du canton et de la Confédération s'il s'agit de sauvegarder les intérêts publics dont ils ont la charge.

³ La procédure est régie par les dispositions de la loi sur la procédure et la juridiction administratives [RSB 155.21].

Art. 39

2.3. Règlement de l'opposition

¹ La commune remet l'opposition au service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] qui la transmet avec son préavis à la Direction de l'économie publique. Il peut mener au préalable des pourparlers de conciliation.

² Il appartient à la Direction de l'économie publique de statuer sur les oppositions. Les opposants peuvent, conformément aux dispositions de la loi sur la procédure et la juridiction administratives, faire recours auprès du Conseil-exécutif contre la décision sur opposition.

³ Lorsque des plans ou des prescriptions mis à l'enquête publique sont modifiés avant la mise sous protection, connaissance doit en être donnée aux personnes directement touchées pour leur permettre de former opposition ou de recourir.

Art. 40

3. Prise de décision

Le Conseil-exécutif statue sur la mise sous protection.

Art. 41

Décisions communales de mise sous protection

¹ La mise sous protection de zones et d'objets dignes de protection d'importance locale est régie par les dispositions de la législation sur les constructions qui s'appliquent à l'adoption de la réglementation fondamentale en matière de construction.

² La procédure relative à une modification minimale de plans d'affectation s'applique par analogie à de minimales modifications de la décision de mise sous protection.

³ Le préfet ou la préfète statue sur les dérogations aux décisions de mise sous protection. Les prescriptions sur la procédure d'octroi du permis de construire s'appliquent par analogie à cette procédure. Le préfet ou la préfète communique au service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] les dérogations accordées.

3. Mesures particulières et financement

3.1 Exécution

Art. 42

Conseil

Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] conseille et assiste les communes dans l'exécution des tâches découlant de la protection de la nature.

Art. 43

Police de la protection de la nature

1. Tâches

¹ Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] et les communes assurent la police de la protection de la nature sous la surveillance de la Direction de l'économie publique. Le Conseil-exécutif exerce la haute surveillance.

² Les organes de la police de la protection de la nature prennent, dans les limites de leur compétence, toutes les mesures nécessaires à l'exécution de la présente loi et des prescriptions et décisions adoptées en vertu de celle-ci.

³ Ils ordonnent le rétablissement de l'état conforme à la loi et les mesures provisoires.

Art. 44

2. Mesures provisoires

¹ Lorsqu'une zone ou un objet dignes de protection, une réserve naturelle ou un objet naturel protégé sont menacés, l'autorité compétente prend les mesures provisoires nécessaires pour en assurer la sauvegarde et la conservation. Ces décisions sont immédiatement exécutoires.

² Dès l'adoption de mesures provisoires, l'autorité compétente introduit la procédure de mise sous protection des zones ou objets dignes de protection.

³ Une autorisation du service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] est nécessaire pour procéder à des interventions affectant le régime des eaux ou pour exécuter des travaux soumis à l'octroi d'un permis de construire dans des biotopes, répertoriés dans les inventaires fédéraux, mais dont l'existence n'est pas encore garantie par des obligations liant les propriétaires fonciers.

Art. 45

3. Rétablissement de l'état conforme à la loi

¹ Lorsqu'une intervention illicite porte atteinte à une réserve naturelle ou à un objet naturel protégé, ou que des obligations légales ou contractuelles ne sont pas respectées, la collectivité publique compétente interdit tout acte dommageable. Cette décision est immédiatement exécutoire.

² Si l'acte dommageable ne peut être autorisé ultérieurement, l'autorité compétente fixe à l'auteur un délai convenable pour procéder au rétablissement de l'état conforme à la loi, sous commination d'exécution par substitution.

³ Lorsque le rétablissement de l'état conforme à la loi est impossible, l'autorité compétente contraint l'auteur à fournir un dédommagement équitable en nature. Dans des cas exceptionnels, elle peut fixer une réparation en argent.

⁴ La collectivité publique fait exécuter aux frais de l'auteur les mesures ordonnées par décision entrée en force de chose jugée qu'il n'a pas prises durant le délai fixé ou qu'il n'a pas exécutées selon les prescriptions.

Art. 46

Décisions de l'autorité cantonale de surveillance

¹ Lorsqu'une commune néglige les tâches qui lui sont imposées par la présente loi, la Direction de l'économie publique lui impartit un délai convenable pour qu'elle prenne les mesures nécessaires, sous commination d'exécution par substitution.

² Lorsque les mesures nécessaires ne sont pas prises durant le délai fixé ou ne sont pas exécutées conformément aux prescriptions, la Direction de l'économie publique les fait exécuter aux frais de la commune. La procédure afférente à la décision cantonale de mise sous protection s'applique aux mises sous protection.

3.2 Expropriation et restrictions de la propriété

Art. 47

Rapports avec la loi sur l'expropriation

¹ La loi sur l'expropriation s'applique aux expropriations formelle et matérielle dans la mesure où la présente loi n'établit pas de dispositions complémentaires ou contraires.

² La législation fédérale régissant l'expropriation est réservée.

Art. 48

Expropriation formelle

Le Conseil-exécutif peut accorder à la Direction de l'économie publique ou aux communes le droit d'expropriation pour autant que l'achat d'immeubles ou de droits réels, contractuels ou de voisinage soit nécessaire pour atteindre le but visé de protection des réserves naturelles ou des objets naturels protégés.

Art. 49

Expropriation matérielle

¹ Les restrictions de la propriété telles que les restrictions apportées à l'usage d'immeubles confèrent au propriétaire le droit à une indemnité lorsque, par leurs effets, elles équivalent à une expropriation.

² La demande d'indemnisation sera adressée à la collectivité dans l'intérêt de laquelle les restrictions de

la propriété ont été ordonnées.

Art. 50

Renonciation et prescription

Les dispositions de la loi sur les constructions s'appliquent par analogie à la renonciation à l'expropriation et à la prescription du droit à l'indemnité.

3.3 Financement

Art. 51

Tâches du canton

Le canton finance les tâches assumées par lui-même ou ses organes, notamment les mesures utiles d'entretien et d'aménagement s'il s'agit de zones ou d'objets d'importance nationale ou régionale.

Art. 52

Soutien des communes

¹ Le canton peut soutenir les communes en vertu de l'article 140 de la loi du 9 juin 1985 sur les constructions [RSB 721.0] en allouant [Alinéa 1 teneur du 18. 6 1997]

a des contributions à l'établissement et à la tenue d'inventaires;

b des contributions aux travaux de mise sous protection, d'entretien et d'aménagement.

c ... [Abrogée le 27. 11. 2000]

² Il transmet aux communes les contributions fédérales allouées pour la protection et l'entretien de biotopes et pour les mesures de compensation écologique d'importance locale.

³ ... [Abrogé le 27. 11. 2000]

Art. 53

Dédommagements et indemnités

¹ Un dédommagement équitable est convenu en compensation des charges imposées à l'exploitation ainsi que des mesures prises en matière d'entretien, d'aménagement et de plantation. Il n'excédera pas le montant des dépenses liées à une exécution judicieuse et rationnelle de ces mesures ni le montant des dépenses qui ne sont pas couvertes par des recettes ou des contributions de tiers.

² Une indemnité équitable est convenue pour les restrictions de l'utilisation. Elle ne doit pas dépasser le manque à gagner causé par la renonciation à des possibilités d'utilisation plus intensives ni être compensée par des recettes de remplacement ou des contributions de tiers.

³ Dédommagements et indemnités sont alloués concurremment lorsque les conditions requises sont remplies.

⁴ Les sommes nécessaires au versement de dédommagements et d'indemnités figurent chaque année au budget du service compétent de la Direction de l'économie publique dont relève la protection de la nature [Teneur du 29. 10. 1997].

⁵ Les dédommagements et les indemnités convenus contractuellement sont adaptés au début de l'année suivante au renchérissement dès que celui-ci a atteint dix pour cent.

Art. 54

Bonifications

¹ Le canton bonifie aux organisations et aux services spécialisés qu'il a mandatés les dépenses liées à l'accomplissement judicieux et rationnel de leurs tâches et non couvertes par des recettes ou des contributions de tiers.

² Les bonifications sont fixées par la Direction de l'économie publique dans les limites de ses compétences financières et par le Conseil-exécutif dans les autres cas.

Art. 55

Soutien d'organisations

Le canton peut verser des contributions de soutien uniques ou annuelles à des organisations ou à des établissements exerçant une activité en faveur de la protection de la nature.

Art. 56

Restitution

Le service compétent de la Direction de l'économie publique [Teneur du 29. 10. 1997] ordonne la restitution de contributions de l'Etat obtenues indûment.

4. Peines

Art. 57

Eléments constitutifs de l'infraction pénale

¹ Est frappé d'une amende de 100 à 20 000 francs quiconque

- a endommage ou détruit une réserve naturelle ou un objet naturel protégé;
- b contrevient à une interdiction ou à une mesure ordonnées en vertu des articles 31, 36 ou 41;
- c agit sans être au bénéfice d'une autorisation exigée par la loi;
- d transgresse une autorisation ou
- e ne satisfait pas à des mesures exécutoires qui lui sont imposées.

² Dans les cas graves, une peine d'arrêts peut en outre être prononcée.

³ Dans les cas de peu de gravité, il est possible de renoncer à toute peine.

Art. 58

Prescription

¹ Les infractions visées à l'article 57 se prescrivent par trois ans.

² La prescription absolue survient après six ans.

Art. 59

Dispositions diverses

¹ Lorsque l'acte punissable a été commis dans l'entreprise commerciale d'une personne morale ou d'une société en nom collectif ou en commandite, celle-ci répond solidairement de l'amende, du gain à restituer, des émoluments et des frais.

² Elle jouit des droits de partie dans la procédure pénale.

5. Voies de droit

Art. 60

Compétence de la Direction de l'économie publique

¹ La voie de recours auprès de la Direction de l'économie publique est ouverte contre les décisions de l'Inspection de la protection de la nature touchant

- a des mesures provisoires, des autorisations, des dérogations, la saisie, le rétablissement de l'état conforme à la loi et la réparation du dommage;
- b la conclusion ou la reconduction de contrats d'exploitation de terrains secs, de zones humides et de prairies grasses riches en espèces d'importance nationale ou régionale ainsi que la détermination de contributions, les charges imposées à l'exploitation et les restrictions de l'utilisation en rapport avec de tels contrats;
- c les dédommagements et indemnités;
- d la restitution de contributions.

² Ont également qualité pour recourir dans les cas prévus sous lettre a, les autorités communales

compétentes de même que les organisations privées dotées de la personnalité morale, à la condition qu'elles existent depuis trois ans au moins et que la sauvegarde d'impératifs relevant de la protection de la nature compte au nombre de leurs tâches statutaires principales.

³ Une liste des organisations ayant qualité pour recourir est tenue par le service compétent de la Direction de l'économie publique [*Teneur du 29. 10. 1997*] qui la communique aux communes et aux préfetures.

Art. 61

Procédure de recours

La procédure de recours est régie par les dispositions de la loi sur la procédure et la juridiction administratives [*RSB 155.21*].

6. Exécution

Art. 62

Le Conseil-exécutif édicte les prescriptions d'exécution nécessaires.

7. Dispositions transitoires et finales

Art. 63

Droit applicable

¹ Les procédures pendantes lors de l'entrée en vigueur de la présente loi sont liquidées selon le nouveau droit par l'autorité compétente selon l'ancien droit.

² Le régime des compétences prévu par le nouveau droit s'applique à la procédure de recours.

Art. 64

Entrée en vigueur

Le Conseil-exécutif fixe la date d'entrée en vigueur de la présente loi.

Art. 65

Modification d'un texte législatif

Avec l'entrée en vigueur du présent texte, la loi du 27 août 1981 instituant des contributions à l'exploitation [*Abrogée par L. cantonale du 16. 6. 1997 sur l'agriculture; RSB 910.1*] est modifiée comme suit:

Art. 66

Adaptation de prescriptions et de plans

¹ Les prescriptions et les plans des communes et des régions seront, si nécessaire, adaptés aux dispositions de la présente loi lors de la prochaine révision complète du plan d'aménagement local.

² L'article 146 de la loi sur les constructions [*RSB 721.0*] s'applique par analogie à la procédure.

Berne, 15 septembre 1992

Au nom du Grand Conseil,
la présidente: *Zbinden*
le vice-chancelier: *Krähenbühl*

ACE n ° 3993 du 17 novembre 1993:
entrée en vigueur le 1^{er} janvier 1994

Appendice

15. 9. 1992 L BL 1993/6; en vigueur dès le 1. 1. 1994

Modifications

21. 6. 1995 L ROB 95–110 (art. 72); L sur la pêche; en vigueur dès le 1. 1. 1996

18. 6. 1997 L ROB 97–130 (III.); L sur les constructions; en vigueur dès le 1. 1. 1998

29. 10. 1997 O ROB 97–94; en vigueur dès le 1. 1. 1998

27. 11. 2000 L ROB 01–48 (art. 53); L sur la péréquation financière et la compensation des charges (LPFC); en vigueur dès le 1. 1. 2002

25. 3. 2002 L ROB 02–68 (art. 36); L sur la chasse et la protection de la faune sauvage (LCh), en vigueur dès le 1. 5. 2003

Gérer les conséquences de l'inscription de la région Jungfrau-Aletsch-Bietschhorn au Patrimoine mondial de l'UNESCO

Objectif

Le canton gère les conséquences de l'inscription de la région Jungfrau-Aletsch-Bietschhorn dans la liste du Patrimoine mondial des biens naturels de l'UNESCO, en collaboration avec la Confédération, le canton du Valais, les régions et les communes concernées

Principes directeurs: 2 Conscients de nos responsabilités vis-à-vis de l'environnement, de la société et de la culture, nous encourageons une croissance qualitative
5 Nous misons sur les qualités de nos diversités régionales

Objectifs principaux: E Préserver et valoriser la nature et le paysage
F Reconnaître et promouvoir les atouts des régions

Intervenants		Réalisation	Etat de la coordination en général:
Canton de Berne	OACOT	<input type="checkbox"/> Mesure immédiate jusqu'en 2002	Coordination en cours
	OAGR	<input checked="" type="checkbox"/> A court terme entre 2002 et 2006	
	ODECO	<input type="checkbox"/> A moyen terme entre 2006 et 2010	
	OFOR	<input type="checkbox"/> Tâche durable	
	ONAT		
Confédération	OFEFP		
Régions	Kandertal		
	Oberland oriental		
Tiers	Organisations de protection		
	Organisme responsable régional		
	Utilisateurs		
Communes	Grindelwald		
	Guttannen		
	Innertkirchen		
	Kandersteg		
	Lauterbrunnen		
	Meiringen		
	Reichenbach im Kandertal		
	Schattenhalb		
	Autres cantons	Valais	
Responsabilité:	Organisme responsable régional		

Mesure

Elaboration et mise en œuvre d'un "plan de gestion"

Démarche

1. Constitution d'un groupe de projet intercantonal et d'un organisme responsable
 2. Définition des exigences
 3. Elaboration du plan de gestion
 4. Décision et mise en œuvre des mesures
- En parallèle délimitation précise du périmètre sur le territoire bernois, ainsi que d'éventuelles extensions

Coûts:			Financement de la part du canton de Berne
Prise en charge	100%	2'185'000 fr	Type de financement:
Canton de Berne	12%	270'000 fr	<input type="checkbox"/> A charge du compte de fonctionnement
Confédération	57%	1'243'000 fr.	<input type="checkbox"/> A charge du compte des investissements
Régions		fr.	<input checked="" type="checkbox"/> Financement spécial.
Tiers	4%	85'000 fr	Attestation de financement:
Communes	7%	160'000 fr	<input checked="" type="checkbox"/> Contenu dans le plan financier 2003 - 2005
Au res cantons	20%	427'000 fr	

Remarque: Il s'agit d'une estimation des coûts

Interdépendances/objectifs en concurrence

Etudes de base

Dossier de candidature de la Confédération

Indications pour le controlling

Indicateur, plan de gestion



KANTON BERN

Auszug aus dem Protokoll des Regierungsrates

Sitzung vom 21. Juni 1960

3804. Naturdenkmal; Naturschutzgebiet Lauterbrunnental.

Der Regierungsrat des Kantons Bern, gestützt auf Art. 83 des Einführungsgesetzes vom 28. Mai 1911 zum Schweizerischen Zivilgesetzbuch, Art. 5 des Einführungsgesetzes vom 6. Oktober 1940 zum Schweizerischen Strafgesetzbuch, die Verordnungen vom 29. März 1912 über den Schutz und die Erhaltung von Naturdenkmälern sowie vom 7. Juli 1933 über den Pflanzenschutz,

beschliesst:

I. Unterschutzstellung

1. Das hintere Lauterbrunnental im Sinn von Ziff. II hienach wird als Naturschutzgebiet erklärt, dauernd unter den Schutz des Staates gestellt und unter Nummer und Stichwort «N 100 R 39 Naturschutzgebiet Lauterbrunnental» in das Verzeichnis der Naturdenkmäler eingetragen.

II. Abgrenzung

2. Das Schutzgebiet umfasst

- a) die Alpen Unterer Steinberg, Breitlauenen, Hubel und Kriegsmad des Schweizerischen Bundes für Naturschutz, Lauterbrunnen Grundstücke Nrn. 2399, 354, 3064 und 3356;
- b) das darüber gelegene Staatsgebiet bis an die unter 3 hienach umschriebene Grenze des Schutzgebietes.

3. Das Schutzgebiet liegt innerhalb folgender Grenzlinie: Vom Tschingelhorn (3577 m) der Amtsbezirksgrenze folgend über das Mutthorn (3043 m) bis zum Tschingelpass (2824 m), von da der tiefsten Mulde des Tschingelfirns folgend bis zum Gletscher der Weissen Lütschine, dieser entlang bis unter dem Obern Steinberg, hierauf der Grenze der Grundstücke Nrn. 2399, 354, 3064 und 3356 folgend bis zum Rottalbach, diesem entlang hinauf bis zum Gletscher, dessen Südrand nach zu P. 2060 und von dort über die rote Fluh nach P. 3811,4, von diesem der Kantonsgrenze folgend über Ebnefluhjoch (3698 Meter) — Mittaghorn (3897 m) — Grosshorn (3762 m) — Breithorn (3782 m) bis zum Tschingelhorn.

4. Die Grenze ist auf einer vom 2. Mai 1960 datierten Landeskarte im Maßstab 1:50 000 eingezeichnet.

III. Schutzbestimmungen

5. Im Schutzgebiet sind verboten:

- a) jede Veränderung tatsächlicher oder rechtlicher Natur, insbesondere die Erstellung von Bauten, Anlagen und Werken aller Art;
- b) jede Beunruhigung der Tierwelt, die Störung und Wegnahme von Nestern und Gelegen sowie das Laufenlassen von Hunden;
- c) das Gewinnens von Pflanzen irgendwelcher Art, das Pflücken von Blumen, Abreißen und Knicken von Aesten;
- d) das Wegwerfen und Liegenlassen von Papier, Büchsen, Flaschen und dergleichen;
- e) das Anzünden von Feuern, das Kampieren und Aufschlagen von Zelten;
- f) der Verkehr mit Motorfahrzeugen;
- g) das Parkieren und Aufstellen von Motorfahrzeugen und Wohnwagen.

6. Für die Ausübung der Jagd und der Fischerei gelten die gesetzlichen Bestimmungen.

7. Vorbehalten bleiben

- a) die alp- und forstwirtschaftliche Nutzung im Rahmen der vom Schweizerischen Bund für Naturschutz im Kaufvertrag vom 22. Mai 1947 um das Grundstück Nr. 2399 mit Nachtrag hiezu vom 18. März 1948 sowie in der Erklärung des Vorstandes des vorgenannten Vereins vom 22. Oktober 1955 zum Kaufvertrag um die Grundstücke Nrn. 354, 3064 und 3356 vom 27. November 1954 eingegangenen Verpflichtungen.

Das Sammeln von wildwachsenden Beeren und Pilzen ist beschränkt auf die Einwohner der Gemeinde Lauterbrunnen, wobei die Verwendung des Heitisträhls untersagt ist.

- b) Ausnahmen von Ziff. 5 lit. e anlässlich der Ausführung von Hochtouren im Schutzgebiet.

8. Die Forstdirektion ist befugt, in dringenden Fällen nach Anhörung der zuständigen Organe des Schweizerischen Bundes für Naturschutz weitere Ausnahmegewilligungen zu erteilen.

IV. Aufsicht

9. Die Aufsicht über das Schutzgebiet wird durch die Forstdirektion im Einvernehmen mit dem Schweizerischen Bund für Naturschutz geordnet.

V. Allgemeine Bestimmungen

10. Die Eigentumsbeschränkungen, die sich aus Ziff. 5 hievorigen ergeben, sind auf den in Ziff. 2 hievorigen genannten Grundbuchblättern von Lauterbrunnen unter dem Stichwort «Naturschutzgebiet Lauterbrunnental N 100 R 39, RRB vom 21. Juni 1960» gebührenfrei im Grundbuch anzumerken.

11. Widerhandlungen gegen Ziff. 5 hievor werden mit Busse oder Haft bestraft.

12. Dieser Beschluss ist im Amtsblatt des Kantons Bern und im Amtsanzeiger von Interlaken zu veröffentlichen; er tritt mit dem Erscheinen im Amtsblatt in Kraft.

An die Forstdirektion und an die Staatskanzlei.

Für getreuen Protokollauszug



der Staatsschreiber:

Schneider.

4.1.1.39

Naturschutzgebiet Hinteres Lauterbrunnental

Gemeinde Lauterbrunnen

Regierungsratsbeschluss Nr. 3804 vom 21. Juni 1960

1:50'000/NSI/8.84



22. Dezember 1999

43 C

3 5 0 2 NATURSCHUTZGEBIET WENGERNALP, Gemeinde Lauterbrunnen

Der Regierungsrat des Kantons Bern, gestützt auf Artikel 3 Absatz 1 und Artikel 5 der Hochmoorverordnung vom 21. Januar 1991, Artikel 3 Absatz 1 und Artikel 5 der Flachmoorverordnung vom 7. September 1994, Artikel 13 Absatz 2 Buchstabe a des Naturschutzgesetzes vom 15. September 1992 und Artikel 7 Absatz 1 der Naturschutzverordnung vom 10. November 1993, beschliesst:

I. Unterschutzstellung

1. Das zwischen 1700 und 1890 m ü.M. gelegene Hochmoor Wengernalp südwestlich der Station Wengernalp sowie sein Umfeld und der anschliessende Wald Girmschbiel werden unter den Schutz des Staates gestellt.

II. Schutzziele

2. Das Naturschutzgebiet bezweckt
 - die Erhaltung und Regenerierung des Hochmoores mit seinen charakteristischen Lebensgemeinschaften;
 - die Erhaltung des wertvollen Lebensraumes des Birkwildes sowie der Habitate der Singvogel- und Kleinsäugerarten;
 - Sicherung der Vorkommen der moortypischen Tier- und Pflanzenarten sowie
 - die Erhaltung des Hochmoorumfeldes mit Flachmooren von nationaler Bedeutung.

III. Abgrenzung

3. Das Schutzgebiet ist auf einem Plan 1: 5'000 vom 22. September 1998 eingetragen. Dieser ist Bestandteil des Schutzbeschlusses. Das Schutzgebiet umfasst folgendes Grundstück:
Gemeinde Lauterbrunnen: Grundbuchblatt Nr. 2980 teilweise

IV. Schutzbestimmungen

4. Im ganzen Schutzgebiet sind sämtliche Veränderungen, Vorkehren und Störungen, die dem Schutzziel zuwiderlaufen, untersagt, insbesondere:
 - a) das Reiten;
 - b) das Skifahren in alpinen und nordischen Disziplinen;
 - c) das Starten und Landen von und mit Flugapparaten aller Art, inkl. Modellflugzeugen;
 - d) das Anzünden von Feuern und der Gebrauch von Kochapparaten;
 - e) das Aufstellen von Zelten, Wohnwagen und anderen Unterständen;
 - f) das Biwakieren im Freien sowie das Lagern;

- g) das Stören, Fangen, Verletzen oder Töten von Tieren sowie das Beschädigen oder Zerstören ihrer Behausungen, Unterschlüpfen, Nester und Gelege;
 - h) das unbeaufsichtigte Laufenlassen von Hunden; diese sind an der Leine zu führen;
 - i) das Aussetzen von Tieren;
 - j) das Pflücken, Ausgraben und Schädigen von Pflanzen;
 - k) das Einbringen von Pflanzen;
 - l) die Durchführung von organisierten Sport- und Freizeitveranstaltungen;
 - m) das Wegwerfen, Ablagern oder Einleiten von Abfällen, Materialien und Flüssigkeiten aller Art;
 - n) das Errichten von Bauten, Werken und Anlagen aller Art;
 - o) Eingriffe in den Wasserhaushalt;
 - p) die Verwendung von Düngern und weiteren nutzungsbedingten Hilfsstoffen;
 - q) Veränderungen des Geländes, insbesondere die Entnahme von Torf und Erde sowie die Gewinnung von Rohstoffen und
 - r) das Aufforsten;
5. In der Zone A sind zusätzlich untersagt:
- a) das Betreten und
 - b) das Beweiden sowie jegliche andere landwirtschaftliche Nutzung.
6. Das Naturschutzinspektorat kann in begründeten Fällen Ausnahmen von den Schutzbestimmungen bewilligen.
7. Keiner Ausnahmegewilligung des Naturschutzinspektorates bedürfen:
- a) Massnahmen und pflegerische Eingriffe, die dem Schutzziel entsprechen, nach Rücksprache mit dem Naturschutzinspektorat;
 - b) Benutzung einer Teilfläche der Zone A als Skipiste, begrenzt durch den Abstand von 44 m im Westen und 48 m im Osten zur Geleiseachse der Jungfraubahn;
 - c) Benutzung einer Teilfläche der Zone A als Zuschauerraum während der Lauberhornwoche, abgegrenzt gemäss Schutzplan vom 22. September 1998;
 - d) das Betreten in der Zone A für die Nachsuche und die Abgabe eines Fangschusses gemäss Jagdgesetzgebung;
 - f) die landwirtschaftliche Nutzung gemäss Bewirtschaftungsvertrag;
 - g) die forstliche Nutzung nach naturnahen waldbaulichen Gesichtspunkten und
 - h) Unterhalt und Instandstellung bestehender Anlagen und Werke bei gleichbleibender Nutzung.

V. Verschiedene Bestimmungen

8. Für die Markierung, Aufsicht und naturschützerische Pflege ist das Naturschutzinspektorat verantwortlich.
9. Ausserhalb der Zone A gelten für die Ausübung der Jagd die einschlägigen gesetzlichen Bestimmungen.
10. Zuwiderhandlungen gegen diesen Beschluss werden mit Busse oder Haft bestraft.
11. Bei Missachtung der Vorschriften dieses Beschlusses kann das Naturschutzinspektorat die Herstellung des rechtmässigen Zustandes innert angemessener Frist verfügen. Wird eine solche Anordnung nicht befolgt, so ist das Naturschutzinspektorat befugt, die notwendigen Massnahmen auf Kosten des Fehlbaren durchführen zu lassen.

12. Dieser Schutzbeschluss ist unter Angabe von RRB-Nummer und Datum ins Inventar der Naturschutzgebiete aufzunehmen.
13. Der vorliegende Schutzbeschluss ist im Amtsblatt des Kantons Bern sowie im Amtsanzeiger des Amtes Interlaken zu veröffentlichen; er tritt mit seiner Veröffentlichung im Amtsblatt in Kraft.

An die Volkswirtschaftsdirektion

Für getreuen Protokollauszug

Der Staatsschreiber

A handwritten signature in black ink, appearing to read 'K. Spige'.

4.1.1.206 Naturschutzgebiet Wengernalp, Gemeinde Lauterbrunnen

Obj. Nr. 607 Station Wengernalp des Bundesinventars der Hoch- und Übergangsmoore von nationaler Bedeutung

Datenblatt

Flächen:

Hochmoorfläche (Zone A)	2.50 ha
Flachmoor- / Weidefläche	7.90 ha
Wald und übrige Flächen	9.90 ha

Fläche Naturschutzgebiet: 20.30 ha

Charakteristik:

Das Hochmoor auf der Wengernalp ist zweigeteilt: Der westliche Teil ist ein Sattelmoor, der östliche Teil ein Hanghochmoor. Zusätzlich zum Hochmoorkern sind das trittempfindliche Umfeld, bestehend aus Feuchtgebietsflächen und angrenzendem Wald, ökologisch wertvoll.

Zustand:

Das östliche Hanghochmoor wird durch zwei Drainagegräben stark gestört. Durch die intensive Beweidung sind auf der gesamten Moorfläche Trittschäden und Torferosion festzustellen, welche den Zustand des Moores beeinträchtigen. Quer über das Hochmoor führt zudem ein Wanderweg, der die Vegetation beeinträchtigt.

Massnahmen:

Die trittempfindliche Biotopfläche muss während der Vegetationszeit (Weidezeit) abgezäunt werden. Das Naturschutzinspektorat ist dafür verantwortlich. Für den Viehtrieb und die Wanderer bleibt ein Durchgang im Bereich westlich der Doppelstange Nr. 113 offen. Während der Lauberhorn-Rennwoche kann der westliche Teil (nördlich der Abgrenzungslinie) präpariert und durch die Zuschauer benutzt werden. Dasselbe gilt für den ganzen Girmschbühl. Während der übrigen Wintersaison ist die gemeinsam ausgehandelte Pistenrandabgrenzung gemäss Protokoll vom 24.02.1997 anzubringen. Von der Geleiseachse aus gemessen betragen die Abstände im Westen 44 m bei Telefonstange Nr. 112 und im Osten 48 m bei Nr. 117). Das westlich angrenzende Waldstück wird, als Ersatzmassnahme für die Beeinträchtigungen durch die Lauberhornbeschneigung, in das Naturschutzgebiet miteinbezogen.

Lokalisierung:

Ausschnitt aus der Landeskarte 1:25'000, Blätter Nrn. 1228, 1229, 1248 und 1249, Die Zentrumskoordinaten für das Naturschutzgebiet Wengernalp sind: 638.200 / 158.200



4.1.1.206 Naturschutzgebiet "Wengernalp" Gemeinde Lauterbrunnen



Ausschnitt aus den Landeskarten 1:25'000
Blatt Nr. 1228 Lauterbrunnen
Blatt Nr. 1229 Grindelwald
Blatt Nr. 1248 Mürren
Blatt Nr. 1249 Finsteraarhorn

Zentrumskoordinaten Naturschutzgebiet Wengernalp: 638'200 / 158'200

Justiz-, Gemeinde- und
Kirchendirektion des
Kantons Bern

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3011 Bern
Telefon 031 633 73 33
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ou.ndr.agr@jgk.be.ch
www.be.ch/agr

5. Mai 2004

U/Zeichen: WEF/CUR
G/Nr. 150 04 182

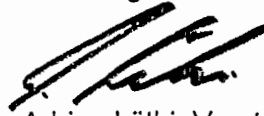
**Regionalplanung Oberland-Ost
Landschaftsentwicklungskonzept Region Oberland Ost (R-LEK)
Genehmigung gemäss Art. 61 Baugesetz (BauG)**



1. Das von der Delegiertenversammlung der Region Oberland-Ost am 19. März 2004 beschlossene Landschaftsentwicklungskonzept wird in Anwendung von Art. 61 BauG **genehmigt**.
2. Die Region Oberland-Ost wird angewiesen, diese Genehmigung gemäss Art. 110 BauV öffentlich bekanntzumachen.
3. Es werden keine Gebühren erhoben.
4. Gegen diese Verfügung kann innert 30 Tagen seit Eröffnung bei der kantonalen Justiz-, Gemeinde- und Kirchendirektion, Münstergasse 2, 3011 Bern schriftlich in zwei Doppeln und begründet Beschwerde erhoben werden (Art. 61a Abs. 1 BauG). Eine Beschwerde kann nur von der Partei, die ein schutzwürdiges eigenes Interesse an der Anfechtung hat, von ihrem gesetzlichen Vertreter oder einem bevollmächtigten Anwalt eingereicht werden.
5. Diese Verfügung wird unter Beilage des genehmigten Landschaftsentwicklungskonzepts mit normaler Post eröffnet:
 - der Region Oberland Ost (2 Ex.)
 - dem Regierungsstatthalter von Interlaken (1 Ex.)
 - dem Regierungsstatthalter von Oberhasli (1 Ex.)
 - der Bau-, Verkehrs- und Energiedirektion des Kantons Bern (1 Ex.)

Je zwei Exemplare dieser Verfügung und des genehmigten Landschaftsentwicklungskonzeptes sind für das Amtsarchiv bestimmt

Amt für Gemeinden und Raumordnung
Abteilung Orts- und Regionalplanung



Adrian Lüthi, Vorsteher-Stv.

- LANA NSI, FI, JI
- KAWA WA1
- TBA OIK I
- KDP
- AGR/BAF

3.3 Ziele und Massnahmen

3.3.1 Schöne Landschaften, wertvolle Lebensräume

Fortsetzung der Umsetzung des Regionalen Richtplans 1984, Ziel:

Besonders schöne Landschaften, insbesondere die heute noch unverbauten Gebiete und die traditionellen Kulturlandschaften, ebenso die besonders wertvollen Lebensräume für Pflanzen und Tiere sollen erhalten und vor direkten und indirekten schädigenden Einflüssen verschont werden. Zu den besonders wertvollen Lebensräumen gehören auch viele Flächen und Objekte, die nicht in entsprechenden Inventaren von Bund und Kanton festgehalten sind, wie zum Beispiel Hecken, Feldgehölz und Ufervegetation.

Massnahmen:

- Die Regionalplanung Oberland-Ost hält an den im Regionalen Richtplan 1984 bezeichneten Landschaftsschutzgebieten, Landschaftschongebieten und Naturobjekten sowie den dazugehörigen Vorschriften fest. Die Regionalplanung Oberland-Ost kennt und anerkennt zudem die Landschafts- und Naturschutzinventare des Bundes und des Kantons (unter anderem Landschaften und Naturdenkmäler BLN, Auengebiete, Moorlandschaften, Moorbiotope, historische Verkehrswege, kantonale Naturschutzgebiete, Feuchtgebiete und Trockenstandorte).
- Die Regionalplanung Oberland-Ost empfiehlt den Gemeinden, diese Gebiete und Objekte in ihren Ortsplanungen (Landschaftsplanungen) umzusetzen (vgl. Kapitel 5).
- Die Regionalplanung Oberland-Ost berät die Gemeinden auf deren Wunsch bei diesen Aufgaben.

Erhaltung von störungsarmen Gebieten, Ziel:

Möglichst grosse und zusammenhängende Gebiete sollen störungsfrei oder störungsarm sein und sich dadurch als wertvolle Lebensräume für Wildtiere eignen, aber auch als Orte für die stille Erholung der lokalen Bevölkerung und der Gäste auszeichnen.

Massnahmen:

- Die Regionalplanung Oberland-Ost empfiehlt den Gemeinden, das Strassen- und Wegnetz im Hinblick auf die Erhaltung von störungsfreien und störungsarmen Gebieten zu überprüfen und die Benutzung der Anlagen zweckmässig zu regeln.
- Die Regionalplanung Oberland-Ost empfiehlt den Tourismusorganisationen und den Betreibern von touristischen Transportanlagen, ihre Wege, Pisten und Einrichtungen im Hinblick auf die Erhaltung von störungsfreien und störungsarmen Gebieten zu überprüfen und die Benutzung der Anlagen mit Rücksicht auf die Natur zweckmässig zu regeln.

Aufhebung von Wanderhindernissen für Wildtiere, Ziel:

Wildtiere sollen sich in der Region Oberland-Ost ungehindert bewegen können. Insbesondere das Wechseln von den Sommer- zu den Winteraufenthaltsgebieten und zurück soll überall möglich sein.

Massnahme:

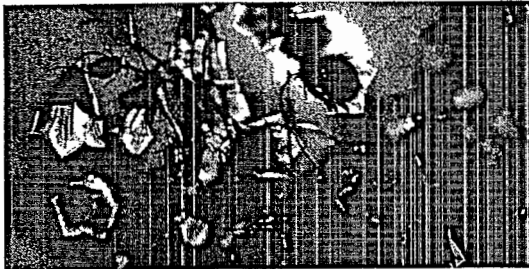
Die Regionalplanung Oberland-Ost unterstützt die Sanierung der beiden aus grossräumiger Sicht bekannten Probleme in den Gebieten Lutscheren (Gemeinden Därligen, Interlaken und Matten) und im unteren Haslital (Gemeinden Brienz und Hofstetten), indem sie an der Ausarbeitung der entsprechenden kantonalen Projekte beratend und koordinierend mitwirkt (vgl. Kapitel 4.4).

Schaffung von Landschaftspärken, Ziel:

In der Region Oberland-Ost sollen 1 bis 2 Landschaftspärke bezeichnet werden, vorzugsweise rund um Gadmen und im Gebiet Beatenberg-Habkern (inkl. angrenzende Gemeinden der Region Thun-Innertport).

Massnahme:

Die Regionalplanung Oberland-Ost unterstützt die Schaffung von Landschaftspärken, indem sie bei der Gründung von entsprechenden Trägerschaften beratend und koordinierend mitwirkt, sowie die erforderlichen Verfahrensschritte in Zusammenarbeit mit den zuständigen Behörden durchführen hilft (vgl. Kapitel 4.5).



„In der Region Oberland-Ost gibt es eine Fülle von besonders schönen Landschaften und wertvollen Lebensräume für Pflanzen und Tiere.“

3.3.2 Finanzierung

Schaffung eines regionalen Landschaftsfonds, Ziel:

Die Gemeinden und die Tourismusorganisationen sollen sich an den Kosten für die Landschaftspflege und die Landschaftsentwicklung im Sinne des R-LEKs beteiligen.

Massnahme:

Die Regionalplanung Oberland-Ost gründet und unterhält einen regionalen Landschaftsfonds mit einem entsprechenden Fonds-Reglement (vgl. Anhang 2).

bezeichnet und richtet Bewirtschaftungsbeiträge für die sachgerechte Bewirtschaftung dieser ökologisch bedeutenden Flächen im Kulturland aus. Viele dieser inventarisierten und zu schützenden Gebiete sind deckungsgleich mit den im Regionalen Richtplan 1984 enthaltenen Schon- und Schutzgebieten. Auch das kantonale Gesetz über See- und Flussufer hat zur Folge gehabt, dass verschiedene Schon- und Schutzgebiete des Regionalen Richtplans 1984 in den an die Seeufer angrenzenden Gemeinden allgemein verbindlich geschützt worden sind.

Die Behauptung ist zweifellos richtig, dass die im regionalen Richtplan bezeichneten Landschafts- schütz- und Schongebiete unter den gleichen Voraussetzungen wieder an den gleichen Orten und in sehr ähnlichem Umfang bezeichnet würden. Damit wird auch gesagt, dass die besonderen landschaftlichen und natürlichen Werte dieser Gebiete bis heute erhalten geblieben sind. Wenn in der Zwischenzeit einzelne an den Standort gebundene Bauten und Anlagen auch in Schon- oder gar Schutzgebieten errichtet worden sind, dann sind es Ausnahmen, welche die Regel bestätigen.

Das kantonale Bau- und das kantonale Naturschutzgesetz legen u.a fest, welche Aufgaben die Gemeinden in der Orts- bzw. Landschaftsplanung zu erfüllen haben. Die nachfolgende Tabelle zeigt, ob, und wenn ja, wie die 29 Gemeinden der Region Oberland-Ost ihre Aufgaben gemäss den Aufträgen im kantonalen Bau- und im kantonalen Naturschutzgesetz erfüllt haben.

Gemeinde	Landschaftsplanung (Stand Dezember 2003)	Beurteilung
Beatenberg	Zonenplan Landschaft vom 26.9.1995	B, D
Bönigen	Richtplan Landschaft vom 1.8.1985, Schutzzonenplan Siedlung vom 24.7.2002	B
Brenz	Schutzgebietsplan vom 3.7.1997	B
Brienzwiler	Plan erhaltenswerte Kultur- und Naturobjekte vom 8.7.1993	B
Darligen	Richtplan Landschaftsentwicklung vom 23.7.1999	B
Gadmen		C
Grindelwald		D
Gsteigwiler	Schutzzonenplan vom 22.5.1995	A
Gündlischwand	Schutzzonenplan vom 20.6.1985; Zonenplan vom 14.4.2003	B
Guttannen		C
Habkern	Teilzonenplan Landschaft vom 4.9.2003	A
Hasliberg	Teilplanung oberer Hasliberg vom 14.5.1987	B
Hofstetten	Zonenplan Siedlung und Zonenplan Landschaft vom 20.1.1997	A
Innertkirchen	Zonenplan Alpgebiet und Zonenplan Baugebiet vom 27.8.2002	A
Interlaken	Landschaftsrichtplan vom 9.5.1997	B

Iseltwald	Zonenplan Siedlung und Landschaft vom 18.9.2000 mit Richtplaninhalten	A
Lauterbrunnen		C
Leissigen		C
Lütschental		C
Matten	Richtplan Besiedlung und Landschaft vom 24.2.1983	B
Meiringen		C
Niederried		C
Oberried		C
Ringgenberg		C
Saxeten		C
Schattenhalb		C
Schwanden	Zonenplan Baugebiet und Zonenplan Landschaft vom 2.10.2000 mit Richtplaninhalten	A
Unterseen	Zonenplan Teil Landschaft vom 20.3.2001	A
Wilderswil		C

- A = Die Gemeinde verfügt über eine Landschaftsplanung, welche den Anforderungen des Bau- und Naturschutzgesetzes entspricht.
- B = Die Gemeinde verfügt über eine Landschaftsplanung, in welcher wichtige Themen (z.B. Schutz der BLN-Gebiete, Landschaftsschutzgebiete, Erhaltung der schutzwürdigen Objekte von lokaler Bedeutung) nicht oder nicht entsprechend den gesetzlichen Anforderungen behandelt sind.
- C = Die Gemeinde verfügt über keine Landschaftsplanung.
- D = Die Landschaftsplanung ist zur Zeit in Arbeit oder im Genehmigungsverfahren

Majoration	Formule	Valeur auxiliaire	Indications du requérant	Restrictions
m ₄ majoration pour la couverture de la demande de puissance de pointe en été	$m_4 = \frac{2400 - a}{4500}$	a heures d'exploitation virtuelles en été $a = \frac{E * 1000}{A}$	E production moyenne escomptée pendant 1 ^{er} semestre d'été (en millions de kWh) A puissance maximale installée aux bornes de l'alternateur (en MW)	m ₄ = 0,4 si a inférieur ou égal à 600 h. m ₄ = 0 si a supérieur ou égal à 2400 h
m ₄ est utilisé quand m ₂ est supérieur à 0, c-à-d si l'aménagement dispose d'un réservoir à courte durée d'accumulation				

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Supplement 12

The contributions of world natural heritage sites to sustainable regional development – two case studies from the north and the south

Scientific publication in the Journal of alpine research, September 2004 (Urs Wiesmann, Karina Liechti)

Mélanges 2004

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The Contributions of World Natural Heritage Sites to Sustainable Regional Development - Two Case Studies from the North and the South

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Abstract: The Jungfrau-Aletsch-Bietschhorn and Mount Kenya World Natural Heritage Sites differ in terms of the economic, socio-cultural and ecological dynamics of their surrounding regions. In the case of the Grindelwald region, the cultural landscape is more endangered than the protected natural landscape of the World Heritage Site, whereas in the case of the highland-lowland system of Mt. Kenya, the pressure on the high-potential resources of the World Heritage Site is great and protection can only be carried out if conflicts are taken into account. The contribution of World Natural Heritage Sites to sustainable regional development.

Keywords: World Natural Heritage Sites, protected areas, Swiss Alps, Mt. Kenya region, sustainable development, regional development.

The present paper examines the question of the extent to which protected areas – and in particular World Natural Heritage Sites – enhance sustainable development in mountain regions. The focus is on a comparative assessment of the effects of protected areas of global significance on regional development in the North and the South, particularly in the Alps and the tropical mountains of Africa.

The 'Convention Concerning the Protection of the World Cultural and Natural Heritage' was approved during the 17th session of UNESCO in 1972. It provided the basis for establishing World Cultural and Natural Heritage Sites and defined criteria for their selection. For Natural Heritage Sites, four main criteria were defined relating to unique natural features, natural history, biological diversity, and natural beauty (UNESCO, 1972). A site can be labelled a World Natural Heritage Site if it scores an outstanding universal value for at least one of the four criteria. To date, 172 sites have

been approved as World Natural Heritage within the Convention, 23 of which were selected at the same time on the basis of their high cultural values. The number of World Natural Heritage Sites is low compared to a total of 582 World Cultural Heritage Sites or to the estimated 100,000 protected areas worldwide (WHC, 2003) and underscores the global importance of these sites. Against this background, World Natural Heritage deserves special attention in terms of sustainable development in its global dimensions and universal concerns. If it is further considered that about one third of these sites are located in mountain areas, it is relevant to focus on the concrete contributions of these sites to sustainable mountain development.

The starting point of the present study is the twofold significance of World Natural Heritage Sites. On the one hand, they are established to preserve phenomena of nature that are extraordinary and unique at a global scale. On the other hand, they are always localised and hence related to and significant for specific regional contexts. Preserving global values is therefore dependent on local development, local action, and local actors. By investigating two typical examples from the North and the South, we ask whether regional and local circumstances promote or hinder preservation of global values. This in turn depends greatly on the relation between protected areas and the surrounding regions with their functions as areas of human settlement, economy, recreation, etc. – and hence on the degree of sustainable development.

Approach and methodology

The question of the impacts of large protected areas on the degree of sustainability of development in related regions is usually addressed by trying to estimate the effects of protection in ecological, economic, and sociocultural terms. Well-elaborated examples of such assessments can be found in Hammer (2003). However, this approach has the disadvantage of not taking into account the dynamics of the concerned region that might be more or less independent of the related protected area. This study therefore applies a different approach by first investigating the problems, options, and related dynamics of sustainable regional development and only then establishing the contributions of protected areas to these dynamics and their direction.

The approach is based on a concept of sustainable development that relates the dynamics within a man and environment system to the normative aspects and dimensions of sustainability. Figure 1 illustrates this concept and shows the three major dimensions commonly used to define sustainable development. As these are normative dimensions, it can be argued that sustainability is principally bound to concrete socio-political contexts where negotiation of respective values can take place. Concrete sustainability is not only bound to contexts but is also exposed to and dependent on global dynamics and additionally, represents a specific and innovative response to these dynamics (Wiesmann, 1998). These basic considerations imply an approach that includes explicit valuation according to concrete normative dimensions relevant to the specific context as well as the assessment of regional dynamics.

Such an approach not only requires interdisciplinarity; it is also transdisciplinary in the sense of relating research to stakeholder negotiations with a view to addressing the normative dimensions of sustainable regional development (Hurni *et al.* 2004). For a comparative assessment of the contributions of World Natural Heritage Sites to sustainable regional development in the North and the South, the present paper builds on two long-term regional studies that applied an inter- and transdisciplinary approach.

The first study was part of the Man and Biosphere (MAB) programme of UNESCO that focused on the alpine region of Grindelwald in the Bernese Oberland, Switzerland. Integrative studies on regional development were complemented by a long-term transfer and communication process with the local community (Messerli, 1989; Wiesmann, 1986 and 2001). The region of Grindelwald is related to the Jungfrau-Aletsch-Bietschhorn (JAB) region, which was established in 2001 as the first World Natural Heritage Site in the Alps. The second long-term study built upon research, partnerships between Switzerland and Kenya and dealt with problems of sustainable development in the highland-lowland system of Mount Kenya. Integrative studies were directly linked with a multitude of concrete and participatory development projects in the region, which also touched the higher reaches of Mt. Kenya – a UNESCO biosphere reserve since 1978 and a World Natural Heritage Site since 1997 (Ojany, 1998; Wiesmann, 1998; Wiesmann *et al.* 2000). Both these long-term projects were meanwhile incorporated as 'Joint Areas of Case Studies' (JACS) into the Swiss NCCR North-South, a global research network dealing with mitigating syndromes of global change (Hurni *et al.* 2004).

Sustainable development in the region of Grindelwald

The valley of Grindelwald has a broad range of ecological zones and ecotopes typical of the Northern Alps, forming a manifold and unique landscape. Already in the early stages of alpine tourism Grindelwald was discovered as a key site in which traditional cultural landscape provided a rich contrast to the wilderness of the high mountains and glaciers (figure 2). In the past 200 years the various stages of tourism have thus dominated the history of the valley and have interacted with its people and their traditional mountain agriculture (Wiesmann, 1988). As a result of this history, Grindelwald is dominated by two main sectors that also define land use and environmental impact: mountain agriculture and forestry on the one hand, and tourism on the other hand.

As outlined above, assessing the effects of these sectors with a view to sustainability first requires valuation with respect to concrete normative dimensions, e.g. representing values of nature. It has been proposed that values of nature encompass at least four dimensions (Wiesmann, 1995):

- production-oriented values such as the productivity of soils;
- physiologically oriented values such as the quality of water or the degree of natural hazards;
- socio-cultural values such as the aesthetics of the landscape or the significance of an object as a representation of natural history;
- intrinsic values that are attributed to biological aspects on the basis of ethical considerations.

An integrated valuation reveals that tourism in Grindelwald may be reflected negative in the above four dimensions of valuation, but that these impacts are spatially limited (Messerli *et al.* 1986). Mountain agriculture, however, clearly increases the values in four dimensions, as compared to a potential natural situation without human impact through the century-long adaptation of agriculture to the alpine environment. Values of nature are therefore closely linked to cultural landscapes (Bätzing, 2003).

This environmental balance is contrasted with an economy in which tourism is absolutely dominant: Whereas agriculture and forestry account for only 3% of the local economy of Grindelwald, tourism directly and indirectly contributes 92% (Wiesmann 1986 and 2001). This imbalance in economic terms raises the question of how mountain agriculture can survive and even maintain its important environment functions.

In the case of Grindelwald it can be shown that the touristic labour market plays a major role in supporting a relatively large number of farms on a part-time basis. The motivation for many local actors to remain partly active in agriculture and to contribute to the maintenance of the cultural landscapes is the high social prestige of agriculture within the local community. This prestige is based on the need for local identity in a region that is being confronted with mass tourism and related urban values (Wiesmann 1986).

In sum, Grindelwald has reached an indigenously dominated balance between agriculture and tourism, indicating a high degree of sustainability in its development. Tourism plays the dominant role in the economic dimension, whereas agriculture plays a key role in sociocultural and environmental terms.

The positive balance that can be drawn in relation to the criteria for sustainable development in Grindelwald is, however, endangered by built-in socio-economic structures that require continuous growth and promote the qualitative decline of demand in the tourist sector. The key elements of these endangering socio-economic structures are the construction sector and the transport sector, which dominate the indigenous labour market and in particular the labour market for part-time farms (Wiesmann, 1986; Messerli, 1989).

Grindelwald thus faces a delicate situation regarding sustainable development. Due to its locally controlled interlinks between mountain agriculture and tourism, it exhibits a positive balance with relation to the dimensions of sustainability that is, however, maintained at the expense of future options for sustainable development. Dealing with this situation requires a locally based approach of revising endangering socio-economic structures without destroying the positive interlinks between agriculture and tourism. Such an approach has been successfully developed and implemented in Grindelwald in a long process that could be termed the first local agenda 21 in the Alps (Wiesmann, 2001).

Contributions of the JAB Natural Heritage Site to regional development

The World Natural Heritage Site 'Jungfrau - Aletsch - Bietschhorn' (JAB) was established in 2001. It covers high alpine zones in the Bernese and Valaisian Alps, with their impressive peaks and fascinating world of glaciers (Verein UNESCO-Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, 2002). Part of the perimeter of the JAB extends into the community of Grindelwald. This makes it possible to test whether this World Heritage Site can contribute to the challenges of sustainable regional development outlined above.

Contributions to sustainable regional development can be identified mainly at three levels. First, at the level of spatial organisation, where preservation of the values of nature is maintained and enhanced. However, it must be noted that the World Heritage Site mainly relates to the high alpine natural landscapes and barely touches the cultural landscapes that can be considered the most endangered parts of the environmental dimension of sustainable regional development in this region.

A second contribution relates to maintaining options for future development. Most important here is to make sure that the continuously changing images and views of environmental relationships are accommodated by maintaining those parts of the landscape that have not been functionalised. The long history of tourism in Grindelwald clearly underlines the importance of being able to accommodate new views and valuations of nature.

The third level relates to socio-economic structures and developments. It can be expected that the World Heritage Site will contribute to the touristic attractiveness of the region and support those segments of tourism that particularly build on the values of nature. However, it cannot be expected that the JAB will contribute to solving the most critical sustainability problems that are – as outlined above – related to socio-economic structures and dynamics.

In sum, one can state that the JAB is increasing touristic attractiveness and maintaining values and development options for natural landscapes. However, the World Natural Heritage Site can hardly contribute to solving the most critical problems of sustainable regional development that relate, on the one hand, to cultural landscapes and, on the other hand, to socio-economic structures. The JAB can therefore be considered a supplement but not a key to sustainable regional development.

Sustainable development in the highland-lowland system of Mt. Kenya

The second case study on sustainable regional development was in the highland-lowland system stretching from Mount Kenya to the northwest. Ecologically the region is characterised by steep gradients that stretch from the nival zone in the peak region through the alpine moorlands and the mountain rainforest to semi-humid, semi-arid and arid zones in the conjunct high plateau and lowlands (Liniger et al, 1998).

In the last century and more so in the past 40 years, this highland-lowland system has undergone tremendous land use changes and socio-economic dynamics (Kiteme et al, 1998). The region was originally utilised as part of the pastoralist system of the Massai and Samburu. With the rise of colonialism in the early 20th century, most of the high plateau was incorporated into the so-called 'white highlands' and subsequently settled by white settlers who established large-scale farming and ranching. With independence in 1964, subdivision of former large-scale farms commenced, leading to high rates of immigration of marginalised agro-pastoral smallholders from the high-potential but overpopulated areas of Kenya and resulting in rapid population growth. While this trend continued, large-scale farms in the footzone of the mountain were transformed into large horticulture enterprises with an international orientation.

These fast and drastic changes led to a range of sustainability problems in the region, the most important arising in relation to over-utilisation of water resources originating from the mountain. Pressure on water resources, in particular by horticulturalists and agro-pastoral smallholders, led to a significant decline of river runoff during the dry season, thus converting the Ewaso Ng'iro River from a perennial to a non-perennial water source for downstream populations and ecosystems. The loss of this vital resource increasingly led to conflicts between upstream and downstream populations that turned violent on several occasions, e.g. in 1999/2000, when a particularly dry season coincided with critical political processes in relation to the preparations for the 2002 national elections.

In sum, the key problem of sustainable development in the region relates to sharing vital natural resources and resolving conflicts within the highland-lowland system and among the broad range of stakeholders. It has been shown (Kiteme et al, 1998; Wiesmann 1998; Wiesmann et al, 2000) that endogenously and regionally driven solutions to these sustainability problems will most probably not materialise, nor is it easy to promote them. The reason is that not only all stakeholders but also the major resource-related decision-making processes at local, regional and national levels do not contribute to solutions but to an increase in these specific sustainability problems. This implies that strategies must be found that combine activities and interventions at various levels and in terms of technical, communication and planning support to enhance non-river based water supply and reduce river based water demand (Kiteme et al, 1998; Wiesmann et al, 2000). In recent years major portions of such a strategy of sustainable regional development have been implemented in the region (Kiteme & Gikonyo, 2002).

Contributions of the Mt. Kenya Natural Heritage Site to regional development

Based on the former UNESCO biosphere reserve, Mt. Kenya was declared a World Natural Heritage Site in 1997. The site incorporates the national park above the timberline as well as the forest belt that reaches into the footzone of the mountain (figure 3). The contribution of the Mount Kenya Natural Heritage Site to more sustainable regional development can again be distinguished at three levels:

First, the site assists in preventing pressure by growing populations on the resources of

the mountain. As mountains in the tropics tend to be resource-rich islands in marginal surroundings, these pressures are great, resulting in conflicts between the basic needs of marginalized people, the interests of national and international markets, and the goals of nature preservation.

Secondly, the World Natural Heritage Site also contributes to economic prosperity, in particular by attracting international attention and tourism. However, this is more of a theoretical contribution, as up to 90% of the gains from international tourism are immediately redirected towards national and international centres and elites. In other words, the loss of natural resources potentially available to the population through conservation is far from compensated by the income generated by this conservation.

At the third level one could expect a contribution to more sustainable regional development from the World Heritage Site in the sense of promoting negotiations and conflict resolution processes in relation to sharing and conserving natural resources. In other words, empowerment processes related to the World Heritage could also enhance capacities and capabilities to resolve resource conflicts that go beyond the site itself, e.g. the above-mentioned water related conflicts. However, it must be noted that this empowerment-related potential contribution has not taken off. One reason might be the fact that the idea of World Heritage is a concept originating in the North and shared only by elites in this case study from the South, not by the local communities.

Five thesis on the contributions of World Natural Heritage Sites to sustainable mountain development in the North and the South

Analyses of the two case studies of regional mountain development and the potential contribution of related World Natural Heritage Sites to more sustainable development suggest some general conclusions. As these conclusions are mainly based on the two in-depth case studies of Grindelwald and Mt. Kenya, they are formulated here as theses that require further evaluation in other contexts. They are organised in accordance with the main dimensions of sustainable development and with the aim of promoting debate, as well as encouraging comparative research involving further sites.

Thesis 1: the core functions of World Natural Heritage Sites

In the North, protection concentrates on regions in the periphery where processes of social, economic and spatial exodus are taking place. Here the function of World Heritage Natural Sites is mainly to increase attractiveness and to counter-balance processes of peripherisation.

In the South, mountain protection concentrates on resource-rich islands in marginalized surroundings where pressure on natural resources is high. Here the function of World Heritage Natural Sites is mainly to ease and control this pressure, hence the function of hindering use seems to be dominant.

Thesis 2: the ecological contribution of World Natural Heritage Sites to sustainable region development

In the North, due to the effects of globalisation on traditional agriculture, it is the cultural landscape that is mainly in danger. Protection by World Natural Heritage Site however, seems to concentrate on less endangered natural landscapes in the periphery mountains.

In the South, natural landscapes in mountains are endangered because they are rich in natural resources needed by marginalized populations and developing economic Protection by World Natural Heritage Sites is therefore carried out on the basis of conflicts over these resources and might even exacerbate these conflicts.

Thesis 3: the economic contribution of World Natural Heritage Sites to sustainable region development

In the North, World Natural Heritage Sites are bound to local and often exaggerated expectations relating to increased attractiveness and respective touristic demand. Exploitation of these potentials is not a question of management of the protected area but an issue of regional development in a broader sense.

In the South, protection by World Natural Heritage Sites is bound to potential losses in primary production for the concerned populations and stakeholders. Furthermore, the losses are compensated only to a very limited degree by gains through tourism and international aid.

Thesis 4: the socio-cultural contribution of World Natural Heritage Sites to sustainable region development

In the North, the contribution to sustainable development is probably greatest in social cultural terms, as World Natural Heritage Sites provide a basis for renewed region identity and related socio-political processes of endogenously driven development.

In the South, World Natural Heritage Sites could principally provide a platform for negotiation and empowerment. However, concrete implementation of these sites do not normally reveal this potential and strongly conflicts with local cultures, economic livelihoods.

Thesis 5: the overall contribution of World Natural Heritage Sites to sustainable region development

In the North, World Natural Heritage Sites can contribute at various levels and in various dimensions to more sustainable regional development. These contributions are limited however, and only applicable as a part of integrated regional development strategies.

In the South, the potential contributions of World Natural Heritage Sites to sustainable regional development are largely limited to their protection function – and thus the exclusion function.

This last thesis implies that the South is disadvantaged in a double sense: The 'losses' caused by World Natural Heritage are greater and the respective 'gains' lower than in the North. Against this background, and taking into account that 'World Heritage' implies a global responsibility, World Natural Heritage needs to be re-interpreted as a call for increased solidarity and support from the North to the South. Only if the particular disadvantages faced by countries in the South are taken into account in conservation approaches can the idea of World Heritage significantly contribute to sustainable development at a global scale.

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Activities and Resources – Management Plan for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site

Supplementary Document to the
Management Strategy

Jungfrau-Aletsch-Bietschhorn
World Heritage Association

Naters and Interlaken, Switzerland
22 February 2007



UNESCO WELTERBE
Jungfrau-Aletsch-Bietschhorn

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Introduction

The project for implementation of the Jungfrau-Aletsch-Bietschhorn UNESCO World Natural Heritage Site is a model of intercantonal and intercommunal cooperation. The greatest challenge facing all parties involved is to acknowledge the common heritage and promote common objectives aimed at sustainable development. The World Heritage inscription can only exploit its long-term potential fully if the World Heritage idea is supported by the region as a whole rather than being associated only with UNESCO or the Association. Commitment to a sustainable JAB World Heritage along with the requisite attitude and willingness to act accordingly represents a long-term opportunity.

Between 3 and 6 September 2006, two experts from the IUCN (The World Conservation Union) visited the expansion area of the Jungfrau-Aletsch-Bietschhorn World Heritage Site on behalf of the UNESCO World Heritage Committee. At present the World Heritage Site covers an area of 53,900 hectares, plus an additional 28,500 for the expansion. The criteria for which the existing region was nominated are also entirely valid for the expanded region: exceptional natural beauty, outstanding model of alpine formation, and rich diversity of natural occurrences and processes. The aim is to extend the region in the East up to the Grimsel and towards the Engelhörner. To the West, the expansion will incorporate the Blüemlisalp and Doldenhorn group as well as the Lötschental valley edge. After expansion, the World Heritage Site will virtually cover the two objects in the BLN (Federal Inventory of Landscapes and Natural Monuments of National Importance).

During their evaluation, the IUCN experts showed a highly favourable attitude towards the proposal to expand the JAB World Heritage Site area. On 4 October 2006, David Sheppard of the IUCN submitted a statement of position with recommendations to the Federal Office of the Environment, in which the following four points were emphasised (Summary):

1. **Name:**

While the name of the existing World Heritage property is appropriate, the proposed extension adds a considerable area, so that many of the surrounding communes have little affinity to the three names in the name of the current site. Following considerable discussion during the mission, it is therefore suggested that a more appropriate name for the extended site should be identified by the State Party (e.g., Swiss Alps Natural World Heritage).

2. **Legal Status:**

The majority of the extended site is protected within two sites of the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN) and / or other national or cantonal legal instruments. With regard to the three relatively small areas which are not within the boundaries of these protected areas, it is concluded that these areas are adequately protected, so that the proposed boundaries of the extended site are appropriate. However, it would be desirable if these areas could be considered for inclusion in the BLN during the ongoing process of review and revision

3. **Management plan:**

The institutional structure developed for the management of the area is appropriate given the institutional complexity, and the participatory process which led to the current management plan has been exemplary. However, this document is not an effective plan for the management of the extended site for three reasons:

1) Although the document outlines a very large number of highly desirable actions, it does not state how they will be achieved. It could be described as a management strategy.

2) It does not remain in any great detail – it at all – to many actions already being undertaken in the area which contribute to the maintenance of the values for which the site has been inscribed.

3) It does not adequately differentiate between actions which are of direct relevance to the maintenance of these values, those which indirectly contribute to the maintenance of these values, and those which are desirable but more generally of relevance for the sustainable development of the region surrounding the site.

It is therefore recommended that the existing “management plan” should be regarded as a “management strategy” and that a new management plan should be prepared.

4. **Funding:**

At present, core funding for the staff of the Management Center does not appear to be guaranteed beyond the end of 2006. The 150,000 CHF per year from the members of the Association appear secure, as is 75,000 CHF per year from the Canton of Bern until 2011/12. It is understood that both of these sources of funding are unrestricted. The 75,000 CHF anticipated from the canton of Wallis appears relatively secure, but has to be approved each year by the Cantonal parliament. Most critical, beyond the end of 2006, financial support from the agencies of the Confederation does not appear secure; it is understood that support from 2007 onwards will principally be directed to funding projects.

Consequently, it is recommended that a commitment should be sought from the State Party that adequate resources will be provided to ensure the implementation of essential measures and core activities of the Management Center into the foreseeable future.

The Management Plan submitted by the Association to the UNESCO World Heritage Committee on 1 December 2005 is to be renamed the *Management Strategy*. This document – respectively *the Management Plan* – contains the explanations and amendments made by the IUCN to the Management Strategy (*see Management Plan dated 1 Dec. 2005*) in accordance with the above four elements. Firstly the 1) Name and 2) Legal Status are briefly outlined. The following two aspects related to 3) are then discussed: Summary of all current and planned activities within the World Heritage perimeter aimed at protection and use, as well as the activity programme from 2006, listing the activities defined and designed by the core groups for implementation. The activity programme from 2006 supplements *Annex 2* to the original Management Plan, which contains exemplary passages from the project definitions elaborated by the core groups. Under 4), financing for 2006/2007 is used as an example, and reference is made in *Annex 6* to communications from the cantons and the federal government.

For ease of reading the term Jungfrau-Aletsch-Bietschhorn is sometimes referred to in the text by the abbreviation JAB. Accordingly, JAB Region or World Heritage Region refer to the entire territory of the 26 associated communes. Inside the perimeter of the WHS and the World Heritage Site refers only to the area inscribed by the UNESCO Committee as a World Heritage Site in December 2001, including the extensions decided on at the end of 2004, but excluding the territory of the associated communes outside the WHS perimeter.

1 Name

The IUCN recommended a review of the name given to the Jungfrau-Aletsch-Bietschhorn World Heritage Site, since some groups of actors – in particular those in the eastern and western expansion area in the Bernese Oberland – find it difficult to identify with the existing name. The IUCN suggested "Swiss Alps Natural World Heritage". At a joint meeting, the cantons of Berne and Valais as well as the Federal Office of the Environment then decided that this issue should first be deliberated on by the UNESCO World Heritage Association.

Even at the candidature stage, the search for an appropriate name for the World Heritage Site was the subject of heated discussions between the regions. The current designation, "Jungfrau-Aletsch-Bietschhorn", is the result of a political compromise.

The UNESCO World Heritage Association has decided to review the name and has set up a working group to perform this task.

The new name must be clearly derived from the original name and offer all affected parties a better solution. In this process, it is important to take into consideration the funds already invested by the Association in the logo, corporate design and CD manual.



In addition to the process of finding a new name, the Association is undergoing structural change. Plans for the Association's transition to a Foundation are at an advanced stage. One of the reasons behind this move is that foundations are better able to canvas Switzerland's sponsorship and fund-raising markets. Another is increased efficiency thanks to a lean structure and rapid decision-making procedures. Likewise, a foundation and board of trustees carry greater weight and hence are more effective at lobbying on a national and international scale. Plans call for a development association to be founded in order to involve the general public.

If the Association comes up with a new name – one which is also supported by the federal government and cantons – the dossier containing the proposal in accordance with Paragraph 167 of the Operational Guidelines, will be submitted to the UNESCO World Heritage Committee.

2 Legal Status

One of the central aims of the Management Strategy is to preserve the World Natural Heritage as outlined by the UNESCO inscription criteria. With a view to identifying the relevant need for action, the protection status of the World Heritage Region and, in particular, the area within the perimeter of the WHS, was determined. 94.4% of the World Heritage Region's surface area is protected by the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN Object 1507/1706). Moreover, 41% of the surface area is accorded additional overriding protection status in terms of biotopes of national importance, cantonal and communal natural reserves, federal hunting reserves, etc. Of the 5.6% of the surface not under BLN protection, a further 2% is protected by other measures. This situation means that protection in the legal sense of the term is sufficient to preserve the World Heritage (in total, 96.4% of the surface area is accorded at least one protection status). However, a need for action exists in terms of implementing and controlling the various existing protective regulations (see also Section 3.1 in this dossier).

As mentioned above, the area covered by the World Heritage Region including the expansion area is virtually identical with that covered by the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN). In a multi-year process, the Federal Office of the Environment is currently evaluating existing conservation impacts and goals related to the objects in this inventory, and aims to expand these objects on the basis of new findings and refine them by means of specific goals and measures.

Regions in the World Heritage perimeter which are not yet covered by the BLN are already enjoying virtually the same level of protection as regions listed in the BLN, due to their proximity to the BLN and their topographical characteristics. Two of the regions on the Bernese side are also protected by other measures (cantonal nature reserve and federal hunting reserve).

Even if, for the reasons cited above, the areas not currently covered are not at any real risk of being affected, alignment of the BLN areas with the World Heritage perimeter has already been discussed during the World Heritage expansion phase. The cantons of Berne and Valais decided to wait until the findings of the evaluation and review of both relevant BLN areas had been issued before submitting any proposal to this effect to the federal government.

Accordingly, at present there is no need for action in this regard on the part of the UNESCO World Heritage Association. It is the responsibility of the cantons to draw boundaries and enforce the BLN.

3 Management Plan for the World Heritage Site

The following section provides more details on which activities and measures for protection and use are being carried out or planned within the perimeter, as well as where and by whom. In this context, please refer to the full list in *Annex 1 (German): Activities and measures for protection and use within the perimeter (government departments, communes and organisations)*.

This section also sets forth the measures and activity lines for implementation by the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site Association in the short term (Activity Programme 2006 / 2007) and over the long term (from 2008). See Annexes 2 and 3: "*Activity Programmes*".

This gives a clear idea of how the values for which the region has been cited can be preserved and further enhanced over the long term.

Management Strategy dated 1 December 2005

The original Management Plan submitted to the UNESCO World Heritage Committee on 1 December 2005 is to be renamed the *Management Strategy*. Accordingly, this document constitutes an Annex to the Management Strategy and represents the actual Management Plan for the region.

The Management Strategy is based on six overall goals which are primarily aimed at the area within the perimeter of the WHS but are applicable throughout the World Heritage Region as appropriate. The first three support the aim of preserving the integrity of the diversity and uniqueness of the natural and cultural landscapes, the natural and near-natural ecosystems, and the flora and fauna. The focus is on a dynamic rather than a static approach to conservation, which incorporates natural change as well as human-dictated developments. The other three overall goals aim to ensure appropriate economic and social use, and stress the importance of awareness raising and communication.

The six overall goals are refined in 69 objectives, for which the need for action as well as the relevant organisations and actors were identified. Objectives were formulated for the following areas: Nature and cultural landscape (5 objectives); Flora and fauna (3 objectives); Agriculture and forestry (14 objectives); Hunting and fishing (5 objectives); Industry, commerce and trade (8 objectives); Energy and transport (12 objectives); Tourism and visitor management (12 objectives) as well as Culture, education, information and research (10 objectives). Each objective was defined as either addressing primarily the area within the WHS perimeter or the region as a whole.

Objectives and content of this Management Plan

The Management Strategy and Management Plan address all groups within the administration, the general population, the business sector and civil society who are involved and interested in the protection and use of the World Heritage Site. These documents represent a binding obligation on the part of the JAB World Heritage Association to initiate and coordinate the implementation process. At its core are the objectives, measures and processes which will ensure the conservation of the first Alpine World Natural Heritage Site and promote sustainable development for the region's economy, community and nature. The plan is the result of work carried by the core groups and the Association. The (originally highly disparate) expectations of the World Heritage Site were refined, formulated, and translated into activities and projects. As such, the plan represents a working instrument for use in further resolving conflicts and interests and in promoting creative, innovative projects and initiatives in the World Heritage Site and Region.

3.1 Activities carried out by public administration, communes and organisations

The following sections summarise existing and planned activities in the World Heritage perimeter aimed at conservation and utilisation of outstanding values. The responsible offices within the federal administration, the cantons of Berne and Valais, the 26 communes within the perimeter, and organisations and NGOs were polled for this purpose.

While this section contains a summary only, *Annex 1* contains a comprehensive list of the *Activities and measures for conservation and use within the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site (government departments, communes and organisations)*. For further documentation, including agreements, ordinances, correspondence from the federal administration, cantons and organisations concerning the listed activities and measures, see *Annex 5*.

Government and cantons – activities and measures aimed at protecting the region

The contents of this summary of direct and concrete activities implemented by the public sector (federal administration and cantons) were submitted to the Management Centre by official cantonal and national departments, and accordingly supplement Annex 4 and Map 2 of the Management Strategy, which contains the basic data on protection of the World Heritage Site Jungfrau-Aletsch-Bietschhorn perimeter. Section 4 of the nomination dossier submitted to UNESCO in 2005 also contains a summary (pp 49ff).

The indirect activities aimed at protecting and preserving the values of the World Heritage Site may be summarised as follows (joint letter dated January 2007 from the responsible project officers to the federal administration and the cantons of Berne and Valais):

Protection of the region through indirect state activities

The nominated region is protected under various national, cantonal, regional and communal laws. The main legal mechanisms are the laws on the protection of nature and national heritage, land planning and building legislation, and regulations governing hunting and fishing.

Virtually all actions that have an effect on nature and the landscape require public disclosure of the detailed projects, with rights of objection granted to the parties directly affected and to national environmental organisations. The project is then evaluated by the responsible offices within the federal administration, cantons and/or communes to verify whether or not the planned project complies with the relevant protection aims. Depending on the outcome, permission is either granted, conditionally granted, or refused. Directly affected parties and environmental organisations have a right of appeal. If there is reason to suspect that an object listed in the Federal Inventory of Landscapes and Monuments of National Importance could be affected, the case must be heard by the ENHK (Federal Commission for the Protection of Nature and National Heritage) before a decision is reached.

The relevant offices are also responsible for protection of the site in terms of granting licences (e.g. for transport facilities, water rights) and permits (e.g. for land clearing) and the granting of federal and cantonal contributions.

All these tasks are essential for the protection of the region and, depending on the project, entail a great deal of work on the part of the relevant authorities, although the associated costs cannot be reliably quantified.

Summary

The Jungfrau-Aletsch-Bietschhorn World Heritage Site is one of the areas least affected by human activity in the entire alpine region (see also nomination dossier submitted to UNESCO in 2005; pages 50ff and 58ff). There is a long tradition of conservation within the perimeter. The first UNESCO World Heritage regions came under protection in the 1930s.

Legal protection of the objects listed in the federal inventory and in cantonal protected areas is sustainably secured and guaranteed. The individual inventories are subject to an ordinance governing the enforcement of conservation measures. Among other things, codes of conduct as well as (management) agreements and supervisory activities ensure the objects' conservation; infringements of the legal provisions may be penalised. In the case of landscape changes resulting from impermissible interventions, restoration to original condition may be stipulated, depending on the consequences. As described above, much conservation takes the form of legal safeguards against concrete projects. As stated in the Management Strategy, it is desirable for the UNESCO World Heritage Association to identify a need for action in terms of concrete implementation measures, and to propose appropriate projects. This evaluation will be performed, *inter alia*, within the context of the measures and activity lines defined by core group 1.1 "Rich Biodiversity" (implementation from 2008) as well as in Project Line P02: "Regulation of perimeter use (visitor management) / biodiversity and cultural landscape". See also *Section 3.2.* and *Annexes 2 and 3* on the activity programme for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site.

26 Communes – activities and projects within the perimeter

The summary of direct and concrete activities and projects implemented by the communes within the UNESCO World Heritage Site is based on the findings of a survey conducted among communal authorities, in which the following central question was asked:

Which activities and projects aimed at conservation and use, such as (trail) maintenance, ecological improvements such as renaturation, rehabilitation, addressing natural hazards, / infrastructure / landscape and biotope conservation / agriculture and forestry / etc., are carried out in your commune WITHIN the perimeter?

The responses covered a wide range of activities and projects already completed, currently in progress or at the planning stage. Details are provided in Annex 1 *Activities and measures for protection and use within the UNESCO World Heritage Jungfrau-Aletsch-Bietschhorn perimeter* (Section 2). The list does not claim to be complete, since particularly those activities related to the cultural landscape and landscape protection are often performed by private individuals or cooperative institutions (e.g. alpine cooperatives, farming cooperatives, citizens' cooperatives). Since this work is of a relatively traditional and cooperative nature, some communes neglected to include it in their list even though it plays a significant role in preserving the region's values. In the interest of controlling, this summary should be done annually.

In summary, it may be stated that virtually all the activities and projects take place in the peripheral region of the perimeter – and particular in regions where the cultural landscape predominates (see *Annex 4, Map 7*). The spectrum ranges from traditional alpine farming (summering) to activities that exhibit concrete aspects of landscape preservation (e.g. landscape management by organisations responsible for it, such as alpine and farming cooperatives), the maintenance, preservation and care of traditional infrastructures (e.g. upgrading of *Suonen* i.e. man-made irrigation channels, by removing plastic piping and building traditional "*Tretschbord*" structures; restoration of cheese cellars and sheep pens), and activities aimed at protection against natural hazards (e.g. floodwater

dams, avalanche guards, nets for falling rock). Some activities were prompted by climate change and glacial recession or permafrost thawing, e.g. construction of (suspension) bridges to preserve hiking and cattle droving trails (for summer alpine farming). Some activities are directly associated with the UNESCO World Heritage Site or tourism (e.g. educational trails to inform visitors and raise their awareness of the local geology, glaciers and the UNESCO World Heritage Site).

Maintenance of hiking and alpine trails

All 26 communes in the World Heritage Site are charged (under cantonal regulations) with safeguarding and ensuring the maintenance of hiking and alpine trails. In some communes this task is passed on to tourist offices, alpine cooperatives or citizens' cooperatives. It is impossible to estimate the costs of maintaining the over 400 kilometers of alpine and hiking trails. For instance, the commune of Lauterbrunnen spends some CHF 45,000 per year on trail maintenance and marking within the perimeter. Hiking and alpine trails within the perimeter are shown in *Annex 4; Map 7*. In this context it is important to note that a well-maintained, clearly-marked network of hiking trails also supports environmentally friendly visitor management. Most of the trails are located in the outlying areas of the perimeter. For details on the maintenance of hut approach paths and alpine trails, see the SAC Report (in English) in *Annex 5*.

Maintenance of *Suonen* (man-made irrigation channels) and aqueducts

In the communes of the South Ramp (rocky steppes), various associations are responsible for the maintenance and operation of the region's irrigation channels or *Suonen* (see *Annex 4: Map 8*). *Suonen* transport irrigation water from the glaciers to the arid rocky steppe of the Lötschberg South Ramp. This maintenance work makes a major contribution to landscape conservation as well as to biodiversity in the outlying areas of the perimeter. World Heritage core groups are also planning measures and activities for the restoration, maintenance and care of *Suonen* for the phase from 2008 (see *Annex 3 Activity programme from 2008 for the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site*, core group 1.1 "*Rich Biodiversity*").

Organisations and institutions – activities and projects

This summary of direct and concrete activities and projects implemented by organisations and institutions was also obtained from a survey conducted by the Management Centre among organisations and institutions, who were asked the same question as the communes (see above).

The survey covered organisations that either constitute important land proprietors (e.g. Pro Natura and Kraftwerke Oberhasli) and/or carry out traditional activities within the UNESCO World Heritage perimeter (e.g. Swiss Alpine Club SAC, hiking trail organisations in the cantons of Berne and Valais, Stiftung Landschaft Schweiz SL).

The responses covered a wide range of activities and projects already completed, currently in progress or at the planning stage. Details are provided in *Annex 1: Activities and measures for protection and use within the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage perimeter* (Section 3). Like the list of communal activities, this list does not claim to be complete.

The activities performed by organisations in the area are primarily of the following three types:

- 1) The SAC is a very important actor in terms of infrastructure within the perimeter. This organisation has been active in the area since the birth of mountaineering in the Alps, and now maintains a large number of huts and hut approaches. Due to climate change, the priority in recent years has been on measures to renovate huts in keeping with ecological standards and to protect against natural hazards along hut approach trails and hut trails. See the SAC Report (in English) in *Annex 5*.

2) The environmental organisations Pro Natura and Stiftung Landschaft Schweiz maintain three areas within the perimeter which are protected under private law, and in so doing make an important contribution to the region's upkeep (see *Map 1 and 2 in Annex 4*). Here, too, visitor information and activities based on excursions, exhibitions and further education constitute an important factor. See also the Pro Natura Centre, Aletsch.

3) The Kraftwerke Oberhasli (KWO), a power plant operator in the Grimsel region, is the largest proprietor of land within the perimeter. The company's power plants dominate the landscape within the perimeter. Construction site installations dating from the construction phase, such as concrete foundations, natural stone and concrete walls, ferro-concrete structures and ramps, spoiled the appearance of the landscape. Such objects in the expansion perimeter of the UNESCO World Heritage expansion were removed between 2000 and 2006. See the illustrated KWO report in Annex 5 (in German).

3.2 Activity programme for the UNESCO World Heritage Site

At the core of the implementation process lie 21 thematic fields of action consisting of so-called project lines, which are presented in detail in Section 6 of the Management Strategy. In 2005 and 2006, interdisciplinary core groups (= work groups) drew up concrete plans for projects and activities (= activity lines) and recommended them to the UNESCO World Heritage Association for implementation. The focus of these activities can be *directly* (e.g. biotope conservation within the perimeter) or *indirectly* (e.g. publicity work) linked to the values of the World Heritage Region, or aimed at *sustainable development in the World Heritage Region*.

Status of work in the core groups:

- 10 core groups have defined and described measures and activities, and proposed them for implementation to the Association,
- 4 core groups are still at work and have not yet drawn up a final report,
- 2 core groups "Cultural Life" and "Restricted Air Traffic" had not yet been launched (start of 2007); the "Balanced Funding" core group was integrated in the JAB Supervisory Board; the "Existing Laws and Ordinances core group" was integrated in the other groups;
- The "Guidelines for Tourism" core group was transferred to a separate association ("Holidays in the World Heritage Site" Association) and merged with "Promotion of Tourism";
- The following 3 core groups have merged into one: "Well-informed Actors", "Student Awareness", and "Public Awareness".
- A "round table" on outdoor activities in the Aletsch region (perimeter) was set up.

3 Functions performed by the Association

The work of the UNESCO World Heritage Association is based on its three functions: These are extremely important functions during the decision-making process, in terms of addressing the question of co-funding and support for concrete implementation activities:

1. **Monitoring and controlling:** Measures and activities primarily related to **nature and habitat will be largely financed and supported by the Association**. The Association shares responsibility for monitoring and controlling within the perimeter (primarily related to all activities that *directly impact the preservation of the World Heritage Site's values*).
2. **Education and raising awareness:** Financing will be provided by the World Heritage Site for measures and activities related to **JAB organisation and communication** (primarily activities that *indirectly impact the preservation of the World Heritage Site's values*).
3. **Mediation and coordination:** Proposals for measures and activities that primarily concern the **economic and cultural space** (transport, tourism, promotion, product marketing etc.), and are therefore classified under sustainable regional development, are submitted to the responsible organisations and institutions (here the Association performs a mediating and coordinating function). These measures and activities receive little or no funding from the World Heritage Site and *primarily impact sustainable development outside the perimeter (= in the region)*.

Function 3) mainly covers measures and activities whose implementation is desirable for the sustainable development of the World Heritage Region but which have little direct impact on the preservation of the World Heritage sites and their values.

The short-term (2006/2007) and longer-term (from 2008) activity programmes are listed below. The programmes supplement and complete Annex 2 to the Management Strategy, which contained exemplary passages from project and activity definitions elaborated by core groups 1.5; 3.1; 3.6/7. Detailed information on the individual activity lines is provided in *Annex 3* to this Management Plan: *Activity programme from 2008*.

In line with the three functions, the impact of the measures and activities is classified in this table as 1) *direct*, 2) *indirect* or 3) *sustainable development of the region*. The financing method corresponding to this classification is then indicated in a separate column: 1 = *Funding via the World Heritage Site* or 2 = *Support for the concept* within the context of the coordination and mediation function.

Short-term activity programme for 2006 / 2007

Not all the defined measures and activity lines are launched simultaneously, since the priority, duration and scheduling of each phase varies depending on complexity and scope. An initial programme/service agreement has been concluded with the Federal Office of the Environment to implement those measures and activity lines at the most advanced stage of planning for 2006 and 2007. This agreement also governs implementation of the first concrete activity lines as well as the tasks of regional management for the World Heritage sites. It is intended as a provisional solution until the New Financial Equalisation (NFE) system comes into force in 2008 and new funding regulations are introduced for such projects.

The planned measures and activity lines in 6 project files (=programmes)

Accordingly, the 2006/2007 programme is as follows:

Nr	Project File	Measure / Activity Line	Principal impact
P00	Site Management + Promotion of Sustainable Development	Information / Service	2-3
		Participation: Operation of core groups, conflict management (mediation function)	1-2-3
		Coordinator / instigator function (implementation of M. Plan)	1-2-3
		Lobbying, cooperative ventures, networks, sponsorships	1-2-3
		Creating ownership / membership	1-2-3
		Management of the association	1-2-3
		IUCN evaluation mission, summer 2006	2
P01	Monitoring and Controlling	Site monitoring and project controlling concept	2-3
P02	Regulation of perimeter use (visitor management) / biodiversity and cultural landscape	JAB code of conduct	2
		JAB code of honour, outdoor activities, level 1	2
		JAB activity table and conflict map	1-2
		Legal framework for outdoor activities in summer and winter	1-2
		Air traffic and the army - review alpine landing strips, civil and military air traffic, military shooting exercises in the perimeter	1
		Additional projects related to regulation of perimeter use (2007 concept phase only)	1-2
		Biodiversity and habitats (instigate implementation of core group 1.1 projects)	1
Traditional cultural landscape (instigate implementation of core group projects)	1-2-3		
P03	Visible Profile for the JAB (including labelling, media coverage, communication tools)	Further develop brand system / label sales and conservation fees	2-3
		Quality label: Clarify requirement and poss. develop	2-3
		World Heritage magazine	2
		Book "Mountain Air" ("Atem der Berge") (FOEN subsidy already approved: 10,000.-)	2
		Poster campaign / marketing	2-3
		Mark the entrance/portal to JAB	2
		Media coverage incl. publicity reporting	1-2-3
		Updated edition of folding map	2
		Prepare communication media: flags, banners, stickers, stamps, World Heritage train etc.	2
		JAB information network: Raise awareness of JAB concerns among visitors and residents	1-2-3
P04	Knowledge management service: develop, manage and document	Research and coordination of research: Generate and update knowledge	2-3
		Information system with databases, image database and GIS (management / amendments / updates) + presence library	2-3
		Communication management: Implement website and intranet; integrate databases	2-3
		Services: Determine customer requirements and demand, and extract knowledge	2-3
		Synthesis product for the initialisation phase and the management plan: Book entitled "Welt der Alpen - Erbe der Welt" ("World of Alps - World Heritage")	2-3
P05	(Further)education and excursions	Create excursion guides and educational trails	2
		Student awareness	2
		Further education for JAB actors (concept)	2

- 1) Activities that directly impact the preservation of the World Heritage Site's values
- 2) Activities that indirectly impact the preservation of the World Heritage Site's values
- 3) Activities that primarily impact sustainable development outside the perimeter (=in the region)

For details on the individual measures and activity lines and their funding, see *Annex 2: Activity programme 2006/2007: Project files P00-P05 (English summary attached)*.

Longer-term activity programme from 2008

The programme as from 2008 focuses on implementation of the measures and activity lines defined by the core groups. In addition, it covers site management tasks, i.e. mainly permanent mandates related to:

- P00: Site Management UNESCO World Heritage Site + Promotion of Sustainable Development
- P01: Monitoring and Controlling
- P03: Visible Profile for the JAB (including labelling, media coverage, communication tools)
- P04: Knowledge management service: develop, manage and document

The final programme agreement for 2008-2011 will be drawn up with the Federal Office of the Environment and the cantons in the summer of 2007 in line with the New Financial Equalisation (NFE) system.

Annex 3 contains a table of the activity programme from 2008 (extracts in English). The table lists the activity lines and measures which were approved at the end of 2006 by the UNESCO World Heritage Supervisory Board. The individual activity lines will be assigned to programmes (= project files) at a later stage and, in the same way as the 2006 / 2007 programme, presented along with the funding and the proposed partners (see *Annex 2*).

Here, too, as with the short-term activity programme for 2006 / 2007, the desired impact of the individual activity lines (direct/indirect impact on perimeter; sustainable development of the region) and the funding (funding via the World Heritage Site or support for the concept within the context of the coordination and mediation function) is indicated.

4 Funding

4.1 Financial support for implementation

The Association received a letter from the Federal Office of the Environment as well as the cantons of Berne and Valais confirming their financial support for implementation of the Management Centre's key measures and core activities. These letters are included in *Annex 6* (in German). Due to funding practices in Switzerland, details of financial contributions cannot be mentioned.

Communications from the federal government and the Cantons are reprinted below:

Federal Office of the Environment

Confirmation of financial support to the Jungfrau-Aletsch-Bietschhorn World Heritage Site As the competent office representing the Swiss Confederation, we confirm that the Swiss Confederation will contribute his part of adequate resources to ensure the conservation of the value of the World Heritage property.

The protection and the conservation of the natural value of the site are ensured by several legal bases, which are bound to the communities, the cantons and the Swiss Confederation. The Swiss Confederation on the base of a reserved credit is willing to ensure the co financing of projects as they are included to the management plan of February 2007. This will be made in the optic of the efficacy of the projects and measures according to the philosophy of the new finance compensation law. The financing is ensured on a 4 years program.

*Federal Office for the Environment FOEN, Nature and landscape division,
Franz-Sepp Stulz, Head of division*

Canton of Berne

You have advised us that the IUCN expects a letter from the Confederation and each of the two directly affected cantons of Valais and Berne confirming their financial contributions to the UNESCO Jungfrau-Aletsch-Bietschhorn (JAB) World Heritage Site. In 2002 the Council of the Canton of Berne decided to support the JAB association during the initialisation phase with a basic contribution of CHF 900,000 . This contribution from the cantonal lottery fund is intended for the 2003 to 2014 period (CHF 75,000 per year).

Under the terms of the Canton of Berne reference plan, additional contributions to projects and measures of cantonal interest are conceivable. To this end the canton expects the relevant association organs to submit a comprehensive and well-founded application for subsidies. In early February 2007 the JAB submitted such an application for the years 2006/2007. Following an initial general examination of the documentation, we regard the requested amount of additional cantonal contributions as realistic and worthy of support. Naturally, however, this is subject to the approval of the organs responsible for financing. We will see to this matter as quickly as possible.

*Director of Justice, Community and Ecclesiastical Affairs
W. Luginbühl, President of the Cantonal Council*

Canton of Valais

For many years the authorities and government departments of the Canton of Valais have engaged in close cooperation with you. In conjunction with the affected communes within the perimeter of the UNESCO Jungfrau-Aletsch-Bietschhorn World Heritage Site, the federal government and third

parties, the major work for inscription of this region as a world heritage site has been successfully completed. These bodies have also been able to secure funding for the costs incurred to date.

In future, the priority will be to enhance and preserve the value of this splendid world heritage site and achieve its balanced, environmentally compatible use. These efforts will most assuredly call for additional public funding. The Canton of Valais intends to continue making a financial contribution to the work required, within the boundaries of its financial capabilities and based on concrete projects and requirements. Moreover, it intends to seek support for these projects among the communes, from the federal government, and from third parties.

With this in mind, we expect the Association to take the necessary steps, draw up mid-term plans and define project phases, submit these to interested parties for their assessment, and register the relevant requirements.

Head of the department of economic affairs and spatial development
Jean-Michel Cina

4.2 Funding example based on the short-term Activity Programme

Enclosed is the funding example based on the short-term *Activity Programme 2006 / 2007* and the *Project files P00-P05*:

Project File	Budget 2006/ 07	Financing by							
		Basic contri- bution Com- munities*	Basic contri- bution Cantons*	2007 Proposal Cantons**	Federal Offices			Third Party / Sponsor-ships	Own contr.
					Proposal 06/07 FOEN	Regio+ (2006 only)	Other offices		
P00: Site Management + Promotion of Sustainable Development	814'994	125'000	140'198	0	259'800	86'000	0	2'497	201'500
P01: Monitoring & Controlling	146'000	9'000	7'000	34'000	33'000	16'000	17'000	0	30'000
P02: Regulation of perimeter use	390'800	55'000	20'000	107'000	111'000	12'000	15'000	43'800	27'000
P03: Visible profile for the JAB	881'863	51'000	44'000	100'000	135'000	71'000	13'000	439'263	28'600
P04: Knowledge management service	388'500	42'500	63'000	37'000	88'000	20'000	7'000	49'000	82'000
P05: (Further)education and excursions	217'000	17'000	26'000	17'000	48'000	15'000	22'000	52'000	20'000
Total 2006 and 2007	2'839'157	299'500	300'198	295'000	674'800	220'000	74'000	586'560	389'100

* within the pledged 75,000.- per annum per canton or communities (basic contribution)

** outside the 75,000.- per annum basic contribution per canton



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Annex 1

Aktivitäten und Massnahmen zu Schutz und Nutzung innerhalb des Perimeters UNESCO Welterbe Jungfrau-Aletsch-Bietschhorn

Zusammenstellung der öffentlichen Hand, Gemeinden und Organisationen

Naters und Interlaken, Februar 2007
Trägerschaft UNESCO Welterbe

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1. Aktivitäten und Massnahmen von Bund und Kantonen

Die Inhalte zu Kapitel 1 wurden dem Managementzentrum von kantonalen und nationalen Amtsstellen zugestellt.

Ein Bundesinventar ist rechtlich ein Teil einer Verordnung, in der Schutzziele und Massnahmen aufgeführt sind. In den Anhängen zur Verordnung figurieren Listen mit sämtlichen Objekten einschliesslich der Namen und der genauen Standorte. Schutzobjekte des Bundesinventars müssen von den Kantonen in geeigneter Form als Schutzgebiet nach kantonalem Recht umgesetzt werden. Diese Gebiete sind meistens grösser als die eigentlichen Inventarobjekte, da sie auch noch Pufferzonen enthalten. Die Verantwortung für die Biotope von regionaler und lokaler Bedeutung liegt ebenfalls bei den Kantonen.

1.1 Kantonale Schutzgebiete – Kantone Bern (BE) und Wallis (VS)

→ Die Einzelnen Schutzbeschlüsse, Zielsetzungen und Massnahmen zu den Gebieten siehe in Nominationsdossier an die UNESCO, 2005; Kapitel 5b, Seite 61 + Supplement 6 sowie in Annex 5 des vorliegenden Dossiers. Für die Regelung der Aufsicht sowie deren Pflichtenheft siehe in Annex 5.

Nr.	Naturschutzgebiet	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe	Regierungs- / Staatsratsbeschluss	Aufsicht* 1)	Beschreibung / Massnahmen zur Erreichung der Schutzziele
1.1	Fisi-Biberg-Fründen (BE)	16.4	16.4	x	X	Pflanzenschutzgebiet. Ausser Aufsicht keine speziellen Massnahmen. Aufsichtstätigkeit durch Wildhüter und Freiwillige Naturschutzaufseher (kann nicht quantifiziert werden). Regierungsratsbeschluss vom 24.03.1944 siehe Annex 5
1.2	Grimsel (BE)	99.9	81.1	x	X	Ausser Aufsicht keine speziellen Massnahmen. Aufsichtstätigkeit durch Wildhüter und Freiwillige Naturschutzaufseher (kann nicht quantifiziert werden). Siehe hierzu auch bei Jagdbanngebieten. Regierungsratsbeschluss vom 01.08.1958 siehe Annex 5
1.3	Hinteres Lauterbrunnental (BE)	26.6	26.6	x	X	Aufsicht / Massnahmen vgl. Aussagen zu Hochmoor. Aufsichtstätigkeit durch Wildhüter und Freiwillige Naturschutzaufseher (kann nicht quantifiziert werden) Zwei Alpen innerhalb des Schutzgebietes sind Eigentum der Pro Natura. Die Massnahmen erfolgen nach Absprache zwischen Pro Natura und dem Kanton (siehe hierzu auch Tätigkeiten der Pro Natura weiter unten in diesem Dokument) Regierungsratsbeschluss vom 21.6.1960

1.4	Wengernalp (BE)	0.2	0.2	x	X	Aufsicht / Massnahmen vgl. Aussagen zu Hochmoor Aufsichtstätigkeit durch Wildhüter und Freiwillige Naturschutzaufseher (kann nicht quantifiziert werden) Dieses Naturschutzgebiet umfasst eine bedeutende Moorlandschaft. Zu ihrem Erhalt sind strenge Vorschriften erlassen worden. So ist etwa das Pflücken von Pflanzen und das Skifahren verboten, zum Teil darf das Gebiet nicht einmal betreten werden. Regierungsratsbeschluss vom 22.12.1999.
1.5	Aletschwald (VS)	3.05	3.02	x	X	Schutzbeschluss vom 05.05.1933 Pro Natura macht die Naturschutzaufsicht im Aletschwald. Die Kosten belaufen sich auf jährlich etwa Fr. 110'000.--. Bund und Kanton beteiligten sich in den letzten Jahren an der Finanzierung mit 35 % bzw. 25 %. Für 2007 und die kommenden Jahre gibt es noch keine Finanzaussicherungen. Im Rahmen des Neuen Finanzausgleichs wird eine Leistungsvereinbarung zwischen den Partnern angestrebt. (siehe hierzu auch Tätigkeiten der Pro Natura weiter unten in diesem Dokument)
1.9	Teiffewald (VS)			-	x	Privatrechtlicher Schutzvertrag zwischen Pro Natura und der Burgergemeinde Ried-Mörel vom 27. 08.1999; Angestrebte Erneuerung Schutzverordnung Aletschwald vom 05.05.1933 mit Erweiterung um das Gebiet Teiffe Wald (siehe hierzu auch Tätigkeiten der Pro Natura weiter unten in diesem Dokument)
1.6	Märjelen (VS)	3.4	1.7	x	-	Schutzbeschluss vom 23.02.1938 Gebiet verlangt keine Massnahmen. Früher war es ein Naturschauspiel durch den Gletscher verursacht.
1.7	Chiemadmatte (VS)	0.09	0.001	x	-	Schutzbeschluss vom 20.05.1998
1.8	Jeggigletscher / Langgletscher (VS)	3.4	3.4	x	-	Siehe hierzu Schutzgebietsnummer 3.2 bei den Auengebieten.

1.2. Bundesinventar der Landschaften und Naturdenkmäler von nationaler Bedeutung BLN

→ Siehe auch in Nominationsdossier an die UNESCO, 2005; Kapitel 5b, Seite 58f + Supplement 5, 451.11 Verordnung zu den BLN.

In Art. 5 des Bundesgesetzes vom 1. Juli 1966 über den Natur- und Heimatschutz (NHG) ist vorgesehen, dass der Bundesrat nach Anhören den Kantone Inventare mit Objekten von nationaler Bedeutung aufstellt. Die im Verfassungsauftrag (Absatz 2 art. 24) verankerte Verpflichtung des Bundes zur Schonung und wo nötig ungeschmälerter Erhaltung der landschaftlichen Werte, bezieht sich auf die Landschaft in ihrer Gesamtheit.

Das Inventar ist eine verbindliche Richtlinie für die Bundesinstanzen, deren Aufgaben und Tätigkeiten sich auf die Landschaftlichen Gegebenheiten auswirken. Daneben richtet sich das Bundesinventar in empfehlendem Sinne auch an die Behörden der Kantone und Gemeinden, an die Fachorgane der Raumplanung und des Natur- und Heimatschutzes.

Nr.	BLN	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe	Verordnung*	Controlling*	Beschreibung
2.1 2.2	Berner Hochalpen und Aletsch-Bietschhorn-Gebiet (nördlicher und südlicher Teil)	495.8 473.8	336.5 441	x	In Entwicklung	<p>Beschreibung / Bedeutung: Grossartige Hochalpenlandschaft, seit dem Beginn der Alpenforschung als solche gepriesen (Jungfrau, Mönch, Eiger, usw.), von der Zivilisation wenig berührte Täler; Ijolli-, Bietsch-, Baltschieder-, Gredetsch- und Sefinental.</p> <p>Kristallines Aarmassiv gegen Norden in den autochthonen Sedimentmantel übergehend. Zahlreiche bedeutende Mineralfundstellen. Glaziologisch interessante Erscheinungen (Rundhöcker, versumpfte Mulden, Schilfgrenzen, Rückzugsstadien), besonders grossartig an der Grimsel.</p> <p>Abwechslungsreiche alpine und subalpine Vegetation auf Kalk- und Silikatgestein im feuchten Klima der Nordabdachung und im trockeneren Klima der Südseite. Im Aletschwald berühmte Arven- und Lärchenbestände. Vereinzelte Vorkommen dieses zentralalpiner Waldtyps auf der Nordseite der Alpen. Neubesiedlung vom Gletscher freigegebener Böden. Bedeutende Alpentierbestände; Grünland und Alpwirtschaft. Kühn angelegte Bewässerungssysteme (so genannte Suonen), besonders im südlichen Teil des Bietschhorngebietes. Bedeutendes Wander- und Hochtourengebiet sowie Naturschutzzentrum auf der Riederfurka (Villa Cassel).</p> <p>Seitens der Kantone gibt es ausser der Einhaltung von Gesetz und dazugehöriger Verordnung keine speziellen Schutzmassnahmen. Gemäss Bundesgesetzgebung Berücksichtigung insbesondere bei der Beurteilung konkreter Projekte. Bei Projekten mit möglichen negativen Auswirkungen auf Natur und Landschaft obligatorische Konsultation der Eidgenössischen Natur- und Heimatschutzkommission.</p>

1.3. Bundesinventar der Auengebiete von Nationaler Bedeutung

Schutzziel

1 Die Objekte sollen ungeschmälert erhalten werden. Zum Schutzziel gehören insbesondere:

- a. die Erhaltung und Förderung der autotypischen einheimischen Pflanzen- und Tierwelt und ihrer ökologischen Voraussetzungen;
- b. die Erhaltung und, soweit es sinnvoll und machbar ist, die Wiederherstellung der natürlichen Dynamik des Gewässer- und Geschiebehaushalts;
- c. die Erhaltung der geomorphologischen Eigenart.

2 Ein Abweichen vom Schutzziel ist nur zulässig für unmittelbar standortgebundene Vorhaben, die dem Schutz des Menschen vor schädlichen Auswirkungen des Wassers oder einem andern überwiegenden öffentlichen Interesse von ebenfalls nationaler Bedeutung dienen. Ihr Verursacher ist zu bestmöglichen Schutz-, Wiederherstellungs- oder ansonst angemessenen Ersatzmassnahmen zu verpflichten.

Schutz- und Unterhaltmassnahmen

1 Die Kantone treffen nach Anhören der Grundeigentümer und Bewirtschafter die zur Erhaltung der Objekte geeigneten Schutz- und Unterhaltmassnahmen. Dabei kommt der Erhaltung und Förderung einer angepassten, nachhaltigen land- und forstwirtschaftlichen Nutzung eine besondere Bedeutung zu.

2 Die Kantone sorgen insbesondere dafür, dass:

- a. Pläne und Vorschriften, welche die zulässige Nutzung des Bodens im Sinne der Raumplanungsgesetzgebung regeln, mit dieser Verordnung übereinstimmen;
- b. Auenbereiche mit einem vollständig oder weitgehend intakten Gewässer- und Geschiebehaushalt vollumfänglich geschützt werden;
- c. bestehende und neue Nutzungen, namentlich die Land- und Forstwirtschaft, die Wasserkraft- und Grundwassernutzung, die Kiesgewinnung, die Schifffahrt und die Erholungsnutzung einschliesslich der Fischerei, mit dem Schutzziel in Einklang stehen;
- d. seltene und gefährdete Pflanzen und Tiere sowie ihre Lebensgemeinschaften gezielt gefördert werden;
- e. die Wasser- und Bodenqualität durch Verminderung des Nähr- und Schadstoffeintrags verbessert wird.

3 Die Bestimmungen der Absätze 1 und 2 gelten auch für die Pufferzonen, soweit es das Schutzziel erfordert.

Der Bund berät und unterstützt die Kantone bei der Erfüllung ihrer Aufgaben nach dieser Verordnung.

Nr.	IGLES, Gletschervorfelder	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe (inkl. Erweiterung)	Verordnung*	Controlling / Aufsicht	Beschreibung / Massnahmen zur Erreichung der Schutzziele
3.1	Bächlisboden (BE)	0.27	0.27			Vollzug durch Kanton Bern in Vorbereitung;
3.2	Chiemadmatte (VS)	0.08	0.0001	X	(x)	Ziele und Massnahmen: Schutzentscheid vom 20.05.1998 siehe in Nominationsdossier an die UNES-CO, 2005; Kapitel 5b, Seite 60f + Supplement 6 (Entscheid betreffend den Schutz der vier Auengebiete von nationaler Bedeutung und der Gletschervorfelder des Jegi- und des Langgletschers im Lötschental; in Französisch;) Deutsch: http://www.vs.ch/Home2/EtatVS/vs_public/public_lois/de/Pdf/451.335.pdf Informationstafel weist auf Schutzgebiet hin; Sporadische Kontrollen durch Dienststelle für Wald und Landschaft (Ktn. VS)
3.6	Lang- / Jegigletscher (VS)	3.3	3.3	X	-	
3.3	Gamchigletscher (BE)	0.62	0.62	-	-	Vollzug durch Kanton Bern in Vorbereitung;
3.4	Gastereholz (BE)	1.62	0.0014	-	-	Unterschutzstellung und Massnahmendefinition durch Kanton in Bearbeitung
3.5	Kanderfirn (BE)	1.97	1.97	-	-	Unterschutzstellung und Massnahmendefinition durch Kanton in Bearbeitung
3.7	Rosenlauigletscher (BE)	1.08	1.08	-	-	Vollzug durch Kanton Bern in Vorbereitung;
3.8	Üssre Baltschieder-gletscher (VS)	2.23	2.23	-	-	Der Nutzungsplan der Gemeinde Baltschieder wurde vom Staatsrat am 23.03.1994 homologiert. Das Gebiet „Üssre Baltschieder-gletscher“ wurde aber erst 2001 ins Bundesinventar der Auengebiete von nationaler Bedeutung aufgenommen. Im Rahmen der nächsten Revision des kommunalen Zonenplanes ist das Gebiet als Naturschutzzone nationaler Bedeutung zu bezeichnen. Das Gebiet ist jedoch bereits heute durch die Lage innerhalb des VAEW-Gebietes geschützt.

1.4-1.6 Bundesinventare der Hoch- und Übergangsmoore, Flachmoore und Moorlandschaften von nationaler Bedeutung

Die national schützenswerten Hoch- und Flachmoore sowie Moorlandschaften sind in den jeweiligen Verordnungen aufgeführt. Die Schutzziele legen fest, welche Eigenheiten in Moorbiotopen und Moorlandschaften zu erhalten oder zu fördern sind.

Schutzobjekte des genannten Bundesinventars müssen vom Kanton in geeigneter Form als Schutzgebiet nach kantonalem Recht umgesetzt werden. Die von den Kantonen ausgedehnten Gebiete gehen meist über die Fläche der Biotope hinaus, da sie zusätzlich Pufferzonen enthalten. Diese verbindliche Unterschutzstellung geschieht im Sinne der Raumplanungsgesetzgebung. In diese Verfahren werden auch Grundeigentümer und Bewirtschafter miteinbezogen. Der Bund subventioniert die Umsetzungs-Massnahmen. Mit der rechtlichen Unterschutzstellung werden auch die Pflege und Nutzung dieser Schutzobjekte im Einzelnen geregelt, so unter anderem die finanziellen Abgeltungen für die Bewirtschafter.

Schutzziele

Schutzziele legen fest, welche Eigenheiten in den Schutzgebieten zu erhalten und welche Beeinträchtigungen allenfalls zu beseitigen sind. Daraus lassen sich diejenigen Nutzungsarten ableiten, die weiterhin möglich oder sogar notwendig sind.

Allgemeine Schutzziele für Hoch- und Flachmoore

- Ungeschmälerte Erhaltung in Fläche und Qualität
- Erhaltung und Förderung der standortheimischen Pflanzen und Tierwelt
- Erhaltung der typischen Geländeform
- Aufwerten und Wiederherstellen bereits geschädigter Moorflächen

Die Schutzziele sind in der Hochmoor- sowie in der Flachmoorverordnung festgehalten.

Allgemeine Schutzziele für Moorlandschaften

- Erhaltung der Schönheit und Vielfalt der Landschaft, welche die nationale Bedeutung ausmachen
- Ungeschmälerte Erhaltung aller Moorbiotope
- Erhaltung der charakteristischen Elemente einer Moorlandschaft
- Besondere Rücksichtnahme auf seltene und gefährdete Pflanzen und Tiere

- Unterstützung der für die Moorlandschaft typische Nutzung

Die Schutzziele sind in der Moorlandschaftsverordnung festgehalten:

1.4. Bundesinventar der Hoch- und Übergangsmoore von nationaler Bedeutung

Das Bundesinventar der Hoch- und Übergangsmoore von nationaler Bedeutung (Hochmoorinventar) umfasst die im Anhang I aufgezählten Objekte. Sie erfüllen gleichzeitig das Erfordernis der besonderen Schönheit von Artikel 24^{sexies} Absatz 5 der Bundesverfassung. Diese Verordnung trat am 1. Februar 1991 in Kraft.

Schutzziel

Die Objekte müssen ungeschmälert erhalten werden; in gestörten Moorbereichen soll die Regeneration, soweit es sinnvoll ist, gefördert werden. Zum Schutzziel gehören insbesondere die Erhaltung und Förderung der standortheimischen Pflanzen- und Tierwelt und ihrer ökologischen Grundlagen sowie die Erhaltung der geomorphologischen Eigenart.

Massnahmen

Die Kantone treffen nach Anhören der Grundeigentümer und Bewirtschafter die zur ungeschmälerten Erhaltung der Objekte geeigneten Schutz- und Unterhaltmassnahmen. Sie sorgen insbesondere dafür, dass:

- a. Pläne und Vorschriften, welche die zulässige Nutzung des Bodens im Sinne der Raumplanungsgesetzgebung regeln, mit dieser Verordnung übereinstimmen;
- b. keine Bauten und Anlagen errichtet und keine Bodenveränderungen vorgenommen werden, insbesondere durch den Abbau von Torf, das Pflügen von Moorböden und das Ausbringen von Stoffen oder Zubereitungen im Sinne der Chemikalienverordnung vom 18. Mai 2005 oder von Biozidprodukten im Sinne der Biozidprodukteverordnung vom 18. Mai 2005; ausgenommen sind, unter Vorbehalt von Buchstabe c, Bauten, Anlagen und Bodenveränderungen, die der Aufrechterhaltung des Schutzziels dienen;
- c. zur Aufrechterhaltung der bisherigen landwirtschaftlichen Nutzung nur solche Bauten und Anlagen errichtet und nur solche Bodenveränderungen vorgenommen werden, die dem Schutzziel nicht widersprechen;
- d. die nach dem 1. Juni 1983 erstellten Bauten und Anlagen zu Lasten der Ersteller abgebrochen und die nach diesem Datum vorgenommenen Bodenveränderungen zu Lasten derjenigen, die sie ausgeführt oder verursacht haben, rückgängig gemacht werden, sofern sie dem Schutzziel widersprechen und nicht gestützt auf Nutzungszonen, die dem Raumplanungsgesetz vom 22. Juni 1979 entsprechen, rechtskräftig bewilligt worden sind; ist eine Wiederherstellung des Zustands vom 1. Juni 1983 nicht möglich, so ist für angemessenen Ersatz oder Ausgleich zu sorgen;

- e. der Gebietswasserhaushalt erhalten und, soweit es der Moorregeneration dient, verbessert wird;
- f. die forstliche Bewirtschaftung auf das Schutzziel ausgerichtet wird;
- g. Die Verbuschung verhindert und die typische Moorvegetation erhalten werden, sofern es erforderlich ist durch eine angepasste Bewirtschaftung;
- h. Gräben, sofern sie mit dem Schutzziel vereinbar sind, sachgerecht und schonend unterhalten werden;
- i. die Moore vor Trittschäden geschützt werden;
- k. die touristische und die Erholungsnutzung dem Schutzziel untergeordnet werden.

Diese Bestimmungen gelten auch für die Pufferzonen, soweit es das Schutzziel erfordert. Der Bund berät und unterstützt die Kantone bei der Erfüllung ihrer Aufgaben nach dieser Verordnung

Nr.	Hoch- und Übergangsmoore	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe (inkl. Erweiterung)	Verordnung*	Beschreibung / Massnahmen zur Erreichung der Schutzziele
4.1	Aletschwald (VS)	0.05	0.05	x	Siehe hierzu Schutzgebietsnummer 1.5.; kantonales Naturschutzgebiet Aletschwald
4.2	Station Wengernalp (BE)	0.03	0.03	x	Massnahmen zur Regeneration des Wasserhaushaltes abgeschlossen (Kosten ca. Fr. 10'000.-). Bestehendes offenes Problem: Viehtrieb. Finanzierung durch Naturschutzinspektorat des Kantons Bern + Bundesamt für Umwelt.
4.3	Understeinberg (BE)	0.005	0.005	x	Entbuschung und Abzäunung; Jährlicher Aufwand ca. Fr. 1'000.- Finanzierung durch Naturschutzinspektorat des Kantons Bern + Bundesamt für Umwelt. Die Massnahmen erfolgen nach Absprache zwischen Pro Natura und dem Kanton (siehe hierzu auch Tätigkeiten der Pro Natura weiter unten in diesem Dokument)

1.5. Bundesinventar der Flachmoore von nationaler Bedeutung

Das Bundesinventar der Flachmoore von nationaler Bedeutung (Flachmoorinventar) umfasst die im Anhang 1 aufgezählten Objekte. Sie erfüllen gleichzeitig das Erfordernis der besonderen Schönheit von Artikel 24^{sexies} Absatz 5 der Bundesverfassung. Diese Verordnung trat mit Ausnahme von Artikel 5 Absatz 2 Buchstabe f der NHG am 1. Oktober 1994 in Kraft.

Schutzziele

Die Objekte müssen ungeschmälert erhalten werden; in gestörten Moorbereichen soll die Regeneration, soweit es sinnvoll ist, gefördert werden. Zum Schutzziel gehören insbesondere die Erhaltung und Förderung der standortheimischen Pflanzen- und Tierwelt und ihrer ökologischen Grundlagen sowie die Erhaltung der geomorphologischen Eigenart.

Massnahmen

¹ Die Kantone treffen nach Anhören der Betroffenen die zur ungeschmälerten Erhaltung der Objekte geeigneten Schutz- und Unterhaltmassnahmen. Dabei kommt der Erhaltung und Förderung der angepassten landwirtschaftlichen Nutzung eine besondere Bedeutung zu. ² Die Kantone sorgen insbesondere dafür, dass:

- a. Pläne und Vorschriften, welche die zulässige Nutzung des Bodens im Sinne der Raumplanungsgesetzgebung regeln, mit dieser Verordnung übereinstimmen;
- b.¹ keine Bauten und Anlagen errichtet und keine Bodenveränderungen vorgenommen werden, insbesondere durch Entwässerungen, das Pflügen sowie das Ausbringen von Stoffen oder Zubereitungen im Sinne der Chemikalienverordnung vom 18. Mai 2005² oder von Biozidprodukten im Sinne der Biozidproduktverordnung vom 18. Mai 2005³; ausgenommen sind, unter Vorbehalt der Buchstaben d und e, Bauten, Anlagen und Bodenveränderungen, die der Aufrechterhaltung des Schutzziels dienen;
- c. der Unterhalt und die Erneuerung rechtmässig erstellter Bauten und Anlagen das Schutzziel nicht zusätzlich beeinträchtigen;
- d. zur Aufrechterhaltung der bisherigen landwirtschaftlichen Nutzung nur solche Bauten und Anlagen errichtet, unterhalten und erneuert und nur solche Bodenveränderungen vorgenommen werden, die dem Schutzziel nicht widersprechen;
- e. unmittelbar standortgebundene Massnahmen gegen Naturereignisse naturnah und nur zum Schutz des Menschen erfolgen; ausgeschlossen sind Massnahmen zum Schutz von Bauten und Anlagen, die nach dem 1. Juni 1983 in ausgedehnten Gefahrenzonen oder bekannten Gefahrengeländen erstellt wurden;
- f. die nach dem 1. Juni 1983 erstellten Bauten und Anlagen zu Lasten der Ersteller abgebrochen und die nach diesem Datum vorgenommenen Bodenveränderungen zu Lasten derjenigen, die sie ausgeführt oder verursacht haben, rückgängig gemacht werden, sofern sie dem Schutzziel widersprechen und nicht gestützt auf Nutzungszonen, die dem Raumplanungsgesetz vom 22. Juni 1979⁴ entsprechen, rechtskräftig bewilligt worden sind; ist eine Wiederherstellung des Zustands vom 1. Juni 1983 nicht möglich oder für die Erreichung des Schutzziels unverhältnismässig, so ist für angemessenen Ersatz oder Ausgleich zu sorgen;

- g. der Gebietswasserhaushalt erhalten und, soweit es der Moorregeneration dient, verbessert wird;
- h. die forstliche Bewirtschaftung mit dem Schutzziel in Einklang steht;
- i. die Verbuschung bei jeder sich bietenden Gelegenheit verhindert und die typische Moorvegetation erhalten werden;
- k. Gräben, sofern sie mit dem Schutzziel vereinbar sind, sachgerecht und schonend unterhalten werden;
- l. die Moore vor dauernden Schäden durch unangepasste Beweidung und durch Trittbelastung geschützt werden;
- m. die touristische und die Erholungsnutzung mit dem Schutzziel in Einklang stehen.

³ Bauten, Anlagen und Bodenveränderungen sind in den Pufferzonen zulässig, sofern sie das Schutzziel nicht beeinträchtigen.

Der Bund berät und unterstützt die Kantone bei der Erfüllung ihrer Aufgaben nach dieser Verordnung.

Nr.	Flachmoore	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe	Verordnung*	Bewirtschaftungs-vertrag*	Beschreibung / Massnahmen zur Erreichung der Schutzziele
5.1	Mederlauwenen (BE)	0.05	0.05	x		kein Vertrag nötig da ungenutzt
5.2	Station Wengernalp (BE)	0.05	0.05	x	x	Siehe auch bei Kantonalem Naturschutzgebiet (Nr. 1.4) sowie Hochmooren, (Nr. 4.2) Jährlicher Bewirtschaftungsbeitrag im Rahmen des Bewirtschaftungsvertrags von rund Fr. 1'200.- Finanzierung durch Naturschutzinspektorat (NSI) des Kantons Bern und Bundesamt für Umwelt

1.6 Bundesinventar der Moorlandschaften von nationaler Bedeutung

Schutzziele

1 In allen Objekten:

- a. ist die Landschaft vor Veränderungen zu schützen, welche die Schönheit oder die nationale Bedeutung der Moorlandschaft beeinträchtigen;
- b. sind die für Moorlandschaften charakteristischen Elemente und Strukturen zu erhalten, namentlich geomorphologische Elemente, Biotope, Kulturelemente sowie die vorhandenen traditionellen Bauten und Siedlungsmuster;
- c. ist auf die nach Artikel 20 der Verordnung vom 16. Januar 19914 über den Natur- und Heimatschutz (NHV) geschützten Pflanzen- und Tierarten sowie die in den vom Bundesamt erlassenen oder genehmigten Roten Listen aufgeführten, gefährdeten und seltenen Pflanzen- und Tierarten besonders Rücksicht zu nehmen;
- d. ist die nachhaltige moor- und moorlandschaftstypische Nutzung zu unterstützen, damit sie so weit als möglich erhalten bleibt.

2 Die Objektbeschreibungen in Anhang 2 dienen den Kantonen als verbindliche Grundlage für die Konkretisierung der Schutzziele.

Schutz- und Unterhaltsmassnahmen

1 Die Kantone treffen nach Anhören der Betroffenen (Art. 3 Abs. 1 und 2) die zum Erreichen der Schutzziele erforderlichen Schutz- und Unterhaltsmassnahmen.

2 Die Kantone sorgen insbesondere dafür, dass:

- a. Pläne und Vorschriften, welche die zulässige Nutzung des Bodens im Sinne der Raumplanungsgesetzgebung regeln, mit dieser Verordnung übereinstimmen;
- b. die Biotope nach Artikel 18 Absatz 1bis NHG, die sich innerhalb einer Moorlandschaft befinden, bezeichnet werden;
- c. die nach Artikel 23d Absatz 2 NHG zulässige Gestaltung und Nutzung der Erhaltung der für die Moorlandschaften typischen Eigenheiten nicht widersprechen;
- d. Bauten und Anlagen, die weder mit der Gestaltung und Nutzung nach Buchstabe c in Zusammenhang stehen, noch der Biotoppflege oder der Aufrechterhaltung der typischen Besiedlung dienen, nur ausgebaut oder neu errichtet werden, wenn sie nationale Bedeutung haben, unmittelbar standortgebunden sind und den Schutzzielen nicht widersprechen;

e. die touristische Nutzung und die Nutzung zur Erholung mit den Schutzziele in Einklang stehen;

f. dort, wo eine Wiederherstellung nach Artikel 25a NHG nicht möglich oder für die Erreichung der Schutzziele unverhältnismässig ist, angemessener Ersatz oder Ausgleich erfolgt, insbesondere durch die Schaffung, Vergrösserung oder Revitalisierung von Biotopen, die Aufwertung von für die Moorlandschaft charakteristischen Elementen und Strukturen, die Verbesserung der nachhaltigen moor- und moorlandschaftstypischen Nutzung oder Massnahmen des ökologischen Ausgleichs nach Artikel 15 NHV.

Der Bund berät und unterstützt die Kantone bei der Erfüllung ihrer Aufgaben nach dieser Verordnung.

Nr.	Moorlandschaft	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe (inkl. Erweiterung)	Beschreibung / Massnahmen zur Erreichung der Schutzziele
6.1	Grimsel (BE)	2.50	1.76	Keine besonderen Schutzmassnahmen, liegt vollständig innerhalb kantonalem Naturschutzgebiet Grimsel. Informationen zum Schutzbeschluss und zur Aufsicht siehe Schutzgebietsnummer 1.2.

1.7 Schutzgebiete bezüglich der Verordnung über die Abgeltung von Einbussen bei der Wasserkraftnutzung VAEW (nur im Kanton Wallis)

→ Siehe auch in Nominationsdossier an die UNESCO, 2005; Kapitel 5b, Seite 61 + Supplement 5, 721.821.11 Verordnung zu den VAEW
<http://www.greina-stiftung.ch/projekte/greinabuch/721.821.pdf> (DEUTSCH)

Verordnung

Die Verordnung über die Abgeltung von Einbussen bei der Wasserkraftnutzung (VAEW, SR 721.821) sieht vor, dass Gemeinden, welche zu Gunsten der Erhaltung von national bedeutenden Landschaften auf die Nutzung von Wasserkraft verzichten, Ausgleichszahlungen für die entgangenen Erträge erhalten. Diese Zahlungen werden jährlich ausgerichtet und sind an vertraglich vereinbarte Schutzziele geknüpft. Die Überprüfung erfolgt im Rahmen einer Erfolgskontrolle. Das Bundesamt für Energie (BFE) als federführende Bundesstelle und das Bundesamt für Umwelt, (BAFU) als Fachinstanz streben primär eine Umsetzungskontrolle und nicht eine Wirkungskontrolle an. Entsprechend wurden die folgenden Ziele für die Erfolgskontrolle (EK) definiert:

- Die EK soll generell auf möglichst einfache Weise das Einhalten der getroffenen Vereinbarungen überprüfen.
- Im Rahmen der EK ist die Umsetzung von vorgesehenen und für die Schutzzielerrreichung notwendigen resp. geeigneten Massnahmen zu kontrollieren.
- Die EK soll allfälligen Handlungsbedarf frühzeitig offenlegen.

Die VAEW bezweckt, den Zustand der Landschaft zum Zeitpunkt des Vertragsabschlusses zu erhalten. Dieser ist somit der Referenzwert oder Soll-Zustand. Für die EK muss der aktuelle Ist-Zustand periodisch erhoben und mit dem Soll-Zustand verglichen werden. Die sich aus den Verträgen ergebende Haupteinschränkung für die Gemeinwesen ist der Verzicht auf das Erstellen neuer Bauten und Anlagen sowie zusätzlicher touristischer oder anderer nicht schutzzielkonformer Nutzungen. Die EK beschränkt sich im Wesentlichen auf periodische Soll-Ist-Vergleiche.

Nr.	VAEW	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe	Verordnung*	Schutzvertrag	Controlling *	Beschreibung / Massnahmen zur Erreichung der Schutzziele
7.1	Baltschiedertal (VS)	34.01	32.80	X	X	X	Die Aufträge zur Erfolgskontrolle werden durch das Bundesamt für Energie (BFE) erteilt und auch finanziert. Budget pro Jahr je nach Bedarf rund 20 - 40'000 sFr.
7.2	Bietschbach-Jolibach (VS)	32.75	31.92	X	X	X	
7.3	Gredetschtal (VS)	23.07	21.68	X	X	X	Der Personalaufwand für das BFE beträgt rund 10% einer Vollzeitstelle.
7.4	Oberaletsch (VS)	74.66	73.47	x	x	X	Die Schutzverträge sowie die Beschreibung zum Controlling siehe in Annex 5

1.8. Bundesinventar der Eidgenössischen Jagdbanngebiete

➔ Siehe auch in Nominationsdossier an die UNESCO, 2005; Kapitel 5b, Seite 59f + Supplement 5, 922.31 Verordnung über die Jagdbanngebiete. Beachte insbesondere Kapitel 2; Artikel 5 und 6 der Verordnung, welche u.a. Auskunft über die konkreten Schutzmassnahmen geben. Kapitel 6 zeigt die finanziellen Mittel für die Jagdbanngebiete auf. DEUTSCH: <http://www.admin.ch/ch/d/sr/9/922.31.de.pdf>

Eidgenössische Jagdbanngebiete (Banngebiete) dienen dem Schutz und der Erhaltung von seltenen und bedrohten wildlebenden Säugetieren und Vögeln und ihrer Lebensräume sowie der Erhaltung von gesunden, den örtlichen Verhältnissen angepassten Beständen jagdbarer Arten.

Das Bundesinventar der eidgenössischen Jagdbanngebiete (Inventar) enthält für jedes Banngebiet:

- a. eine kartographische Darstellung des Perimeters und eine Beschreibung des Gebietes;
- b. das Schutzziel;
- c. besondere Massnahmen für den Arten- und Biotopschutz und die Regulierung von Beständen jagdbarer Arten und deren zeitliche Geltung;
- d. allenfalls einen Perimeter ausserhalb des Banngebietes, in welchem Wildschäden vergütet werden.

Die Jagdbanngebiete machen rund 129 km² des gesamten Perimeters ein, was rund 16% entspricht.

Nr.	Jagdbanngebiete	Gesamtfläche [km ²]	Fläche [km ²] im Weiterbe	Verordnung*	Controlling *	Aufsicht* 1)	Beschreibung / Massnahmen zur Erreichung der Schutzziele
8.1	Aletschwald (VS)	15.12	8.79	X	X	X	Siehe Verordnung. Aufsichtstätigkeit der zuständigen Wildhüter
8.2	Alpjuhorn (VS)	57.89	56.97	X	X	X	
8.3	Bietschhorn (VS)	13.39	12.43	X	X	X	
8.6	Wilerhorn (VS)	32.41	31.68		x	x	
8.4	Kiental (BE)	83.92	12.91	X	X	X	Aufsichtstätigkeit der zuständigen Wildhüter (Siehe Pflichtenheft in Annex 5.) Die hier gemachten Ausführungen gelten beispielhaft für die anderen Jagdbanngebiete im Perimeter: Heute nicht mehr Einzelwildschutz, sondern Lebensraumschutz. Ausweisung der Jagdbanngebiete ursprünglich aufgrund von minimum an Wildbeständen. Ziel: Lebensraumerhaltung und Arten-

							<p>schutz, was ein relativ starker Schutz bedeutet.</p> <p>Das Banngebiet Kiental unterliegt partiellem Schutz (= gezielte Abschüsse + Hegeabschüsse unter Führung der Wildhut möglich).</p> <p>Aufwand der Aufsicht für Kiental-Bann innerhalb des Perimeters beträgt ca 20-25% einer Arbeitsstelle.</p> <p>Die Öffentlichkeitsarbeit nimmt einen immer grösseren Stellenwert ein (5-10 Führungen und ca 5 Referate pro Jahr; Lager, Schulen).</p> <p>Besonderheiten innerhalb des Perimeters: Raufusshühner, Birk- und Schneehühner. Bartgeier ist regelmässig in diesem Gebiet. Es wird vermehrt Steinwild (=Wechselwild) von Lauterbrunnerseite her beobachtet.</p> <p>Controlling: Jahresbericht zu den einzelnen Banngebieten. Bestände, Bestandes-Entwicklung, Fallwild, Abschüsse, Übertretungen der Zielsetzungen, Öffentlichkeitsarbeit etc.</p> <p>Finanzierung durch Kanton und BAFU</p>
8.5	Schwarzhorn (BE)	71.02	5.84	X	X	X	<p>Aufsichtstätigkeit der zuständigen Wildhüter (Aufwand nicht sauber quantifizierbar)</p> <p>Controlling: Jahresbericht zu den einzelnen Banngebieten. Bestände, Bestandes-Entwicklung, Fallwild, Abschüsse, Übertretungen der Zielsetzungen, Öffentlichkeitsarbeit etc</p>

1.9. weitere Aktivitäten und Schutz Tätigkeiten seitens Bund und Kantone

Nr.	Schutzgebietstyp	Gesamtfläche [km ²]	Fläche [ha] im Weiterbe	Verordnung	Bewirtschaftungsvertrag*	Controlling *	Beschreibung / Massnahmen zur Erreichung der Schutzziele:
	Trockenstandorte (Kanton Bern)		48,3 ha	x	x	X	Die Verordnung über Beiträge an Trockenstandorte und Feuchtgebiete (FTV) ist die Basis der Verträge mit den Bewirtschaftern (siehe in Annex 5: Ordonnance sur les contributions à l'exploitation de terrains secs et de zones humides (OTSH)) Jährliche Bewirtschaftungs-Beiträge an Landwirte von Fr. 23 -26'000.- (abhängig von der jeweils genutzten Fläche). Finanzierung durch Naturschutzinspektorat Ktn BE + Bundesamt für Umwelt (BAFU)
	Mineralkluft Gerstenegg Geschütztes geologisches Objekt, Kanton Bern				(x)		Regierungsratsbeschluss vom 11.12.1974. Siehe in Annex 5 Die Kluft liegt unterirdisch an einem Zufahrtsstollen zum unterirdischen Kraftwerk der KWO. Beim Bau des Stollens entdeckt und unter Schutz gestellt. Sie ist vor jeglichen Eingriffen geschützt und ist im Rahmen von Kraftwerksbesuchen für die Öffentlichkeit zugänglich.
	Überarbeitung Sachplan Infrastruktur Luftfahrt: Gebirgslandeplätze <i>See Nomination Dossier, 2005; Page 54</i>		7 Objekte				7 Gebirgslandeplätze liegen innerhalb des BLN Gebietes (siehe 1.2) Der Bund führt unter Beteiligung der Kantone sowie der Akteure eine Bereinigung: Auf Objektebene werden alle Plätze evaluiert und in Arbeitsgruppen die Nutzungskonflikte bereinigt + Lösungen vorgeschlagen. Das Managementzentrum wird in die Arbeitsgruppen miteinbezogen (Planung: 2008)

2. Aktivitäten und Projekte der 26 Gemeinden mit Welterbe Anteil

Die Inhalte zu Kapitel 2 wurden durch das Managementzentrum eingeholt und zusammengestellt

Siehe auch die Karte *Übersicht der Aktivitäten von Gemeinden und Organisationen (Wanderwege, Hütten, Gebirgslandeplätze, Projekte*

Gemeinde	P: Projektname Z: Ziele K: Kurzbeschreibung M: Massnahmen T: Trägerschaft / Verantwortlich	Budget Finanzierung	Status und Dauer 1) abgeschlossen; 2) laufend; 3) geplant	Rechtliche Grundlagen vorhanden JA/Nein
Perimetergemeinden des Kantons Bern (nach Regionen geordnet)				
Guttannen	P: Alles Perimeter relevante wird durch die KWO gemacht. T: Kraftwerke Oberhasli zu Tätigkeiten durch die Kraftwerke Oberhasli siehe auch „ Aktivitäten und Projekte von Organisationen und Institutionen “ weiter unten in diesem Dokument sowie in Annex 5			ja
Innertkirchen	Keine Projekte oder Aktivitäten geplant (haben nur Firn und Eisgebiete im Perimeter)			
Meiringen	Im UNESCO-Perimeter des Einwohnergemeinde Meiringen sind keine Tätigkeiten oder Projekte geplant, da der Perimeteranteil nur sehr klein ist.			
Schattenhalb	P: Klettern Z: Kletterrouten sanieren / einrichten M: Kletterrouten sanieren / einrichten >100 Kletterrouten in Engelhörner und Wellhorn T: Einh. Bergführer, Kletterer, Private	Budget unbekannt. Finanzierung: div. Sponsoren	2) u. 3)	Ja
	P: Holznutzung Z: Nutzung der Gebirgswälder M: Holzschläge mittels Langstreckenseilkran T: Gletscherschlucht Rosenlaur AG	Budget unbekannt Finanzierung durch Holzverkauf	3)	Ja
	P: Alpbetrieb Erhalten und Nutzen Z: Sömmerungsweide von Schafen aufrechterhalten M: Im Gebiet Gletscherhubel werden Schafe gesömmert. T: Heinz Brog, Schattenhalb		2)	Ja

	<p>P: Wanderwege / Bergwege Z: Erschliessung/ Zugang Engelhorn- und Dossenhütte M: Unterhalt des Weges T: Gemeinde u. SAC als Hüttenbesitzer</p>	<p>Budget: 1'000 – 8'000.- SFR / a (seit 20 Jahren). 1990 grössere Sanierung zu 20'000.- Finanzierung durch Gemeinde u. Hüttenbesitzer.</p>	1) u 2)	Ja
	<p>P: Engelhornhütte Z: Unterkunftsmöglichkeit Kletterer/ Wanderer in der Berghütte AACB M: Betrieb der Hütte T: Akademischer Alpenclub Bern (AACB)</p>	<p>Budget unbekannt. Finanzierung durch: Akademischer Alpenclub Bern (AACB)</p>	1) u 2)	Ja
	<p>P: Gletscherschlucht Rosenloui Z: Unterhalt + Betrieb von begehrter Schlucht und des Rundwegs mit ca 30'000 Besuchern im Jahr M: Unterhalt von Weganlagen und Gebäude T: Gletscherschlucht Rosenloui AG</p>	<p>Budget unbekannt Finanzierung durch: Gletscherschlucht Rosenloui</p>	2	Ja
Grindelwald	<p>P; M: Die Gemeinde Grindelwald und die Bergschaften als Grundeigentümer engagieren sich seit Jahren stark bei der Landschaftspflege sowie dem Unterhalt von Wander- und Bergwegen und leisten somit einen erheblichen finanziellen Beitrag zu Gunsten des UNESCO Welterbes T: Gemeinde und Bergschaften</p>	<p>Budget unbekannt Finanzierung: Gemeinde und Bergschaften</p>	2)	Ja
	<p>P: Schafalp auf dem „unteren Gletscherberg“ (Gebiet entlang des unteren Grindelwaldgletscher) Dieses Gebiet wird nach wie vor von Schafen genutzt im Sommer. Seit dem Sommer 2005 kommen wesentlich weniger Schafe auf die Alp als vorher. Seit 2005 ist auch kein ständiger Schafhirt mehr auf der Alp T: an die Schafzuchtgenossenschaft Schüfen verpachtet (knapp 400 Schafe sömmeren und betreuen).</p>	Keine Angaben	2)	Ja
Lauterbrunnen	<p>P: Landschaftsplanung der Gemeinde Lauterbrunnen. Z + M: keine Angaben T: Gemeinde</p>	<p>Budget unbekannt Finanzierung unbekannt</p>	3)	
	<p>P / Z: Berg- und Wanderwegunterhalt M: Unterhaltsarbeiten T: Gemeinde</p>	<p>Wegmeister: 600h / CHF 30'000 Zivilschutz: 2000h / CHF 2'000 Einsatz Eisnergruppe: 360h / CHF 2'100 Wanderwegleiter: 50h / CHF 2'000 Hilfskräfte: 300h / CHF 9000 Total: 45'100 CHF pro Jahr, Finanziert durch Gemeinde</p>	2) jährl	Ja

	<p>P: Wanderweg über Rottalbach wieder begehbar machen M + Z: Seilbrücke über den Rottalbach erstellt T: keine Angaben</p>	<p>Jährlich wiederkehrende Kosten für Montage / Demontage (Lawinenzug)</p> <p>Finanzierung Unbekannt</p>	1)	Ja
	<p>P, Z, M: Alpenbewirtschaftung:</p> <ul style="list-style-type: none"> • Trachsellaunen: Sömmerung von 2 Kühen • Sefinen: Sömmerung von 112 Kühen (wovon 8 Ammenkühe), 100 Rinder, 1 Pferd und 100 Ziegen • Untersteinberg Sömmerung von 10 Kühen, 7 Rindern und 7 Ziegen • Stufenstein Sömmerung von 70 Ziegen, 100 Schafen und 6 Rindern • Obersteinberg Sömmerung von 15 Kühen, 3 Rindern, 1 Maultier und 11 Schafen • Breitlauenen Sömmerung von 2 Kühen, 97 Ziegen, 9 Rindern, 1 Pferd und 100 Schafe • Busen Sömmerung von 11 Ammenkühen, 43 Rindern, 3 Kleinpferde und 1 Esel <p>T: Alpschaften</p>	Finanzierung und Budget unbekannt	2)	
	<p>P, Z, M: Im Perimeter UNESCO Welterbe ist auf der Strasse Stechelberg-Trachsellaunen ein Fahrverbot erlassen worden, welches dazu dient, dass die Verkehrsbelastung in diesem Gebiet möglichst gering gehalten werden kann. Jedoch soll dadurch eine zeitgemässe Bewirtschaftung der Betriebe im Perimeter-Gebiet nicht unnötig eingeschränkt werden.</p> <p>T: Gemeinde</p>	Finanzierung und Budget unbekannt	1)	Ja
Kandersteg	<p>P: Wander- und Bergwege innerhalb des Perimeters Z: Erhalt der bestehenden Wander- und Bergwege. M: laufende Unterhaltsarbeiten in den ca 30 km innerhalb des Perimeters T: Gemeinde Kandersteg, Bauamt.</p>	<p>Budget: ca 10'000.- / a, Nebst 2 Gemeindearbeitern mit freiwilligen Wegmeistern Finanzierung durch Gemeinde</p>	2) jährlich	ja
	<p>P: Waldreservat „Holzspicher“ südöstlich des Oeschinensees T: 3 Alpschaften Oeschinen</p>	Finanzierung und Budget unbekannt	3)	Ja
Reichenbach	<p>P: Gemeinwerk Gamchi Z, M: : Erhaltung und Pflege der Alpwirtschaft und Alpflächen im Gebiet Gamchi T: Alpschaft Gamchi</p>	150h jährlich finanziert durch Freiwilligenarbeit der Alpschaft Gamchi	2) jährlich	
	<p>P: Wander- und Bergwege innerhalb des Perimeters Z: Erhalt der bestehenden Wander- und Bergwege M: laufende Unterhaltsarbeiten. T: Gemeinde Reichenbach; Ausführung Alpschaft Gamchi</p>	<p>CHF 24'000 .- / Jahr (Arbeitsstunden und Material),</p> <p>Finanziert durch Gemeinde</p>	2) jährlich	Ja

Perimetergemeinden des Kantons Wallis (nach Regionen geordnet)				
Blatten (Lötschental)	P: Deponiekonzept in Kühmad Z: Hochwasserschutz M: Deponie von Geröll und Schwemmgut mit späterer Renaturierung. Dient zur momentanen Gröllablagerung für den Stammbach, der uns praktisch jedes Jahr Kummer bereitet. Die Unterlagen sind beim Kanton. Das Konzept wurde von Anfang an in Zusammenarbeit mit allen zuständigen Stellen des Kantons besprochen und angepasst. Sollte es im Rahmen des jetzt laufenden Hochwasserschutzkonzeptes eine bessere Möglichkeit für den Stammbach geben, werden wir diese nach Möglichkeit wahrnehmen. T: Gemeinde	Gemeinde und Kanton CHF 70'000.-	2)	Ja
	P: Unterhalt der Färriche (für z.B Schafzählungen) Vorsass bei Kühmad Z: Ständige landwirtschaftliche Nutzung M: Jährliche Aufräumarbeiten durch die Alpgenossenschaft T: Alpgenossenschaft	2-3 Tage Freiwilligenarbeit jährlich Alpgenossenschaft;	2)	Ja
	P: Lehrpfad Gletschervorfeld Z: Sensibilisierung der Einheimischen und der Gäste M: Lehrpfad entlang des offiziellen Wanderweges + Wegverbesserungen / Tafeln setzen (10x10cm) T: Lötschental Tourismus	ca. CHF 50'000 Lötschental Tourismus, JAB, Sponsoren	2)	Ja
	P: Bestossung der Alpen Z: Landwirtschaftliche Nutzung M: Nutzung für Sömmerung auf den Alpen Gletscheralp / Guggialp / Anen T: Alpgenossenschaft	unbekannt Alpgenossenschaft	2)	Ja
	P: Erschliessung Guggialp Z: Ermöglichen des Materialtransportes M: Ausbau des Wanderweges zum Befahren mit landw. Fahrzeugen + Klare Regelung des Befahrens. Massive Verminderung der Heliflüge T: Alpgenossenschaft	unbekannt Alpgenossenschaft	3)	Noch offen
	P: Lawinerverbauungen Blühenden / Tellialp Z: Schutzmassnahmen für Dorf und Weiler M: Erweiterung und Unterhalt Lawinenschutzelemente T: Gemeinde	ca. 350'000 Gemeinde/ Kanton	2)	Ja

	P: Unterhalt Wanderwegnetz Z: Siehe homologiertes Wanderwegnetz T: Lötschental Tourismus	Lötschental Tourismus, Gemeinde Unterhalt: ca. CHF 6000 Wegsanierung je nach Bedarf bis zu ca. CHF 30'000	2)	Ja
	P: Bestossung der Alpen Tellialp / Blühenden Ässeres und Inneres Fafertal Z: Landwirtschaftliche Nutzung M: Nutzung für Sömmerung von Schmalvieh T: Alpengenossenschaften	2-3 Tage jährl. Alpgenossenschaften	2)	Ja
Ferden	Hüttenweg der Bietschhornhütte	Keine Angaben	2)	
Kippel	Keine Angaben	Keine Angaben		
Wiler	Übliche forstwirtschaftliche Tätigkeiten (Keine weiteren Angaben)	Keine Angaben	2)	
Hohtenn	P, Z: Ordentlicher Unterhalt der Wanderwege M: Die Wanderwege werden von der Verwaltung, kontrolliert und dann zusammen mit dem Forstbetrieb Südrampe unterhalten T: Gemeinde	ca. CHF 2000-5000 Durch Gemeinde Hohtenn	2)	
	P: Unterhalt der Wälder M: Die Wälder werden von Forstkreis II, unterhalten. Waldpflege und ordentlicher Unterhalt T: Burgergemeinde	Bund und Gemeinde Wird über den Forstkreis II als gesamtes Projekt vom Forstrevier Südrampe bearbei- tet	2)	Ja
	P: Ordentlicher Unterhalt der Suonen: Ladensuon, Gieschuon K: Die Wasserleitung, Ladensuon, beliefert den Weiler Laden mit Wasser. Die Gemeinde ist verantwortlich dass das Wasser bis in den Weiler Laden fliesst. Von da weg sind dann die Privaten Nutzer für die Bewässerung ihrer Parzellen zuständig. Die Zweite Wasserleitung Gieschuon, wird nur im Perimeter gefasst und versorgt die tiefer liegenden Weiler Binu – Giesch M: Unterhalt und Reparatur T: Gemeinde	Ca. 2000 – 5000 Fr. je nach Verhältnis und Schäden die entstehen. Ist von Jahr zu Jahr verschieden Gemeinde,	2)	
	P: Unterhalt der Wasser- und Abwasserversorgung im Weiler Laden. Der Weiler ist nicht ganzjährig bewohnt. Ca. von April-September je nach Wetter Schneeverhältnisse. Auf der Zufahrtstrasse wird kein Winterdienst unterhalten K: Die Gemeinde ist verantwortlich für den Unterhalt der Wasser- und Abwasserversorgung im Weiler Laden. M: Ordentlicher Unterhalt und Reparatur T: Gemeinde	Der Aufwand ist momentan sehr gering, da die Abwasser-Leitungen vor 3 Jahren komplett erneuert wurden. Ca Fr. 2000.- im Jahr Gemeinde	2)	Ja

	<p>P: Einplanen von Quellschutzzonen K: Die Trinkwasserfassungen befinden sich im BLN UNESCO Welterbe. Die Zonen-Nutzungsplanung hat gezeigt, dass um die Quellen, so genannte Quellschutzzonen eingerichtet werden müssen. Diese wurden an Hand von Messungen mit einem Geologie Büro ausgeschieden M: In der Zonen-Planung erfasst und muss auch durchgesetzt werden, Bauverbot in den Quellschutzzonen. Die Bauzone Ladenalp ist in den Quellschutzzonen. T: Gemeinde</p>	Nicht bezifferbar, da in der Zonen- Nutzungsplanung integriert Gemeinde	2)	Ja
	<p>P: BLN Schutzgebiet umsetzen (entspricht dem Perimeter des Welterbe) M: Keine Speziellen T: Gemeinde</p>	Keine Kosten verursachend	2)	Ja
Steg	<p>Auf Perimeter-Gebiet von Steg waren früher Schafalpen, heute Wildnisgebiet. Fast nicht zugänglich. Der Natur überlassen. M: Zuunterst evtl. gewisser Holzschlag möglich. Wanderweg an Rand des Perimeters markiert. T: unbekannt</p>			
Ausserberg	<p>P: Innere Geisbalme Z: Renaturierung Wässerwasserleitung "Niwärch": Erhaltung der natürlichen Hangsicherung (Bäume etc.) M: Wässerwasserleitung Niwärch: Anstelle des PVC-Rohres Wasserleitung wieder in traditioneller Bauweise "Tretschbord" instand stellen T: Gemeinde</p>	CHF 92'000 Mel. Amt / FLS, Pro Natura, Gemeinde	3)	Ja
	<p>P: Gruebe Z: Renaturierung Wässerwasserleitung "Niwärch": Erhaltung der natürlichen Hangsicherung (Bäume etc.) K: Wässerwasserleitung Niwärch: Anstelle des PVC-Rohres Wasserleitung wieder in traditioneller Bauweise "Tretschbord" instand stellen T: Gemeinde</p>	CHF 56'000 Gemeinde, BLS, Dritte	3)	Ja
	<p>P: Niwärch - üssre Chumerschbrand Z: Wasserleitung in traditioneller Bauweise "Holzchänil" erstellen M: Schadenfall 2005; Exponierte Felspartie: Wässerwasserleitung in offenem Holzchänil entlang der Felswand führen. T: SAC / Gemeinde</p>	CHF 27'000 SAC / Gemeinde / Dritte	2)	Ja

	<p>P: Entsander Niwärch Z: Entsander der Wässerwasserfassung im Baltschiedertal neu konzipieren K: Bestehender Entsander Niwärch ist sehr aufwändig im Unterhalt und funktioniert nicht richtig. M: Neugestaltung der Fassung T: Gemeinde</p>	<p>CHF 16'000 Gemeinde, Dritte</p>	3)	Ja
	<p>P: Historische Wässerwasserleitungen M: Jährlicher Unterhalt der 41 Km langen Wässerwasserleitungen Baltschiedertal / Ausserberg T: Gemeinde</p>	<p>CHF 35'000 Keine Angaben</p>	2) jährlich	Ja
	<p>P: Steinschlagschutz Lowigrabu Z: Erhöhung der Sicherheit für Fussgänger M Steinschlagschutz Lowigrabu Ausserberg zur Erhöhung der Sicherheit der Fussgänger (Bewohner, Spaziergänger, Wanderer). Steinschlagschutznetze entlang des Wanderweges (Höhenweg Südrampe) T: Gemeinde</p>	<p>~ CHF 60'000 Bund, Kanton Gemeinde, Dritte</p>	2) jährlich	Ja
Baltschieder	<p>P: Risigraben-Schutzmassnahmen Z: Schutz der Trinkwasserversorgung / Schutz des „Inneren Senntums“ (Gebäude) K: Durch die Verlagerung des Abflussgerinnes des Risigrabens erfolgte eine Grabenerosion in der Nähe der Quelfassungen. Dadurch besteht die Gefahr der Verlust der Quellen durch Murgänge sowie Verschmutzungen der Quellen durch Oberflächenwasserinfiltration etc. M: Sofortmassnahme: Im Herbst 2006 wurde das Abflussgerinne des Risigrabens mittels eines Erddammes provisorisch umgeleitet. Folgemassnahme: Direkt beim Ausgang des Risigrabens die Erstellung eines grossen Naturdammes um die temporären Unwetter von den Quellschutzgebieten fernzuhalten / abzulenken. T: Gemeinde</p>	<p>Sofortmassnahmen Brutto CHF 140'000 / Netto CHF 30'000 Folgemassnahmen Brutto CHF 500'000 / Netto CHF 100'000 Bund / Kanton und Gemeinde Baltschieder</p>	1), 2)	Ja
	<p>P: Brücke „Eiiltini Z: Sichere Überquerung des Baltschiederbaches für Landwirtschaft / Tourismus K: Aufgrund von Naturereignissen wurden in der Vergangenheit mehrmals die bestehenden Brückenverbindungen unterbrochen. M: Um die Sicherheit langfristig zu gewähren, wurde eine Hängebrücke im Gebiet „Eiiltini“ erstellt. T: Gemeinde</p>	<p>Brutto CHF 170'000 / Netto CHF 40'000 Kanton / Gemeinde Baltschieder</p>	1)	Ja
	<p>P: Sanierung / Erhaltung Suonen, Gebäude, Wege Z: Nachhaltigkeit der Suonen, Gebäude, Wege für Landwirtschaft und Tourismus K: Um das Wässerwasser für die Landwirtschaft langfristig zu sichern, müssen die Suonen saniert werden. Die bestehenden Gebäude stellen einen kulturellen Wert dar und müssen unbe-</p>	<p>Eine erste Grobschätzung liegt bei über 1 Million CHF für die nächsten 5 Jahre Gemeinden, Fonds Landschaftsschutz</p>	3)	Ja

	<p>dingt erhalten bleiben. Die Wege sind für Landwirtschaft und Tourismus wichtig und müssen unterhalten werden.</p> <p>M: Sanierung / Erhaltung Suonen, Gebäude, Wege</p> <p>T: Baltschiedertal-Kommission (Mitglieder sind alle PräsidentenInnen von den Gemeinden Baltschieder (Präsidium), Mund, Ausserberg und Eggerberg) zu Vertrag Baltschiedertal und –kommission siehe auch „Aktivitäten und Projekte von Organisationen und Institutionen“ weiter unten in diesem Dokument sowie in Annex 5</p>	Schweiz (FLS), Stiftung Landschaftsschutz Schweiz (SL), Staat Wallis (Meliorationssamt) etc.		
	<p>P: Erweiterung Trinkwasserversorgung</p> <p>Z: Erweiterung Trinkwasserversorgung</p> <p>K: Aufgrund der jüngsten Klimaveränderungen, dem versiegen bestehender Quellen, sowie der vermehrten Nachfrage nach Trinkwasser drängt sich eine Erweiterung der Trinkwasserversorgung im Baltschiedertal auf.</p> <p>M: Suchen von neuen Quellen / Sanierung alter Quellen</p> <p>T: Gemeinde</p>	<p>Brutto CHF 200'000</p> <p>Gemeinde Baltschieder / Nutzniesser</p>	3)	Ja
Birgisch	<p>P: und Z: Neuanlegen eines Wanderweges: Alpe Nessel-Grat Richtung Foggenhorn</p> <p>M: Umwandlung von Viehtrieb in einen Wanderweg für Nutzung als Viehtrieb und Wanderweg.</p> <p>T: Gemeinde</p>	<p>ca. CHF 55'000</p> <p>Bund, Kanton und Gemeinde</p>	1)	Ja
Eggerberg	<p>P: Wasserwasserleitung Gorperi</p> <p>Z: Renaturierung Wasserwasserleitung "Gorperi": Erhaltung der natürlichen Hangsicherung (Bäume etc.)</p> <p>K: Anstelle von PVC-Rohren Wasserleitung wieder in traditioneller Bauweise "Tretschbord" instand stellen</p> <p>T: Gemeinde</p>	<p>> CHF 100'000.00</p> <p>Mel. Amt / FLS, Gemeinde</p>	2)	Ja
	<p>P: Wasserwasserleitung Laldneri</p> <p>Z: Renaturierung Wasserwasserleitung "Laldneri": Erhaltung der natürlichen Hangsicherung (Bäume etc.)</p> <p>K: Anstelle von PVC-Rohren Wasserleitung wieder in traditioneller Bauweise "Tretschbord" instand stellen</p> <p>T: Gemeinde</p>	<p>> CHF 100'000.00</p> <p>Mel. Amt / FLS, Gemeinde</p>	2)	Ja
	<p>P: Wasserwasserleitung Tenneri</p> <p>Z: Renaturierung Wasserwasserleitung "Tenneri": Erhaltung der natürlichen Hangsicherung (Bäume etc.)</p> <p>K: Anstelle von PVC-Rohren Wasserleitung wieder in traditioneller Bauweise "Tretschbord" instand stellen</p> <p>T: Gemeinde</p>	<p>> CHF 100'000.00</p> <p>Mel. Amt / FLS, Gemeinde</p>	2)	Ja

Mund	Wässerwasser (Suonen)Sanierung Keine weiteren Angaben	CHF 360'000 Finanzierung unbekannt	2)	
	P: Wanderwegnetz Wird zusammen mit Valrando aufgearbeitet und angepasst (Themenwege etc.) T: keine Angaben	Keine Angaben	2)	
	P: Ze Steinu-Erl Z, M: Sanierung des Weges Ze Steinu-Erl (Baltschiedertal) T: keine Angaben	CHF 260'000 Finanzierung noch nicht gesichert	2)	
	P: Wasserleite Wyssa M: Sanierung des Wasserleite Wyssa (Gredetschtal) nach Unwetterschäden im Jahr 2000. T: Unterhaltsträgerschaft Wyssa/ Stigwasser	>CHF 10'000 Finanzierung unklar	1)	
	P, Z, M: Gezielte Weiderführung des Schafe in den Alpen Erl, Hohnalpe, Aebet und Rämi verhindern ein Brachliegen der Oberflächen vor allem in den tieferen Lagen. Die Tendenz einzuwalden und die Verarmung der Artenvielfalt im Baltschiedertal werden so gemindert. T: Landwirtsch. Zentrum Visp	Keine Angaben	3)	
	P, Z, M: Jedes Jahr wird in den Alpen zum Unterhalt der Wege ein „Gmeiwärch“ durchgeführt. Ebenfalls jährlich führt die Unterhaltsträgerschaft Wyssa/ Stigwasser an einem Tag Unterhaltsarbeiten durch. Die Wässerwasserfassung Gredetsch und die verschiedenen Wasserleiten werden durch die Wasserhüter und Vögte ständig kontrolliert. T: keine Angaben	Keine Angaben		
Naters	P: Unterhalt Wanderweg Belalp-Oberaletschchi-Driest-Gletscher Z: Erhalt des Wanderweges M: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter)	CHF 1000.- Gemeinde Naters	2) jährlich	Ja
	P: Unterhalt Wanderweg Oberaletschji-Tällihitta-Gletscher Z: Erhalt des Wanderwege K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter)	CHF500.- Gemeinde Naters	2) jährlich	Ja
	P: Wanderweg Driest-Mittelgang-Zen Bächen-Gletscher Z: Erhalt des Wanderweges K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter)	CHF 1000.- Gemeinde Naters	2) jährlich	Ja

<p>P: Unterhalt Hüttenweg Lochegge – Oberaletschhütte Z: Erhalt des Wanderweges K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: SAC Sektion Chasseral</p>	<p>Budget unbekannt SAC Sektion Chasseral</p>	<p>2) jährlich</p>	<p>Ja</p>
<p>P: Unterhalt Hüttenweg Lochegge-Biwak Fusshörner Z: Erhalt des Wanderweges K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter)</p>	<p>Budget unbekannt Alpin Center Blatten/Belalp</p>	<p>2) jährlich</p>	<p>Ja</p>
<p>P: Unterhalt Wanderweg Belalp-Aletschji (Alpe Aletsch) Z: Erhalt des Wanderweges K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter).</p>	<p>CHF 500.- Gemeinde Naters</p>	<p>2) jährlich</p>	<p>Ja</p>
<p>P: Unterhalt Wanderweg Bärenpfad-Aletschji Z: Erhalt des Wanderweges K: Ausbesserungsarbeiten, Wegräumen von Steinen usw. T: Gemeinde (Imhof Armin, Bauverwalter)</p>	<p>CHF500.- Gemeinde Naters</p>	<p>2) jährlich</p>	<p>Ja</p>
<p>P: Naturlandschaft – Sanierung Weg im Bereich Steigle Z: Erhalt der jahrhunderte alten Trockenmauern und des mit Natursteinen gepflasterten Weges vom Hotel Belalp-Steigle. K: Sanierung T: Michlig Dominik</p>	<p>CHF 150'000 Beiträge Dritter, Burgerschaft Naters, Gemeinde Naters</p>	<p>3)</p>	<p>Ja</p>
<p>P: Landwirtschaft – Käsekeller Tälli Z: Sanierung, Mauern stellenweise ausbessern, neues Dach. K: Erhalt des alten Käsekellers T: Michlig Dominik</p>	<p>CHF 47'000</p>	<p>3)</p>	
<p>P: Unterhalt Klettersteig -Klettersteig mit Hängebrücke um den Gebidemstausee Z: Erhalt des Klettersteiges/Hängebrücke. M: Ausbesserungsarbeiten T: Gemeinde (Imhof Armin, Bauverwalter)</p>	<p>Alpin Center Blatten/Belalp</p>	<p>2) jährlich</p>	

	<p>P: Neubau Hängbrücke: - Verbindung des Wanderweges über die Massa von der Riederalp-Grünsee-Aletschji-Belalp</p> <p>Z: Verbindung zwischen dem Grünsee und dem Aletschji herstellen.</p> <p>M: Besucherlenkungskonzept der Pro Natura</p> <p>T: keine Angaben</p>	CHF 175'000	2)	
	<p>P: Infrastruktur Oberaletschhütte</p> <p>Z: Jährlicher Unterhalt</p> <p>T: Gemeinde (Imhof Armin, Bauverwalter)</p>	Budget unbekannt	2) jährlich	
	<p>P: Infrastruktur Biwak Fusshörner</p> <p>Z: Jährlicher Unterhalt</p> <p>T: Gemeinde (Imhof Armin, Bauverwalter)</p>	Budget unbekannt	2) jährlich	
Nieder-gesteln	Keine Angaben			
Raron	<p>P: Landschaftspflege</p> <p>Z: Landschaftspflegekonzept</p> <p>K: Durch Erhaltung der Kulturlandschaft / Erhöhung der Sicherheit und Attraktivität der Landschaft</p> <p>M: Grundlagen- und Situationsanalysen = Konzept</p> <p>T: Gemeinde Raron; BINA Engineering SA, 3946 Turtmann</p>	ca. CHF 15'000 / Jahr	2), 3)	Ja
	<p>P: Höhenweg „BLS Südrampe“</p> <p>Z: Sicherheit / Erhalt Gastrobetrieb</p> <p>M: Rahmenbedingungen „Buvette Rarnerkumme“</p> <p>T: BLS / Gem. / Privat</p>	ca. CHF 10'000 / Jahr	1), 2)	Ja
Betten / Bett-meralp	<p>P: Bau einer Aussichtsplattform auf dem Bettmerhorn mit Rollstuhlgängigem Zugang ab Bergstation Gondelbahn Bettmerhorn.</p> <p>T: Bettmeralp Bahnen AG, Herr Direktor König Anton</p>	Budget unbekannt	3)	
	<p>P: Sanierung und Umlegung des Wanderweges zum Märjelensee</p> <p>M: jeweils Sanierung nach Bedarf</p> <p>T: Bettmeralp Bahnen AG, Herr Direktor König Anton</p>	Budget unbekannt	1), 2)	JA

Bellwald	<p>P: Wanderweg Gletscherblick Z: Alter Fussweg wieder begehbar machen. M: Fussweg entlang der Suone wieder herstellen. Wiederherstellen eines alten Weges. Teilweise neu anlegen. (Karte Gletscherblickweg beigelegt) T: Gemeinde, Tourismusverein, Private Trägerschaft</p>	<p>noch nicht im Budget der Gemeinde</p> <p>Finanzierung noch offen,</p>	3)	
Riederalp	<p>P: Sanierung Wanderweg Riederalp-Belalp K: Wege werden nur markiert, da schon vorhanden. M: Es wird eine Hängebrücke von 123m erstellt (Überquerung Massa) T: Munizipalgemeinde Riederalp - Naters und Burgerschaft Ried_Mörel –Naters (IG Wanderweg Riederalp- Belalp)</p>	<p>Budget ca. CHF 250'000.-</p> <p>Durch die genannten Gemeinden und vor allem durch Private</p>	3)	
	<p>P, Z, M: Unterhalt und Markierung des Wanderwegnetzes T: Riederalp Mörel Tourismus</p>	Keine Angaben	2)	ja
Fieschertal	<p>P, Z, M: Erweiterung Mönchsjoehütte 2003. Baubewilligung erteilt durch Kant. Baukommission, Sitten. T: Genossenschaft Mönchsjoehütte, Grindelwald</p>	<p>CHF 800'000</p> <p>Genossenschaft Mönchsjoehütte, Grindelwald</p>	1)	ja
	<p>P, Z, M: Nutzung der Alpen Märjelen und Galtjinen, teilweise ausserhalb des Perimeters durch Schafe und Ziegen (Sommerbetrieb). T: keine Angaben</p>	Keine Angaben	2)	ja
	<p>P, Z, M: An den Wanderwegen werden die nötigen Unterhaltsarbeiten ausgeführt, wobei diese knapp in den Perimeter führen. T: keine Angaben</p>	Keine Angaben	2)	ja

3. Aktivitäten und Projekte von Organisationen und Institutionen

Die Inhalte zu Kapitel 3 wurden durch das Managementzentrum eingeholt und zusammengestellt

Siehe auch die Annex 4, Karte 7 *Übersicht der Aktivitäten von Gemeinden und Organisationen (Wanderwege, Hütten, Gebirgslandeplätze, Projekte)*

Organisation / Institution	P: Projektname K: Kurzbeschrieb T: Trägerschaft / Verantwortlich G: Fläche / Grösse	Z: Ziele M: Massnahmen S: Schutzstatus	Budget Finanzierung
Pro Natura See also nomination Dossier, 2005, capter 5a, P. 57	P: Privatrechtliches Schutzgebiet „Hinteres Lauterbrunnental“ M: Unterhalt von Wegen, Brücken und Alpgebäuden, Schwenten, Pflegelager, Kartierung und Signalisation, Reparaturen von Schäden (Lawinen, Hochwasser, Sturm), Gutachten. Besucherinformation und Aufwertungsmassnahmen (Hochmoor) T: Pro Natura S: Privatrechtliches Schutzgebiet (Eigentum der Pro Natura) innerhalb des kantonalen Naturschutzgebietes. G: 4.634 km ² Siehe auch in Annex 4: Karten 1 + 2 <i>Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete und Privatrechtliche Schutzgebiete von Schutzorganisationen</i>	Gesamtkosten, die in den Jahren 1988- 2003 für den Unterhalt des Privatrechtlichen Schutzgebiets „hinteres Lauterbrunnental“ für Pro Natura anfielen: Ausgaben gesamt: 706'665 Einnahmen gesamt: 351'288 Kosten gesamt: 355'377 Der Unterhalt von Wegen, Brücken und Alpgebäuden den Hauptteil der Kosten aus. Die Kosten für die Besucherinformation und für Aufwertungsmassnahmen (Hochmoor) waren dagegen relativ gering Finanzierung: Pro Natura mit Kanton Bern (NSI)	
	P: Vegetationskundliche Aufnahmen im hinteren Lauterbrunnental Z: als Grundlage für das Controlling des privatrechtlichen Schutzgebietes.	CHF 60'000.- Pro Natura; Kanton Bern	
	P: Unterhalt Wegnetz und Brücken sowie der Zügelwege für die Sömmerung K: Das Hintere Lauterbrunnental befindet sich in einem Permafrostgebiet. Die Kosten werden vermutlich in den kommenden Jahren wegen den Folgen der Klimaerwärmung (Auftauen von Permafrost, Steinschlag, Murgänge, Überschwemmungen etc.) eher zunehmen S: Die Arbeiten liegen im Privatrechtlichen Schutzgebiet (Eigentum der Pro Natura) innerhalb des kantonalen Naturschutzgebietes.	Ausgaben 1988-1998 durchschnittlich: CHF 6'446 / Jahr Abzüglich Einnahmen sind dies jährliche Kosten von CHF 5'537. Ausgaben 1998 – 2002 zwischen CHF 521 und 18'117 (Durchschnitt CHF 5379 / a). Die jährlichen Kosten betragen CHF 4760.	

	<p>P: Unterhalt der Gebäude Alp Untersteinberg</p> <p>K: Die Bewirtschaftung der Alp auf vier Stafeln führt dazu, dass an vier Orten Gebäude unterhalten werden müssen.</p> <p>S: Die Alp liegt im Privatrechtlichen Schutzgebiet (Eigentum der Pro Natura) innerhalb des kantonalen Naturschutzgebietes.</p> <p>G: 500 ha (zusammen mit Alp Breitlauenen)</p>	<p>Ausgaben für den Unterhalt der Gebäude von 1988-1998: CHF 232'280. Durchschnitt CHF 21'116 / a</p> <p>Abzüglich der Einnahmen (Pacht und Gebäudeversicherung) lagen die Kosten bei CHF 182'426 (Durchschnitt CHF 16'584 / a)</p> <table border="1"> <thead> <tr> <th colspan="8">Ausgaben für den Unterhalt von Gebäuden der Alp Untersteinberg 1998 – 2003</th> </tr> <tr> <th>Ausgaben</th> <th>2003</th> <th>2002</th> <th>2001</th> <th>2000</th> <th>1999</th> <th>1998</th> <th>Durchschnitt</th> </tr> </thead> <tbody> <tr> <td>Steuern / _ Versicherung (68.4%)</td> <td>1104</td> <td>1347</td> <td>982</td> <td>1136</td> <td>1125</td> <td>1134</td> <td></td> </tr> <tr> <td>Unterhalt Gebäude</td> <td>5245</td> <td>2800</td> <td></td> <td></td> <td>40582</td> <td>8223</td> <td>9475</td> </tr> <tr> <td>Schindeln (1/2)</td> <td></td> <td></td> <td></td> <td></td> <td>1585</td> <td>925</td> <td></td> </tr> <tr> <td>Total Ausgaben</td> <td>6349</td> <td>4147</td> <td>982</td> <td>1136</td> <td>43292</td> <td>10282</td> <td>11032</td> </tr> <tr> <td>Total Nettoausgaben</td> <td>5349</td> <td>3147</td> <td>-18</td> <td>1136</td> <td>31073</td> <td>10282</td> <td>8495</td> </tr> </tbody> </table> <p>Finanzierung: Pro Natura gemeinsam Kanton Bern (NSI).</p>	Ausgaben für den Unterhalt von Gebäuden der Alp Untersteinberg 1998 – 2003								Ausgaben	2003	2002	2001	2000	1999	1998	Durchschnitt	Steuern / _ Versicherung (68.4%)	1104	1347	982	1136	1125	1134		Unterhalt Gebäude	5245	2800			40582	8223	9475	Schindeln (1/2)					1585	925		Total Ausgaben	6349	4147	982	1136	43292	10282	11032	Total Nettoausgaben	5349	3147	-18	1136	31073	10282	8495
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<p>Pro Natura See also nomination Dossier, 2005, capter 5a, P. 57</p>	<p>P, Z, M: Unterhalt der Gebäude Alp Breitlauenen</p> <p>S: Die Alp liegt im Privatrechtlichen Schutzgebiet (Eigentum der Pro Natura) innerhalb des kantonalen Naturschutzgebietes.</p> <p>G: 500 ha (zusammen mit Alp Understeinberg)</p>	<p>Ausgaben für Unterhalt von Gebäuden von 1988-1998 : CHF 46'353 (Durchschnitt CHF 4214 / a).</p> <p>Abzüglich Einnahmen aus Pacht und Gebäudeversicherung betragen die Kosten noch CHF 15'598 (Durchschnitt CHF 1418 / a)</p> <table border="1"> <thead> <tr> <th colspan="8">Ausgaben für den Unterhalt von Gebäuden der Alp Breitlauenen 1998 – 2003</th> </tr> <tr> <th>Augaben</th> <th>2003</th> <th>2002</th> <th>2001</th> <th>2000</th> <th>1999</th> <th>1998</th> <th>Durchschnitt</th> </tr> </thead> <tbody> <tr> <td>Steuern / Versicherung (31.6%)</td> <td>510</td> <td>622</td> <td>454</td> <td>525</td> <td>520</td> <td>524</td> <td></td> </tr> <tr> <td>Unterhalt Gebäude</td> <td></td> <td>2267</td> <td>1389</td> <td>4302</td> <td>970</td> <td></td> <td>1488</td> </tr> <tr> <td>Schindeln (1/2)</td> <td></td> <td></td> <td></td> <td></td> <td>1585</td> <td>925</td> <td></td> </tr> <tr> <td>Total Ausgaben</td> <td>510</td> <td>2889</td> <td>1843</td> <td>4827</td> <td>3075</td> <td>1449</td> <td>2432</td> </tr> <tr> <td>Total Nettoausgaben</td> <td>-990</td> <td>1389</td> <td>343</td> <td>3327</td> <td>1575</td> <td>-51</td> <td>1119</td> </tr> </tbody> </table> <p>Finanzierung: durch Pro Natura und Naturschutzinspektorat des Kantons Bern.</p>	Ausgaben für den Unterhalt von Gebäuden der Alp Breitlauenen 1998 – 2003								Augaben	2003	2002	2001	2000	1999	1998	Durchschnitt	Steuern / Versicherung (31.6%)	510	622	454	525	520	524		Unterhalt Gebäude		2267	1389	4302	970		1488	Schindeln (1/2)					1585	925		Total Ausgaben	510	2889	1843	4827	3075	1449	2432	Total Nettoausgaben	-990	1389	343	3327	1575	-51	1119
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	<p>P: Schutz des Reservats Aletschwald</p> <p>Z, M: Aufsicht, Entschädigung des Nutzungsverzichts, Unterhalt der Zäune gegen Vieh sowie Unterhalt von Wegen, Besucherlenkung und -information. T: Pro Natura</p> <p>S: Privatrechtliches Schutzgebiet (Eigentum der Pro Natura) innerhalb des kantonalen Naturschutzgebietes Aletschwald. G: 3 km² + Teiffwald: 0.8 km²</p> <p>Siehe auch in Annex 4: Karten 1 und 2 <i>Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete und Privatrechtliche Schutzgebiete von Schutzorganisationen</i></p>	<p>Der hauptsächliche Aufwand in diesem Reservat ist die Aufsicht. Die Entschädigung des Nutzungsverzichts, der Unterhalt der Zäune gegen Vieh und der Unterhalt von Wegen und Besucherinformation machen dagegen eher kleine Beträge aus.</p> <table border="1"> <thead> <tr> <th colspan="4">Ausgaben Pro Natura Reservat Aletschwald</th> </tr> <tr> <th>Budget</th> <th>Aufwand</th> <th>Subventionen</th> <th>Bilanz</th> </tr> </thead> <tbody> <tr> <td>2007</td> <td>117000</td> <td>66000</td> <td>-51000</td> </tr> <tr> <td>2006</td> <td>116000</td> <td>66000</td> <td>-50000</td> </tr> <tr> <td>2005</td> <td>116000</td> <td>66000</td> <td>-50000</td> </tr> <tr> <td>2004</td> <td>116000</td> <td>0</td> <td>-116000</td> </tr> <tr> <td>2003</td> <td>105000</td> <td>29400</td> <td>-75600</td> </tr> <tr> <td>2002</td> <td>107000</td> <td>75600</td> <td>-31400</td> </tr> <tr> <td>2001</td> <td>101000</td> <td>45000</td> <td>-44900</td> </tr> <tr> <td>2000</td> <td>101000</td> <td>46200</td> <td>-54800</td> </tr> </tbody> </table>	Ausgaben Pro Natura Reservat Aletschwald				Budget	Aufwand	Subventionen	Bilanz	2007	117000	66000	-51000	2006	116000	66000	-50000	2005	116000	66000	-50000	2004	116000	0	-116000	2003	105000	29400	-75600	2002	107000	75600	-31400	2001	101000	45000	-44900	2000	101000	46200	-54800
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<p>Pro Natura</p> <p>See also nomination Dossier, 2005, capter 5a, P. 57</p>	<p>P: Betrieb des Pro Natura Zentrums Aletsch</p> <p>Das Zentrum bietet neben Ausstellungen, Exkursionen, Kursen auch Übernachtungsmöglichkeiten für Schulen, Einzelpersonen und Gruppen. Es hat Doppelzimmer sowie Mehrbettzimmer.</p>	<p>Gesamtbudget Pro Natura Zentrum Aletsch pro Jahr:</p> <ul style="list-style-type: none"> Einnahmen rund CHF 800'000.00 Aufwand rund CHF 1'000'000.00 <p>Aufwandüberschuss von CHF 200'000.00 zulasten von Pro Natura → Investition in den Bereich Umweltbildung</p>																																								
	<p>P: Ausstellungen im Pro Natura Zentrum Aletsch</p> <p>M: Seit 2005 Permanente Ausstellung zum UNESCO Welterbe inkl. jährlich wechselnde Sonderausstellung 2006: Birkhuhn</p> <p>K: Das Konzept der gegenwärtigen Ausstellung sieht einen permanenten Teil über das UNESCO Welterbe und eine jährlich wechselnde Sonderausstellung über eine typische Tierart im Welterbe vor. Für das laufende Jahr ist eine Sonderausstellung zum Thema "Das Murmeltier: wachsamer Langschläfer" geplant (und intern auch schon bewilligt). Auch diese Ausstellung wird uns wieder rund CHF 35'000.00 kosten. Für die kommenden Jahre sind Investitionen in der gleichen Grössenordnung für die jeweilige Sonderausstellung vorgesehen.</p> <p>Das Pro Natura Zentrum Aletsch liegt knapp ausserhalb des Perimeters. Die dort vermittelten Inhalte sind allerdings ausnahmslos auf den Perimeter des Welterbes sowie auf das Reservat Aletschwald bezogen, welches ebenfalls vollständig im Welterbe liegt.</p>	<p>CHF 230'000 für 2005 CHF 35'000 geplant für 2007ff</p> <p>Sponsoring und Pro Natura</p>																																								

	<p>P: Sonderausstellung im Pro Natura Zentrum Aletsch: 2006 über den Steinbock (Pro Natura Tier des Jahres)</p>	<p>CHF 35'000</p> <p>Zum grössten Teil durch Sponsoring gedeckt</p>
	<p>P: Pro Natura Zentrum Aletsch: Geführte Exkursionen</p> <p>K, M: Jeweils während der Saison bieten wir eine breite Palette an geführten Exkursionen für ganz unterschiedliche Gruppen an. Die Klassiker sind "Naturerlebnis Aletschwald", "Faszination Aletschgletscher", Wildbeobachtung", "An heiligen Wassern" und "Zauber einer Schlucht" (Massaschlucht). Das UNESCO Welterbe ist dabei immer ein Thema. Immer grösserer Beliebtheit erfreuen sich aber die "UNESCO-Exkursionen" (siehe unter http://www.pronatura.ch/aletsch/de/angebote/sonderangebot.html). Daneben werden zunehmend Exkursionen und Vorträge mit Schwerpunkt "UNESCO Welterbe" gewünscht. Wir kommen diesem Wunsch natürlich gerne nach.</p>	<p>Keine Angaben</p>
	<p>P: Ferien und Weiterbildung im Pro Natura Zentrum Aletsch</p> <p>M., K: Angebot von Rund 15 - 20 Angeboten im Bereich Ferien und Weiterbildung. Die Angebote reichen vom "Birkhahn-Weekend" über die "Familienerlebniswoche" bis zum Weiterbildungskurs "Wetter, Klima und Natur". Unter http://www.pronatura.ch/aletsch/de/angebote/kurskalender.html befindet sich das Deutsche Programm. Zusätzliche Angebote gibt es in französischer Sprache (siehe unter http://www.pronatura.ch/aletsch/fr/offres/weekends.html).</p>	
Diverse	<p>P: Exkursions- und Kurs-Angebote</p> <p>Z: Weiterbildung zum Naturraum</p> <p>M: diverse Anbieter aus den Welterbe Gemeinden sowie der ganzen Schweiz bieten innerhalb des Perimeters oder in den randlichen Gebieten Exkursionen und Kurse zum Natur- und Kulturraum an (bsp. Ornithologische Exkursion an der Lötschberg Südrampe). Diese Exkursionen geben wertvolle Einblicke in die Natur- und Kulturwerte des Perimeters (Sensibilisierung der Gäste für das Welterbe).</p>	<p>unbekannt</p>
Stiftung Landschaft Schweiz mit Pro Natura und 4 Gemein- den (Ausserberg, Eggerberg, Balt-	<p>P: Landschaftsschutzvertrag für das Baltschiedertal (Privatrechtliches Schutzgebiet. Siehe auch Karten <i>Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete</i> und <i>Privatrechtliche Schutzgebiete von Schutzorganisationen</i></p> <p>K:, Z, M: Initiative der Schweizerischen Stiftung für Landschaftsschutz (SL) und des Walliser Bundes für Naturschutz (Pro Natura) wurde 1986 mit den</p>	<p>Budget:</p> <p>Insgesamt sind seit 1986 rund 2 Mio Fr. für Schutzmassnahmen in eingesetzt worden.</p> <p>Direkte Gelder, die aus dem Fond Landschaft Schweiz (FLS) stammen (rund 200'000.-). Weit mehr Beiträge stammen aus der schweizerischen Berghilfe, Glückskette und anderen Institutionen.</p>

schiefer, Mund)	<p>betroffenen Gemeinden einen Vertrag auf 20 Jahre abgeschlossen, der bezweckt, den damaligen Zustand integral zu erhalten. Der Vertrag gilt bis heute als Pionierwerk im Landschaftsschutz. Im Kern des Vertrages geht es um einen Verzicht auf die Nutzung des Baltschiederbachs zwecks Elektrizitätsgewinnung. Gleichzeitig ist der Unterhalt bestehender Bauten, Wege, Stege und Wasserleiten (Suonen) im Vertrag festgeschrieben worden. Traditionelle Nutzungsformen sind möglich. Im Rahmen des Schutzvertrages sind in den vergangenen 20 Jahren beträchtliche finanzielle Mittel in die Talschaft geflossen. Die Gelder an die Gemeinden werden gemäss dem so genannten Gefälleanteil verteilt, weil die Abgeltungen an einen Nutzungsverzicht der Wasserkräfte gekoppelt sind. 2006: Vertrag erneuert, nach dem die Gemeinde Mund zuerst künden wollte. Controlling: Für die Koordination der Arbeiten ist die Baltschiederalkommission zuständig. Diese sieht vor, zu einem späteren Zeitpunkt eine umfassende Bilanz zu den Leistungen zu ziehen, die der Schutzvertrag in den letzten zwei Jahrzehnten gebracht hat.</p> <p>Grösse: 39 km²</p> <p>Siehe auch Annex 4: Karten <i>Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete</i> und <i>Privatrechtliche Schutzgebiete von Schutzorganisationen</i>. <i>Ausführungen und Verträge zu 1.7 VAEW Gebiete, siehe Annex 5 sowie die Projekte unter Kapitel 2 der Gemeinden Baltschieder, Mund, Ausserberg und Eggerberg)</i></p>	<p>SL ist daran ein 10 Jahresprogramm zu erstellen. Der geplante, zur Verfügung stehende Betrag wird ca Fr. 2'000'000,- sein. Diese Zahl. Ein Grossteil davon ist für Wasserwasserleitungen / Suonen reserviert</p> <p>Einige Projekte aus der Kerngruppe <i>1.1 Hohe Biodiversität</i> des Welterbes passen gut in das geplante Programm</p>	
SAC Schweizer Alpenclub	<p><i>see Annex 5: Performance and engagement of Swiss Alpine Club (SAC) in the JAB area (English)</i></p> <p>See also: <i>Tourism</i> in the nomination dossier; 2005, Page 40 and 52</p>		
Private Hütten und Berghäuser	<p>P: Betrieb Eiger-Osteggghütte</p> <p>Z, M, K: Die Hütte wurde 1998 anlässlich des 100 Jahr Jubiläum des Bergführervereins Grindelwald gebaut: Tagestour zur Hütte und zurück oder als Ausgangspunkt für Eiger in seiner gesamtem Länge via Hireleni und Mittellegigrat zu überschreiten.(3 Tagestour). Bergerfahrung und -ausrüstung erforderlich. Die Eiger -Osteggghütte ist im Normalfall geschlossen (Schlüsseldepot in Grindelwald). Esswaren müssen selber mitgenommen werden.</p> <p>T: Bergführervereins Grindelwald</p>	Keine Angaben	Abgeschlossen; Unterhalt: laufend

	<p>P: Betrieb des Berghaus Bäregg, Gemeinde Grindelwald (Beispiel für eine Hütte, die nicht dem SAC angehört)</p> <p>Z, K: Das Gebiet um die Bäregg ist wohl einer der geschichtstäch-tigsten Plätze. Bereits 1823 gab es an diesem Ort die erste alpine Schutzhütte der Alpen.</p> <p>2005: Berghaus Stieregg wird durch Abrutschen der Moräne (Glet-scherrückgang) zerstört. 2006: Aufbau von einem neuen Berghaus wiederum auf der Bäregg ca. 200 Höhenmeter weiter oben als früher an einem Standort der als Sicher erachtet wird.</p> <p>M: Beim Neubau wurde eine Kläranlage eingebaut die den Gewässer-schutzvorschriften in allen Teilen entspricht. Die Versorgungsflüge werden alle schon wegen Wirtschaftlichkeit und der Ökologie mit den andern Hütten in der Umgebung koordiniert. Der Weg zu der Bäregg wird von der Gemeinde Grindelwald unterhalten und der Weg weiter zu der Schreckhornhütte von dem SAC Basel.</p> <p>T: Besitzer: Bergschaften Grindel und Scheidegg</p>	<p>Das Berghaus hat die Bergschaften Grindel und Scheidegg rund 800'000.- gekostet.</p> <p>Finanziert wurde das Berghaus durch die beiden Bergschaf-ten sowie dem Lotteriefonds der Kantons Bern und durch viele private Spenden von Einheimischen und Gästen.</p>	<p>Abgeschlos-sen; Unterhalt laufend</p>
<p>Kraftwerke Oberhasli (KWO)</p>	<p>P: Bächlital: Abbruch von alten Baustelleninstallationen.</p> <p>K, M: Aus der Bauzeit der Kraftwerkanlagen belasteten Überreste von Baustelleninstallationen wie Betonfundamente, Naturstein- und Beton-mauerwerke, Stahlbetonkonstruktionen und Baupisten das Land-schaftsbild. Solche Objekte im Erweiterungsperimeter des UNESCO Welterbes wurden in den Jahren 2000-2006 entfernt</p> <p>See also: <i>Electric power generation</i> in the nomination dossier, 2005, Page 39, 50 and 57 und in Annex 5</p>	<p>Einmalige Kosten inkl. Planung CHF 90'000.</p> <p>Finanziert durch KWO</p>	<p>Abgeschlos-sen (00-06)</p>
	<p>P: Bächlisboden: Abbruch von alten Baustelleninstallationen</p> <p>K, M: Aus der Bauzeit der Kraftwerkanlagen belasteten Überreste von Baustelleninstallationen wie Betonfundamente, Naturstein- und Beton-mauerwerke, Stahlbetonkonstruktionen und Baupisten das Land-schaftsbild. Solche Objekte im Erweiterungsperimeter des UNESCO Welterbes wurden in den Jahren 2000-2006 entfernt</p>	<p>Einmalige Kosten inkl. Planung CHF 70'000.</p> <p>Finanziert durch KWO</p>	<p>Abgeschlos-sen (00-06)</p>
	<p>P: Oberaar: Abbruch Betonfundamente</p> <p>K, M: Aus der Bauzeit der Kraftwerkanlagen belasteten Überreste von Baustelleninstallationen wie Betonfundamente, Naturstein- und Beton-mauerwerke, Stahlbetonkonstruktionen und Baupisten das Land-schaftsbild. Solche Objekte im Erweiterungsperimeter des UNESCO Welterbes wurden in den Jahren 2000-2006 entfernt</p>	<p>Einmalige Kosten inkl. Planung CHF 55'000</p> <p>Finanziert durch KWO</p>	<p>Abgeschlos-sen (00-06)</p>

	Sunnig Aar: Instandstellung Lauteraar-Wanderweg	Jährlich wiederkehrende Kosten inkl. Planung CHF 25'000 Finanziert durch KWO	Laufend (jährl.)
	Oberaar: Instandstellung Hüttenweg entlang Oberaarsee. Z, M: Entlang des Oberaar- und des Grimselsees werden die Wanderwege zur Lenkung des Besucherstroms unterhalten.	Einmalige Kosten inkl. Planung CHF 60'000 Finanziert durch KWO	Geplant
Landschaftsfonds Berner Oberland Ost	P: Pflege der Alp Sefinen / Hutmaad in der Gemeinde Lauterbrunnen. M: Entbuschen der bestehenden Weidefläche Z: Erhaltung der Weideflächen	Budget: Gesamtkosten: CHF 5700.- 5200.- Eigenleistungen der Bergschaft Sefinen; 500.- Beitrag von Fonds für den Einsatz von Freiwilligen Helfern)	Abgeschl., Sommer 2005
	P: Besucherlenkung und Information im hinteren Lauterbrunnental durch den UNESCO Themenweg M: Errichtung von Themenwegen im hinteren Lauterbrunnental Z: Besucherlenkung und –Information Siehe hierzu auch die Aktivitäten von Pro Natura weiter oben in diesem Kapitel	Budget: Gesamtkosten: CHF 31'620.- (davon 2000.- Beitrag von Fonds Berner Oberland Ost) Wengen-Mürren-Lauterbrunnental-Tourismus (WMLT), diverse Sponsoren, Landschafts-Fonds Oberland Ost, Pro Natura	Abgeschlossen; Unterhalt: laufend
Verein Valrando/ Walliser Wanderwege	P: Wanderwegnetz im Kanton Wallis aufbauen und betreuen K: Jede Gemeinde legt ihr Wanderwegnetz fest und legt dieses öffentlich zur Konsultation auf. Anschliessend wird es von den kantonalen Dienststellen geprüft und in die Umsetzung geschickt. Die Gemeinden sind anschliessend für das anlegen des Wandwegnetzes, die Sicherheit und die Markierung verantwortlich. Die alpinen Wanderwege werden nicht homologiert. Hierist die Verantwortung für die alpinen Wanderrouten nicht ganz klar geregelt.	Im Rahmen des öffentlichen Auftrages von Valrando. Finanzieller Rahmen unbekannt.	Laufend
Verein Berner Wanderwege	P: Wanderwegnetz im Kanton Bern aufbauen und betreuen K: Die Berner Wanderwege sind für die Markierung der Wander- und Bergwanderwege zuständig. Die jährlich anfallenden Kosten bestehend aus dem Markierungsmaterial und dem Personalaufwand, werden gemeindeweise festgehalten. M: Jeder Berg- und Wanderwege wird mindestens einmal im Jahr begangen und nachmarkiert. Dabei ist mit ca. der dreifachen Zeit als bei einer normalen Begehung zu rechnen.	Der Personalaufwand innerhalb des Perimeters des UNESCO Welterbes für die bernischen Gemeinden beträgt ca.50 Mann-Tage. Dazu kommt Markierungsmaterial von ca. CHFr. 5000.- (Die Zahlen stammen von 2006 und sind durchschnittlich auch für die letzten 20 Jahre hochzurechnen)	



Annex 2

Aktivitätsprogramm 2006 / 2007: Projekt-Fichen P00-P05

Incl. Summary in English

Naters und Interlaken, Februar 2007
Trägerschaft UNESCO Welterbe

Managementzentrum UNESCO WELTERBE

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Project File 00 Summary in English

Project File	JAB 00		
Project Line	Site Management UNESCO World Heritage Site + Promotion of Sustainable Development		
Project Manager	UNESCO World Heritage Site Association - Ulla Schüpbach and Beat Ruppen, Project Managers		
Strategic Objective	<p>Sustainable conservation and development of the World Heritage Site and the Jungfrau-Aletsch-Bietschhorn region within the framework of Switzerland's obligation to the UNESCO World Heritage Convention concerning the protection of the world cultural and natural heritage. Provision of regional management and services for interested third parties.</p> <p>The MC and the Association act as the coordination hub and driving force or instigator for projects for the conservation of the world heritage site, and bear responsibility for the preservation of world heritage sites under the terms of the UNESCO World Heritage Convention. Since the project objectives are based on the management plan objectives, the projects will be the central building blocks for efforts to preserve and develop the world heritage site.</p>		
Measures	Management of the Management Centre as a provider of services for the UNESCO World Heritage Site as well as for national and international committees: Catalyst, mediation and controlling function.		
Duration	For the application period 2006 + 2007. Post-2007: permanent mandate		
Model character of the subproject	Intercantonal, intercommunal and intersectoral network aimed at the conservation of the World Heritage Site and sustainable development of the JAB region (Charter). Negotiation process for project implementation and conflict situations. The project acts as the catalyst for strengthening cooperation among the cantons, regions, communities and sectors.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 00.01	Information / Service	48'000.00
	See Activity Line 00.02	Participation: Operation of core groups, conflict management (mediation function)	311'000.00
	See Activity Line 00.03	Coordinator / instigator function (implementation of Management Plan)	64'000.00
	See Activity Line 00.04	Lobbying, cooperative ventures, networks, sponsorships	103'000.00
	See Activity Line 00.05	Creating ownership / membership	49'000.00
	See Activity Line 00.06	Management of the association	181'000.00
	See Activity Line 00.07	IUCN evaluation mission, summer 2006	43'994.00
	Unforeseen in P00		15'000.00
	Total (2006 and 2007)		814'994.00

Activity Line	JAB 00.01
	Information / Service
Operational Objective	The Management Centre is perceived as a provider of services for the protection and conservation of the Jungfrau-Aletsch-Bietschhorn World Heritage Site + for the promotion of sustainable development in the UNESCO World Heritage Region, and carries out this task. Services ensure and promote achievement of the World Heritage Site objectives defined in the Management Plan: Information and service provider for third parties (organisations, private individuals, UNESCO CH and UNESCO Paris, schools, etc)
Measures	Information services concerning the UNESCO World Heritage Site, the UNESCO World Heritage Region, and for national and international committees.
Activity Line	JAB 00.02
	Participation: Operation of core groups, conflict management (mediation function)
Operational Objective	Participation becomes an active experience by setting up/ implementing core groups. The projects designed and defined by the core groups are submitted to the Association along with a proposal + final report for implementation, and prepared for implementation. "Round tables" consisting of actors from the region are set up for conflict management.
Measures	Operation of 21 core groups + provision of "round tables" in the World Heritage Region (conflict resolution measure)
Activity Line	JAB 00.03
	Coordinator / instigator function (implementation of Management Plan)
Operational Objective	Implementation of the projects designed and defined by the core groups is supported within the context of the Management Centre's coordinator and instigator function.
Measures	The Association and the MC coordinate the projects defined by the core groups and endeavour to find ways of implementing them in collaboration with the proposed companies, organisations and institutions, and to find solutions for their financing. Controlling of the projects defined by the core groups is the responsibility of the MC (or the affiliated independent committee)
Activity Line	JAB 00.04
	Lobbying, cooperative ventures, networks, sponsorships
Operational Objective	Networking and cooperation with organisations, protected areas in Switzerland and abroad, partner organisations, official federal and cantonal departments and research institutions is actively carried out by the MC. Partnership platforms are created for fund-raising and sponsorships; agreements are drawn up. National-level lobbying is carried out according to the "3.4 JAB Lobbying".core group concept Supervisory Board holds discussions on Agenda 21 + negotiations with the "Allianz in den Alpen" ("Alpine Alliance") association.
Measures	Formulation of potential partnership platforms as the basis for successful fund-raising and sponsorship activities; acquisition of partnerships. Search for cooperative ventures, conclude related agreements
Activity Line	JAB 00.05
	Creating ownership / membership
Operational Objective	Introduction of a promotional association or World Heritage Foundation in order to create ownership and generate income for the JAB World Heritage Site. Appointment of JAB ambassadors who are clearly identifiable as such and are familiar with their function and duties/obligations.
Measures	The membership concept paves the way for a World Heritage Foundation to promote projects in and around the World Heritage Site (World Heritage Convention). A physical share of the World Heritage Site per member (e.g. 1 m2) represents the link, obligation, the funding for project implementation, and the identity. Finally, it helps to protect and further develop the alpine world heritage.
Activity Line	JAB 00.06
	Management of the association
Operational Objective	In order to achieve the sustainable protection and development of the World Heritage Site and to promote sustainable development in the region, the Association is managed by the Management Centre in compliance with the statutes and regulations.
Measures	Taking on and carrying out all tasks related to management of the Association.
Activity Line	JAB 00.07
	IUCN evaluation mission, summer 2006
Operational Objective	The IUCN evaluation is carried out in September 2006, with the MC as the lead. The Management Plan is revised in accordance to the IUCN requirements.
Measures	Planning, organisation and implementation of the evaluation mission dated 3-6 September 2006. Revision of the management plan in line with IUCN requirements

Project File 01 Summary in English

Project File	JAB 01		
Project Line	Monitoring and Controlling		
Strategic Objective	Sustainable conservation of the Jungfrau-Aletsch-Bietschhorn World Heritage Site within the context of Switzerland's obligation to the UNESCO World Heritage Convention concerning the protection of world cultural and natural heritage: Carrying out the association's monitoring and controlling function. Long-term protection of biodiversity / diversity of habitats in the UNESCO World Heritage Region. Monitoring the habitat and economy of the JAB UNESCO World Heritage Site. Reviewing the achievement of objectives defined for projects launched by the JAB World Heritage Site Association (sustainability evaluation). In the biotope protection area, optimal implementation of existing conservation activities.		
Project objectives	Overall goals within Management Objective 1 + 2: To preserve for existing and future generations the integrity of the diversity, uniqueness and beauty of the World Natural Heritage Site, its natural and near-natural ecosystems and ecosystem complexity. This must be harmonised with the cautious, sustainable use and development of the region as an economic, cultural and recreational space. All wild plant and animal species within the World Heritage Site, including their communities, are preserved in quantities that ensure their long-term survival, and encouraged or utilised where necessary. Wherever possible, natural developments are permitted.		
Measures	Launch of the projects related to biodiversity and traditional cultural landscape. Setting up of monitoring (regional monitoring) and controlling (sustainability evaluation) mechanisms.		
Duration	2006 + 2007. Post-2007: Permanent mandate		
Model character of the subproject	Following designation as a UNESCO World Heritage Site, a process aimed at sustainability was launched in the region adjacent to the World Heritage Site. The process defines and implements biodiversity and landscape projects for the sustainable conservation of biodiversity and the traditional cultural landscape.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 01.01	Site monitoring and project controlling concept	146'000.00
	Total (2006 and 2007)		146'000.00

Activity Line	JAB 01.01
	Site monitoring and project controlling concept
Operational Objective	<p>The concept for monitoring and controlling the perimeter and the World Heritage Region is in place and contains all 3 elements for sustainable development (environment, community, economy). Monitoring brings together all existing monitoring programmes, provides the context for European and global monitoring programmes, and is digitally processed by the GIS.</p> <p>=> The selected method safeguards against the monitoring concept being separated/decoupled from the controlling instrument (input-output model; methodological background: policy evaluation)</p>
Measures	<p>Concept for monitoring and controlling the perimeter + elaborating/building up the region: Evaluation of the various options available: Go-it-alone; collaboration with other parks in CH; with FOEN etc.; combine data from existing monitoring instruments; clarify requirement of data to be collected; sign data agreements with institutions; define frequency</p>

Project File 02 Summary in English

Project File	JAB 02		
Project Line	Regulation of perimeter use (visitor management) / biodiversity and cultural landscape		
Project Manager	UNESCO World Heritage Site Association - Ulla Schüpbach and Beat Ruppen, Project Managers		
Strategic Objective	<p>Sustainable conservation of the Jungfrau-Aletsch-Bietschhorn World Heritage Site. Based on overall Management Plan goals 4 + 5. 4. Economic use is to be dictated by market conditions, the social and cultural situation, and legal regulations, but also by the long-term viability of the natural systems as outlined in overall goals 1-3.</p> <p>Man is welcome in the World Heritage Site as a visitor, actor and user who is mindful of the risks of natural hazards and pays due regard to the sensitivity and need for protection of the natural resources. Appropriate infrastructure is to be maintained and, if necessary, expanded in line with the capacity of the natural systems to tolerate use.</p>		
Project objectives	<p>As part of the Regulated Outdoor Activities field of action, ecological concepts for outdoor sports, leisure and recreation must be designed, negotiated and implemented. Where necessary, "use" of the perimeter shall be subject to regulatory intervention (wherever possible on the basis of laws rather than prohibition) and thus adapted to utilisation of the viability. This will encourage environmentally friendly visitor management.</p> <p>Visitors to the JAB will be made aware of the sensitivity of the natural surroundings and will "use" them with this in mind.</p>		
Measures	The following measures will appeal to visitors on an active and passive level: Evaluation of air traffic, formulation of a JAB code of conduct, activity tables and conflict maps. Preparation of the legal basis for outdoor activities, a general infrastructure concept (for tourism), etc.		
Duration	From 2006 onwards		
Model character of the subproject	In most locations, current use of the perimeter does not pose any problems. In critical areas, the aim must be ecologically compatible visitor activities and, above all, measures to raise awareness of the sensitivity of the natural surroundings.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 02.01	JAB code of conduct	79'800.00
	See Activity Line 02.02	JAB code of honour, outdoor activities, level 1	10'000.00
	See Activity Line 02.03	JAB activity table and conflict map	70'000.00
	See Activity Line 02.04	Legal framework for outdoor activities in summer and winter	35'000.00
	See Activity Line 02.05	Air traffic and the army - review alpine landing strips, civil and military air traffic, military shooting exercises in the perimeter	-
	See Activity Line 02.06	Additional projects related to regulation of perimeter use (2007 concept phase only)	95'000.00
	See Activity Line 02.07	Biodiversity and habitats (instigate implementation of core group 1.1 projects)	53'000.00
	see Activity Line 02.08	Traditional cultural landscape (instigate implementation of core group projects)	48'000.00
	Total (2006 and 2007)		390'800.00

Activity Line	JAB 02.01
	JAB code of conduct
Operational Objective	The JAB code of conduct is drawn up in the JAB languages and widely disseminated in order to generate a high recall effect. It lays down the rules of conduct, recommendations and tips for visitors in an amicable, emotionally appealing manner. The rules also provide some "snippets of information" about nature.
Measures	Draw up a "JAB code of conduct" (akin to the the time-honoured "code of good conduct"), which motivates all visitors to the JAB to adopt a responsible approach to nature and the people of the World Heritage Site.
Activity Line	JAB 02.02
	JAB code of honour, outdoor activities, level 1
Operational Objective	The voluntary code of honour for outdoor activities is drawn up and introduced as part of an integrated system of codes / labels and themes (quality, security, ecology) in the JAB. The code of honour is based on the Konkordiaplatz Charter as well as on the overall goals and objectives of the JAB.
Measures	Draw up and introduce Level 1 JAB code of honour for outdoor activities (voluntary code of honour) for tourist service providers and representatives of JAB interests
Activity Line	JAB 02.03
	JAB activity table and conflict map
Operational Objective	Existing outdoor activities are characterised in terms of their impact on the natural environment and on other activities, and potential future trends and developments are projected. A conflict map shows all current and potential areas of conflict within the perimeter and its neighbouring regions, which result from imposing the activities on the sensitive habitats and protected areas.
Measures	Regional activity tables and conflict maps are drawn up as a common basis for coordinating and planning outdoor activities in the perimeter.
Activity Line	JAB 02.04
	Legal framework for outdoor activities in summer and winter
Operational Objective	All relevant legislation for outdoor activities, from communal to national, is summarised, disseminated and published in an easy-to-follow, "ready-to-use" report format. Activity-specific sets of rules are listed. Together with the activity table and conflict map (see 02.03), the report provides the basis for the overall concept for outdoor activities and infrastructures (from 2008) and for addressing local problems and conflicts.
Measures	Summarise all relevant legislation governing outdoor activities, from communal to national, in an easy-to-follow, "ready-to-use" format, and communicate it as important boundary conditions to the relevant stakeholders.
Activity Line	JAB 02.5
	Air traffic and the army - review alpine landing strips, civil and military air traffic, military shooting exercises in the perimeter
Operational Objective	Within the framework of core group 1.7 "Restricted Air Traffic", the status quo of civil and military air traffic, military shooting exercises and alpine air strips must be reviewed.
Measures	The core group draws up solution proposals and projects to address what is viewed as the increasing problem of military air traffic and shooting exercises (including aerial and landing activities on the Aletsch glacier). Integrated measures must be planned in order to reduce conflicts with objectives.
Activity Line	JAB 02.06
	Additional projects related to regulation of perimeter use (2007 concept phase only)
Operational Objective	The other projects defined by the core group "Environmentally Friendly Outdoor Activities" are prepared and their implementation can commence in 2008 (these are the projects that are dependent on realisation of 02.03 and 02.04).
Measures	Preparatory work ahead of implementation of the projects listed below (see under Measures and for Points 1-4: <i>Final report of core group 1.5 "Environmentally Friendly Outdoor Activities"</i>)
Activity Line	JAB 02.07
	Biodiversity and habitats (instigate implementation of core group 1.1 projects)
Operational Objective	As part of its instigator/coordinator function, the MC lobbies the relevant project partners (federal government, cantons, private individuals, organisations) to canvas for implementation of the projects drawn up by <i>core group 1.1 "Rich Biodiversity"</i> .
Measures	Instigate / coordinate implementation activities. Set up a controlling system for project implementation. Preliminary research, letters of recommendation, evaluation of need for action + implementation according to the individual project targets of core group 1.1
Activity Line	JAB 02.08
	Traditional cultural landscape (instigate implementation of core group projects)
Operational Objective	As part of its instigator/coordinator function, the MC lobbies the relevant project partners (federal government, cantons, private individuals, organisations) to canvas for implementation of the projects drawn up by core group 1.3 "Traditional Cultural Landscape"; 1.2 "Natural Forest" and 2.4 "Traditional Agricultural System", and coordinates the work. The cultural landscape, its distinctive characteristics and its importance for the protection of alpine biodiversity, are sustainably preserved (perimeter and region).
Measures	Instigate / coordinate implementation activities for the defined projects. Preliminary research; evaluation of effective need for action. Implementation according to the project targets of core group 1.3 and 2.4 from 2008

Project File 03 Summary in English

Project File	JAB 03		
Project Line	Visible profile for the JAB (Including labelling, media coverage, communication tools)		
Project Manager	UNESCO World Heritage Site Association - Ulla Schüpbach and Beat Ruppen, Project Managers		
Strategic Objective	Positioning the World Heritage Site as bearing unique witness to the natural and cultural/historical development of global importance in the alpine region. Harmonisation of conflicts of interest between conservation and utilisation of the World Heritage Region. Awaken an interest in and instill an understanding for the complex relationship between living space and cultural space, and raise awareness of the need to conserve special natural characteristics as the basis for an attractive habitat.		
Project objectives	Raise the profile of the World Heritage Site and promote awareness of JAB concerns at home and abroad. Make the public understand the mission of the World Heritage Site. Emotional anchoring of the UNESCO World Heritage Site brand. The World Heritage Site is positively viewed by important target groups and the population. The idea of the World Heritage Site has broad general appeal. The population takes on responsibility for the World Heritage Site. The private and public sectors become involved in the implementation (financing and communication) of the World Heritage Site. High level of knowledge regarding the special characteristics of the World Heritage Site and the associated sustainable development within the region, high quality of life in the Jungfrau-Aletsch-Bietschhorn region, increase in regional and operational readiness to cooperate		
Measures	Further develop the brand system, develop a quality label, communicate the objectives of the World Heritage Site to all households, poster campaign, mark the entrance/portal to the World Heritage Site, media work, update folding map, push ahead with JAB info network, prepare communication media, introduce World Heritage Day, UNESCO ambassadors,		
Duration	Operational phase from 2006		
Model character of the subproject	Using the Konkordiaplatz Charter as a basis, a value structure is built up to create a brand as a common identification element. Sustainable development will add ecological, economic and social value beyond cantonal and community borders.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 03.01	Further develop brand system / label sales and conservation fees	43'000.00
	See Activity Line 03.02	Quality label: Clarify requirement and poss. develop	29'000.00
	See Activity Line 03.03	World Heritage magazine	56'000.00
	See Activity Line 03.04	Book "Mountain Air" ("Atem der Berge")	146'863.45
	See Activity Line 03.05	Poster campaign / marketing	67'000.00
	See Activity Line 03.06	Mark the entrance / portal to JAB	48'000.00
	See Activity Line 03.07	Media coverage incl. publicity reporting	31'000.00
	See Activity Line 03.08	Updated edition of folding map	56'000.00
	See Activity Line 03.09	Prepare communication media: flags, banners, stickers, stamps, World Heritage train etc.	45'000.00
	See Activity Line 03.10	JAB information network: Raise awareness of JAB concerns among visitors and residents	360'000.00
		Total (2006 and 2007)	

Activity Line	JAB 03.01
	Further develop brand system / label sales and conservation fees
Operational Objective	The "UNESCO JAB World Heritage Region" is globally protected. The label is actively sold to third parties (service providers etc).
Measures	Application of functioning instruments for brand management = brand system. Registration of the brand with the Federal Office for Intellectual Property.
Activity Line	JAB 03.02
	Quality label: Clarify requirement and poss. develop
Operational Objective	Clarification and evaluation of whether the UNESCO World Heritage brand should be expanded to include a quality label. If not: The UNESCO World Heritage brand will be incorporated in a regionally recognised quality label as proof of origin.
Measures	Clarification and evaluation by core group 3.2 "Multi-Sectoral Labelling". JAB association's partnership with the selected quality label + definition of criteria governing use of the JAB label in conjunction with the quality label.
Activity Line	JAB 03.03
	World Heritage magazine
Operational Objective	The World Heritage Magazine with Management Plan summary is issued in early 2007, in populist language, in order to spread the messages of the World Heritage Plan and disseminate the aims of the Management Plan among the general population and all actors.
Measures	Publication of this magazine (24 pages, circulation 50,000 +)
Activity Line	JAB 03.04
	Book "Mountain Air" ("Atem der Berge")
Operational Objective	The book "Atem der Berge" ("Mountain Air") is published in December 2005 by Mengis Verlag in Visp.
Measures	Publication of the book
Activity Line	JAB 03.05
	Poster campaign / marketing
Operational Objective	The UNESCO Jungfrau-Aletsch-Bietschhorn World Heritage Site brand and perimeter are emotionally positioned by means of a poster campaign. Awareness and perception of the integrity of the World Heritage Site is enhanced and its values are made known.
Measures	Launch poster campaign: Important instrument for promoting image: The JAB messages are summarised in the form of strong, emotional claims and widely disseminated via a national poster campaign in order to position and profile the UNESCO World Heritage Site.
Activity Line	JAB 03.06
	Mark the entrance / portal to JAB
Operational Objective	The entrance/portals to the JAB are marked with special marker stones
Measures	Hiking trails that lead to the JAB are marked accordingly. So-called "boundary stones" that were used to mark the boundaries of ancient passes will mark the "border" with the World Heritage Site.
Activity Line	JAB 03.7
	Media coverage incl. publicity reporting
Operational Objective	A positive attitude to the World Heritage Site is instilled in the general population and the key target groups. The messages of the World Heritage Site and the Management Plan are understood by the population and related actors. Media partnerships are forged whereby partners are responsible for printed matter on/about the World Heritage Site.
Measures	Broad dissemination, via the media + PR advertisements, of the core messages and the membership idea. Create awareness, illustrate and elucidate the background.
Activity Line	JAB 03.08
	Updated edition of folding map
Operational Objective	The messages and aims of the World Heritage Site and the MP are understood and accepted by the general population and the relevant actors
Measures	Publication of the folding map with descriptions of the region's special characteristics, tourist information, public transport, commune-related information, Swiss Alpine Club huts.
Activity Line	JAB 03.09
	Prepare communication media: flags, banners, stickers, stamps, World Heritage train etc.
Operational Objective	The World Heritage Management Centre designs and sells communication material that bears the UNESCO World Heritage Site label in a prominent position.
Measures	Design, prepare, initiate flags, banners, stickers, stamps, World Heritage train
Activity Line	JAB 03.10
	Updated edition of folding map
Operational Objective	Visitors and local residents are informed and made more aware of the concerns and values of the JAB. Information centres of varying size and importance are positioned within the World Heritage Region.
Measures	Implementation of the JAB information network matrix in accordance with the Management Plan (core group 3.1).

Project File 04 Summary in English

Project File	JAB 04		
Project Line	Knowledge management service: develop, manage and document		
Project Manager	UNESCO World Heritage Site Association - Ulla Schüpbach and Beat Ruppen, Project Managers		
Strategic Objective	To position the World Heritage Site as a unique witness to the natural (and cultural/historical) development of global importance in the alpine region. To awaken among visitors and the general population an interest in and an understanding of the complex relationship between living space (habitat) and cultural space and for research in this area.		
Project objectives	Knowledge is prepared or processed in a targeted manner as a resource for educating/raising awareness among actors in the JAB. Knowledge coordination (research findings and projects) in the JAB is built up in order to provide data for monitoring and obtaining findings on the natural and cultural aspects of the region. Cooperation within (inter)national networks such as research coordination for Swiss National Parks (ScNat), Alparc, Paerke Schweiz, ICAS is in progress. ==> Further development and management of existing databases		
Measures	Further development of existing databases (literature and GIS) and regular updating with new data (ditto meta data). In particular, creation of a new image database. Provision of services in relation to the GIS and knowledge management. Coordination of knowledge and findings via a research platform. Measures to make research findings understandable and present them to a lay audience.		
Duration	For the 2006 + 2007 proposal period. Thereafter, knowledge management and research coordination will be a permanent mandate		
Model character of the subproject	To date, the JAB has not had access to a combined spatial, image and literary database. Bringing together the output in different research areas will create a valuable knowledge base. In conjunction with project 03 and 05, triage between research and education/awareness raising.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 04.01	Research and coordination of research: Generate and update knowledge	37'000.00
	See Activity Line 04.02	Information system with databases, image database and GIS (management / amendments / updates) + presence library	96'000.00
	See Activity Line 04.03	Communication management: Implement website and intranet; integrate databases	51'500.00
	See Activity Line 04.04	Services: Determine customer requirements and demand, and extract knowledge	89'000.00
	See Activity Line 04.05	Synthesis product for the initialisation phase and the management plan: Book entitled "Welt der Alpen - Erbe der Welt" ("World of Alps - World Heritage")	115'000.00
	Total (2006 and 2007)		

Activity Line	JAB 04.01
	Research and coordination of research: Generate and update knowledge
Operational Objective	To incorporate the JAB in the research context of the alpine region as a whole (Alparc network; ICAS, etc.) as well as in the Swiss strategy for protected areas (FOEN, Paerke Schweiz, etc). Research within the JAB is coordinated as far as possible.
Measures	Coordination of research via a research platform. Publicise research findings and make them available.
Activity Line	JAB 04.02
	Information system with databases, image database and GIS (management / amendments / updates) + presence library
Operational Objective	Further development and provision of user-friendly access to databases as key management instruments ==> World Heritage service for the region. Communes and service providers benefit from a central GIS database (among other things, this facilitates project implementation in the JAB region).
Measures	Further development and amendments to existing databases + integration of an image database.
Activity Line	JAB 04.03
	Communication management: Implement website and intranet; integrate databases
Operational Objective	Relaunch of website: The website and intranet together constitute a key point of contact for questions concerning the UNESCO World Heritage Site. Due to the decentralised structure of the World Heritage Site (MC, Supervisory Board, core groups), the intranet is viewed as an important management instrument. Following its relaunch, the website provides up-to-date information and interactive services for visitors and different interest groups. User-friendly navigation system in place. The website is a platform for visitors to the World Heritage Site, for project-related information (including methodology), for the media, and for potential sponsors. In addition, users can check the status of the overall project at any time (projects are activated).
Measures	Implementation of a new content management system for the Internet and intranet.
Activity Line	JAB 04.04
	Services: Determine customer requirements and demand, and extract knowledge
Operational Objective	As per goals for the overall project 04 as well as Activity Line 01 within project 00: The MC acts as provider to third parties (organisations, private individuals, UNESCO CH and UNESCO Paris, schools, etc) of information and services related to the GIS + literature database,
Measures	Collection, recording, preparation etc. of literary and spatial data. Provision of services related to the GIS concerning the UNESCO World Heritage Site and the UNESCO World Heritage Region.
Activity Line	JAB 04.05
	Synthesis product for the initialisation phase and the management plan: Book entitled "Welt der Alpen - Erbe der Welt" ("World of Alps - World Heritage")
Operational Objective	The reports on the UNESCO World Heritage perimeter and region drawn up for the Management Plan are published in book form and hence made available to the public.
Measures	Publication of the book "Welt der Alpen - Erbe der Welt" ("Alpine Heritage - World Heritage"). Publisher: Geographical Society, University of Berne. Publication date: April 2007, Haupt Verlag in Berne. Print run: 1800 copies

Project File 05 Summary in English

Project File	JAB 05		
Project Line	(Further)education and excursions		
Project Manager	UNESCO World Heritage Site Association - Ulla Schüpbach and Beat Ruppen, Project Managers		
Strategic Objective	<p>To instill a deeper understanding of the World Heritage Site in the regional population. Visitors are informed about the World Heritage Site by qualified actors and agents. The population and schools in the region acquire a deeper knowledge of their home and are made aware of its uniqueness, special characteristics, and natural and cultural values.</p> <p>Provision of high-quality, experience-rich educational services to bridge the knowledge gap.</p>		
Project objectives	Provision of excursion leaders / educational trails to communicate the natural and cultural values of the Jungfrau-Aletsch-Bietschhorn perimeter and region. Courses to train hiking guides as excursion leaders. Creation of education material for schools in the World Heritage Region.		
Measures	Development of excursion guides; organisation of excursions, creation of educational material for schools, development and provision of further education services for actors in the World Heritage Region		
Duration	Operational phase 2006 and 2007		
Model character of the subproject	Commjnication of the values of the World Heritage Site by means of excursions with actors from the World Heritage Region. Instill in schools an inquisitive, research-oriented attitude to natural and cultural values within the narrower boundaries of their home region.		
Detailed description of proposed tasks and activities (subprojects)	See Activity Line 05.01	Create excursion guides and educational trails	159'000.00
	See Activity Line 05.02	Student awareness	30'000.00
	See Activity Line 05.03	Further education for JAB actors (concept)	28'000.00
	Total (2006 and 2007)		217'000.00

Activity Line	JAB 05.01
	Create excursion guides and educational trails
Operational Objective	Visitors are made aware of the natural (and cultural) values of the JAB by disseminating knowledge within the context of excursions and educational trails. An emotional link is forged with the region, which in turn can increase visitors' sense of responsibility.
Measures	Implementation of 5 excursions / educational trails in the World Heritage perimeter and region (incorporating existing offerings and providers)
Activity Line	JAB 05.02
	Student awareness
Operational Objective	<p>Motivation of teaching staff in JAB communities to include topics related to the World Heritage Site in their curriculum. Provision of in-school further education courses for teachers, to encourage an exchange of local knowledge of their region. Schoolchildren in the communes are made aware of the various aspects of the World Heritage Site. By 2010, each JAB community should have at least one "JAB competent" school which will act as a point of contact for schools throughout Switzerland.</p> <p>==> The pilot project in the communes of Naters and Grindelwald, which was completed in 2006, creates the prerequisites for expanding the three listed project objectives to the other JAB communities.</p>
Measures	Schoolchildren are made aware of the themes related to the JAB, thereby gaining access to information on the World Heritage Site. The JAB communes engage in an exchange of local knowledge and information.
Activity Line	JAB 05.03
	Further education for JAB actors (concept)
Operational Objective	<p>Provision of further education courses for persons who are resident in the World Heritage Region for reasons of employment, or who report on it (mountain guides, ski instructors, railway/lift personnel, tourist office staff etc):</p> <ul style="list-style-type: none"> - These persons gain an in-depth knowledge of the JAB - They can pass this knowledge on in appropriate form
Measures	The above persons will attend courses lasting at least 2 days, where they will be trained as JAB-competent actors and receive appropriate authorisation to officially represent the World Heritage Site and pass on the knowledge they have acquired. Attractive further education courses in the form of "on the job" or "...organisational" further training.



Annex 3

Aktivitätsprogramm ab 2008: Tabelle mit Aktivitätslinien und Massnahmen

Partially in English

Principal Impact:**

- 1) Activities that directly impact the preservation of the World Heritage Site's values
- 2) Activities that indirectly impact the preservation of the World Heritage Site's values
- 3) Activities that primarily impact sustainable development outside the perimeter (=in the region)

Core groups*:

1) Nature and Habitat:

1.1 Rich Biodiversity, 1.2 Near- Natural Forest, 1.3 Traditional Cultural Landscape, 1.5 Regulated Outdoor Activities, 1.6 Integrated Transportation Network

2) Economy and Culture:

2.1 Design of Tourism Products and Services, 2.2 Tourist Transport Facilities, 2.3 Promotion of Tourism, 2.4 Agricultural Products and Services, 2.5 Innovative Enterprises, 2.6 Environmentally Friendly Energy Use

3) Organisation and Communication:

3.1 JAB Information Network, 3.2 Multi-sectoral JAB Labelling, 3.3 Balanced Funding, 3.4 Effective Lobbying for the JAB, 3.5 Local Residents as JAB Ambassadors and 3.6 Student Awareness and. 3.7 Public Awareness.

Naters und Interlaken, Februar 2007

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Principal Impact 1

Core Group*	Principal Impact** (1, 2), 3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.1	1	Use and conservation of cultural landscapes and their natural value	Optimised sustainable use of the cultural landscape and the conservation of valuable habitats with their animal and plant species.	-	
1.1	1	Promotion of natural habitats (see also subprojects 5.1 to 5.6)	Upgrading of important regions to achieve a significant improvement in the quality of habitat for flora and fauna. The project objective is based on the World Heritage goal: The targeted upgrading of protected habitats and habitats worthy of protection. Promotion of rare species of flora and fauna. Subprojects: Upgrading of 2 important regions per subproject over the next 4 years.	1 Kosten für die Vorbereitungsarbeiten der Projekt-Fiche P 02.07 eingegeben (fallen 2007 an). Umsetzung ab 2008	Bund, Kanton, private Stiftungen, Naturschutzorganisationen ----- Kosten für die Vorbereitungsarbeiten sind gering Kosten für Aufnahmen / Grobplanung ALLER TEILPROJEKTE von Projekt 5: ca. 100'000.- Kosten für Umsetzungsarbeiten: im Rahmen der einzelnen Teilprojekte
1.1	1	Bats subproject	see above	2 Projektentwicklung + Umsetzung	dito oben ----- Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: ca. Fr. 25'000.- durch regionalen Fledermausschutzverantwortlichen Umsetzungskosten: noch nicht bekannt.
1.1	1	Subproject for moors	see above	2 Projektentwicklung + Umsetzung	dito oben ----- Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: ca CHF 15'000 durch Fachperson in Moorregeneration Umsetzungskosten: noch nicht bekannt
1.1	1	Floodplains subproject	see above	2 Projektentwicklung + Umsetzung	dito oben ----- Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: CHF 30'000. Durch Auenregenerations-Fachperson, inklusive wasserbauliches Gutachten. Umsetzungskosten: noch nicht bekannt
1.1	1	Subproject for amphibians/reptiles	see above	2 Projektentwicklung + Umsetzung	dito oben ----- Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: ca. CHF 10'000 durch die KARCH. Umsetzungskosten: noch nicht bekannt

Core Group*	Principal Impact** (1), (2), (3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.1	1	Subproject for dry grasslands and pastures	see above	2 Projektentwicklung + Umsetzung	dito oben ----- Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: CHF 10'000 durch ein mit Trockenwiesen- und Weiden vertrautes Büro. Umsetzungskosten: noch nicht bekannt
1.1	1	Subproject Biotope inventory	see above + The aim of subproject 6 is to map two of the designated habitats over the next four years so that the results can be used for upgrading projects and for monitoring habitat development.	2 Projektentwicklung + Umsetzung	dito oben ----- Kosten der Forschungsinst. Werden nicht abgegolten. Aufwertungsprojekt entwickeln mit Massnahmenkatalog und Kostenschätzung: CHF. 10'000,- . Umsetzungskosten: noch nicht bekannt
1.1	1	Definition and creation of wildlife quiet zones	Set aside sufficient wildlife quiet zones.	2 in Programmvereinbarung 2008-2011 aufzunehmen	Bund / Kantone ----- VS-Seite: Sitzungsgelder: ca. Fr. 10'000.-, ansonsten keine Kosten, da Realisierung Kantonssache (Dienststelle für Jagd, Fischerei und Wildtiere). BE-Seite: dito
1.1	1	Promotion of responsibilities (see also subprojects 8.1 to 8.7)	Promotion of stocks of animal and plant species for which the World Heritage Site bears major responsibility and which cannot be promoted solely through other natural conservation measures. Definition of prioritised responsibilities in the perimeter of World Heritage communes. Collection of information on occurrences of these species and ways of promoting them. Measures will be implemented to conserve and promote the individual species.	1 Kosten für die Vorbereitungsarbeiten der Projekt-Fiche P 02.07 eingegeben (fallen 2007 an)	Vorbereitungsarbeiten 2007 in Fichen eingegeben Total-Kosten: für Aufnahmen / Grobplanung der Massnahmen / Kostenschätzung für Ausführung der Massnahmen: Fr. 250'000. Total-Kosten für Ausführungsarbeiten: Im Rahmen der laufenden Projekte festlegen (ca. Fr. 550'000).
1.1	1	Mehely's horseshoe bat subproject (area of responsibility)	see above	2 Projektentwicklung + Umsetzung	Bund / Kanton ----- Vorbereitungsarbeiten + Massnahmendefinition: Fr. 10'000. Umsetzungskosten sind noch nicht beziffert.
1.1	1	Subproject on prioritised species of birds	see above	2 Projektentwicklung + Umsetzung	Bund (%), Kanton (%), Schweizerische Vogelwarte / SVS (%) ----- Vorbereitungsarbeiten + Massnahmendefinition: keine Kosten (Vogelwarte, SVS, Natur- und Vogelschutzverein Oberwallis, Berner Seite: ?). Umsetzungskosten: noch nicht beziffert (mind. Fr. 30'000.- bis 50'000.-).

Core Group*	Principal Impact** (1, 2, 3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.1	1	Subproject on erebia sudetica butterflies (responsibility species)	see above + In the Alps, the erebia sudetica butterfly occurs only in Grindelwald!!	2 Projektentwicklung + Umsetzung	Bund (via Kanton Bern) (50%), Pro Natura (50%) ----- Erhebung + Massnahmendef: Fr 42'000.- (gemäss Offerte vom 31. Mai 2005). Umsetzungskosten: Sind im Rahmen der Umsetzungsmassnahmen festzulegen
1.1	1	Subproject on Mellicta Deione butterflies (responsibility species)	see above	2 Projektentwicklung + Umsetzung	Kanton Wallis (x%), Bund (y%), Pro Natura (?%) ----- Erhebungen + Massnahmendef: Fr. 40'000 - 50'000.- Umsetzungskosten: Sind im Rahmen der Umsetzungsmassnahmen festzulegen (mind. Fr. 150'000 -)
1.1	1	Flowering plants subproject (responsibility species)	see above	2 Projektentwicklung + Umsetzung	Kantone (x%), Bund (y%), Pro Natura (?%), ----- Erhebungen + Massnahmendef.: Fr. 50'000.- Umsetzungskosten: Sind im Rahmen der Umsetzungsmassnahmen festzulegen (mind. Fr. 200'000.-)
1.1	1	Marshlands subproject (responsibility species)	see above	2 Projektentwicklung + Umsetzung	Erhebungen + Massnahmendef.: Fr. 20'000.- Umsetzungskosten: Sind im Rahmen der Umsetzungsmassnahmen festzulegen (mind. Fr. 30'000.-)
1.1	1	Insects - spiders subproject (responsibility species)	see above	2 Projektentwicklung + Umsetzung	Kanton Wallis (x%), Bund (y%), Pro Natura (?%) ----- Erhebungen + Massnahmendef.: Fr. 50'000.- Umsetzungskosten: noch keine Angaben (mind. Fr. 250'000.-)
1.6	1	Car-free World Heritage Site	The core region of the World Heritage Site is 100% free of private vehicle traffic.	1 Kosten für Studie zur Evaluation + Infoveranstaltung in Projekt-Fiche P 02.06 eingegeben (2007)	Gemeinden und Tourismus ----- Informationsversammlung durch das Management, Vorbereitung der Versammlung, Informationsmaterial ca. Fr. 2'000. Gemeindekosten: Informationsversammlung intern, Strassensperre durch Forstwesen erstellt, Hinweistafeln ca. Fr. 5'000.

Principal Impact 1 and 3

Core Group*	Principal Impact** (1), (2), (3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.1	1, 3	Suonen (man-made irrigation channels) - a landscape element that connects ecosystems and preserves species	Conservation of <i>Suonen</i> and promotion of traditional irrigation methods	2	Kanton, Bund, Fonds Landschaft Schweiz, Gönner ----- Vorbereitungsarbeiten: ca. 2000 pro Wasserleitung Finanzsicherung, Sensibilisierung, Umsetzung: ca. 150'000 pro Wasserleitung
1.1	1, 3	Networking project: Bitsch-Naters-Birgisch-Mund-Eggerber-Lalden-Ausserberg-Raron-Niedergesteln-Hohstenn	Preservation and promotion of wild flora and fauna.	2	50% Subventionen Bund/Kanton, Rest durch Sponsoren (FLS, Pro Natura etc.) ----- ca. 600'000 Kosten für Erfolgskontrolle: keine Angaben
1.1	1, 3	Creation of management plans for alps with high natural value	Raising awareness of sustainable management and creation of a management plan.	2	Vorbereitungsarbeiten: 60'000 (über 6 Jahre) Bewirtschaftungspläne: 10'000.- pro Alp Umsetzung + Erfolgskontrolle: 2'000 bis 4'000.- Alp
1.3	1, 3	JAB guidelines for portable and traditional pasture fencing	Measures must be taken to combat the uncontrolled spread of fenced enclosures. The JAB Guidelines aim to promote practical pastoral fencing that blends in with the landscape and is appropriate for wildlife. Greater value must be accorded to traditional pasture fencing to promote its reintroduction, among other things along cattle droving paths and hiking trails. The communes will be made aware of the issue (aesthetic/tourism aspects) and, if necessary, incorporate and implement appropriate measures in their regulations.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	Bund/Kanton (Subventionen), Beiträge Dritter, Sponsoren ----- 50'000 bis 100'000 (wird Material oder Arbeit bezahlt?)
1.3	1, 3	Drywalls	The importance of drywalls must be accorded value as an element of the cultural landscape. Disseminate information and raise awareness of the importance of drywalls. Restore existing endangered drywalls. Revive traditional regional drywall construction techniques.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	Kursbeiträge der Teilnehmer, Beiträge Baumeisterverband, Kanton, einzelne Gemeinden, Waldwirtschaftsverband, Oberwalliser Landwirtschaftskammer ----- Grundkurs: rund 12'000. Zusatzmodul: ca. 6'000, jede Wiederholung des Kurses: 10'000. Pilotprojekte jeweils Kosten von 200'000 (Subventionen von rund 35%). Bei geschicktem Finanzierungsplan und gutem Projekt kommen Beiträge bis 50% rein. Die Trägerschaft muss also rund 15-20% der Kosten erbringen.

Core Group*	Principal Impact** (1, 2, 3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.3	1, 3	Care and marketing of historic transport routes (IVS)	<p>Together with Via Storia, World Heritage promotes the preservation and restoration of historic transport routes in the World Heritage Region.</p> <p>Raise awareness among communes, landowners, tourist board officials, service providers etc. Complete inventory of local and regional routes = from the World Heritage communes' standpoint. Using Via Storia guidelines and concrete examples, illustrate the opportunities of implementing projects on the basis of the Via Storia.</p>	<p>2 (Koordinationskosten seitens des MZ in Projekt-Fiche P 02.08 eingegeben)</p>	keine Angaben
1.3	1, 3	Creation of joint mechanisms for landscape conservation	<p>The communes support the creation of joint mechanisms for landscape conservation.</p> <p>Participation of private individuals resident in or outside the communes in the joint mechanisms</p>	<p>1 (allfällige Koordinationskosten für 2007 seitens des MZ in Projekt-Fiche P 02.08 eingegeben)</p>	<p>JAB-Landschaftsfonds, ev. durch zusätzliche zweckgebundene Beiträge.</p> <p>-----</p> <p>Zentrales JAB-Landschaftswerk, von zentraler Stelle zu finanzieren: Gemeinde jährlicher Beitrag von 2'500 pro Anlass (Materialbeschaffung, Leitung etc.). Total bei 10 Einsätzen pro Jahr rund: 25'000.</p>
1.3	1, 3	Landscape fund and landscape officials (BE)	<p>To support the agricultural sector's landscape preservation efforts and as a contribution to the preservation of the cultural landscape, projects aimed at landscape care and upgrading should be implemented and co-financed by means of a subsidised fund.</p> <p>A fund already exists in the Eastern Oberland region for implementation of the R-LEK, financed by 29 communes (CHF 1.80.- per resident per year), secured until 2010. A similar regional fund is planned for the Kandertal region.</p> <p>The specific JAB-related concerns (e.g. information about the JAB, etc.) will be incorporated in these institutions by means of an agreement between the Managementcenter and the two regions.</p>	<p>2 (Koordinationskosten seitens des MZ in Projekt-Fiche P 02.08 eingegeben)</p>	<p>1. Phase: Gemeinden.</p> <p>2. Phase: Selbstfinanzierung angestrebt (Fundraising der Projekte)</p> <p>-----</p> <p>1. Phase (3 Jahre): rund 25'000 pro Jahr (rund 400 bis 500 Std. à 50-60 Fr/h).</p> <p>2. Phase (Beginn 4. Jahr): min. 5'000 pro Jahr. Ziel: 75% der Kosten werden über die Projekte abgedeckt.</p>

Core Group*	Principal Impact** (1, 2, 3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2: Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.3	1, 3	Landscape fund and landscape officials (VS)	See Project 1 A landscape official coordinates and initiates projects, disseminates information and acts as the point of contact for the local population, authorities, organisations and all MZ-related forest, agriculture, conservation, to some extent tourism etc.). Rather than being a regional representative (secretary), the landscape official should be a committed expert with proven experience in the field of cultural and natural landscape preservation; possibly a person who no longer engages in regular employment (retiree etc.).	1 (allfällige Koordinationskosten für 2007 seitens des MZ in Projekt-Fiche P 02.08 eingegeben)	1. Phase: Gemeinden. 2. Phase: Selbstfinanzierung angestrebt (Fundraising der Projekte) ----- 1. Phase (3 Jahre): rund 25'000 pro Jahr (rund 400 bis 500 Std. à 50-60 Fr/h). 2. Phase (Beginn 4. Jahr): min. 5'000 pro Jahr. Ziel: 75% der Kosten werden über die Projekte abgedeckt.
1.5	1, 3	Overall concept for outdoor activities infrastructure	The overall concept for an outdoor activities infrastructure is formulated according to fixed criteria	1 Kosten in Projekt-Fiche P 02.06 eingegeben: 190'000.- in 5 Jahren (fallen teilweise 2007 an)	Für Sponsoren und Firmen nicht attraktiv zur Unterstützung, da kaum Möglichkeiten eines entsprechenden Auftritts bestehen. ----- Grobkostenschätzung: Sitzungsgelder und Sekretariatsarbeiten 5'000.-, Auftrag Büro Moderation / Mediation inkl. Berichtsverfassung 33'000.-, Materialien 2'000.-, Gesamtkosten Pilotregion Aletsch 40'000.- Es soll mit einem Kostendach gearbeitet werden. Für die weiteren 5 Projektregionen werden die Kosten auf je 30'000.- veranschlagt. Damit belaufen sich die Kosten für die Gesamtkonzeption über das ganze JAB auf rund CHF 190'000.- über einen Zeitraum von 5 Jahren.

Principal Impact 2

Core Group*	Principal Impact** (1), (2), (3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.1	2	Supervisory measures (rangers)	Draw up a project on the deployment of staff responsible for supervision, care and maintenance within the World Heritage region (raise awareness rather than impose bans)	1 2007 noch keine Kosten. Wird erst in Programmvereinbarung 2008-2011 aufgenommen	Gemeinde, Kantone, Bund. ----- Projektausarbeitung inkl. Sicherung der Finanzierung des Projektes: Fr. 40'000.-/ Seite. Umstzungskosten noch nicht beziffert
1.5	2	Activities table and conflict map	Joint basis for organising and planning all environmentally friendly outdoor activities.	1 Kosten in Projekt-Fiche P 02.03 eingegeben: 70'000.- (fallen 2007 an)	Für Sponsoren und Firmen ist dieses Projekt nicht attraktiv zur Unterstützung, da kaum Möglichkeiten eines entsprechenden Auftrittes bestehen. ----- Schätzung für Erarbeitung von Aktivitätstabelle und die Konfliktkarte, inkl. Vernehmlassung, Berichterstattung und Produktion (kein Druck, nur Plots) durch das Büro Geo 7 belaufen sich auf CHF 30'000.-. (Inkl. administrative Kosten und Sitzungskosten.)
1.5	2	JAB code of honour for outdoor activities, levels 1 & 2	Tourist service providers and representatives of interests in the JAB must be encouraged to abide by a code of honour for outdoor activities.	1 Kosten in Projekt-Fiche P 02.02 eingegeben: 10'000.- (Kosten für Stufe 1 fallen 2007 an)	Bund, Kantone, Gemeinden. Sponsoring und Inserate. ----- Es wird mit einem Betrag von maximal CHF 5000.- gerechnet. Stufe 2: Label mit Kontrolle. Die Kosten für dieses Projekt sind sehr stark abhängig von der Projektdefinition. Sie hängen auch davon ab, ob bestehende System mehr oder weniger übernommen wird oder ob das Outdoor Label in ein JAB-Gesamlabel eingebettet wird.
3.1	2	JAB information network	Comprehensive JAB information and JAB awareness raising	1 Kosten in Projekt-Fiche P 03.10 eingegeben: 360'000.- für 2006 und 2007 (Konzeptkosten fielen 2006 an. Ab 2007 und 2008: Infosäulen und wände + Aufarbeitung von Inhalten)	keine Angaben
3.4	2	File on the JAB network of contacts with key decision-makers in the fields of politics, public administration, business, and environmental protection	All actors must be involved actively in the objectives of the JAB and associated projects, and integrate these objectives and projects in their networks as a general overriding principle.	2	keine Kosten verursachend

Core Group*	Principal Impact** 1), 2), 3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
3.4	2	Making the lobbying core group known to JAB actors	Making the lobbying core group known to JAB actors	2	im Rahmen der sonstigen Informationsaktivitäten des Managementzentrums (P 00)
3.4	2	Organisation of lobbying activities	Organisation of JAB lobbying is a service for JAB actors and JAB institutions. Actors or institutions requiring lobbying support must define their requirement in writing and forward it to the core group.	2	im Rahmen der sonstigen Informationsaktivitäten des Managementzentrums (P 00)

Principal Impact 2 and 3

Core Group*	Principal Impact**	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft	Finanzierung durch ----- Geschätzte Kosten
1.5	2, 3	Summer and winter activities map, scale 1:50,000	Activities map: New, unique service for all JAB visitors	Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Der Verkaufspreis muss in einem attraktiven Segment liegen (kostendeckender Preis eher nicht möglich). Teil der Produktionskosten durch Sponsoring und Inserate erwirtschaften. ----- Grobe Kostenschätzung: Konzeption und Datensammlung, ev. durch Fachhochschule 10'000.- Inhaltliche Erarbeitung und kartografisches Konzept durch Firma 50'000.- Übersetzungen Sommer und Winter 60'000.- Layout, Druckvorstufen, Druck für Sommer- und Winterkarten 120'000.- Es wird mit Gesamtkosten für den Kleinauftrag von CHF 1'000.- bis 3'000.- gerechnet.
1.5	2, 3	Checklist of outdoor activities and infrastructures for actors	Checklist for establishing and adapting outdoor activities and/or infrastructure (based on the aboveview projects under 1.5)	1 Kosten in Projekt-Fiche P 02.06 eingegeben: 15'000 (fallen für 2008 an)	
1.6	2, 3	Tour round the World Heritage Site	Partial or full tour of the JAB UNESCO World Heritage Site by public transport (among other things, there are too few post buses travelling over the Grimsel)	2	keine Angaben
1.6	2, 3	World Heritage Site Pass	Creation of a special pass (World Heritage Site Pass) for travel within the JAB (regional BeO pass combined with Upper Valais Experience card). Or reciprocal validity of existing passes.	2	keine Angaben
1.6	2, 3	Political lobbying to promote public regional transport	Political authorities know and support public transport services throughout the World Heritage Region. Measures to include: World Heritage Slow-Up	2	nach gemeinsamer Absprache aller Beteiligten ----- Planung, Organisation und Begleitung pro Jahr ca. Fr. 10 000.- Umsetzung je nach gewählten Informationsmitteln und der Grösse der Anlässe zwischen Fr. 20'000 – 50'000 pro Jahr.
2.3	2, 3	Foundation of "Holiday in the World Heritage Region" Club		1 (Kosten für Leistungsvereinbarung 10'000.-/Jahr unter Vorbehalt der Finanzierungssicherung im JAB. In Projekt-Fiche P 00.03)	Tourismus-organisationen der JAB-Region; Leistungsträger ----- Leistungsvereinbarung steht kurz vor der Unterzeichnung. 10'000.- / a finanziert durch JAB unter Vorbehalt der Finanzierungssicherung seitens des Weiterbes

Core Group*	Principal Impact**	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft	Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
2.3	2, 3	Media trips with participants from Switzerland, Germany and BENELUX member states	2 to 4 media trips per year	2	2	Über bestehendes Budget der Touristischen Destinationen + Verein Ferien im Weiterbe
2.3	2, 3	Internet presence with own portal of "Holiday in the World Heritage Region Association" (F-i-W)	Internet presence for the promotion of tourism	2	2	Über bestehendes Budget der Touristischen Destinationen + Verein Ferien im Weiterbe
2.4	2, 3	Label of origin for products from the UNESCO World Heritage Region	Increase added value in the JAB UNESCO World Heritage Region and neighbouring regions. Generate added value for products from this region.	1 (unklarer Projektbescrieb. Finanzierung für Qualitätslabel in Projekt- Fiche P02.02	1	keine Angaben ----- Fachkräfte: Abschätzung Potential (Angebot/Nachfrage): 15'000 Aufbau Angebot und Nachfrage (generieren): 35'000
2.4	2, 3	Marketing of agricultural and forestry products	Enhance added value by marketing local quality products with the JAB label of origin. Increase marketing in conjunction with local tourism (gastronomy).	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingetragen)	2	keine Angaben
2.4	2, 3	"Alpine Cheese Tasting Route" in the UNESCO World Natural Heritage Site	Promotion of sales and revenue for AOC alpine cheese and Hobelkäse from the Upper Valais and Bernese Oberland and in general for products from these regions. Consumers recognise the added value of hand-crafted regional products and tend to be willing to pay more for them. Include local enterprises in the project in order to promote sectoral engagement. Generate added value in the Bernese Oberland and Upper Valais	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingetragen)	2	keine Angaben ----- Fachkräfte: Graphiker und Druck Prospekt: 15'000 (je nach Auflage). Sekretariat: Herstellung Beschriftungstafeln (Vorlage aus Buch z'Bärg): 2'000. Leitung: Arbeit 6'000, Inserate und PR: 2'000.
2.4	2, 3	Raising awareness of agriculture and forestry	A campaign will be launched to raise awareness among visitors and the population. Raising awareness must be a permanent task and be factored into all JAB activities. See also 3.1 to 33.	2; ev 1 allfällige Kosten werden in Arbeitsprogramm 2008-2011 aufgenommen	2; ev 1	keine Angaben ----- es muss ein Kostenschlüssel zwischen den betreffenden Organisationen erstellt werden. Finanzierung kann nicht über MZ erfolgen)

Core Group*	Principal Impact**	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
3.2	2, 3	Introduction of a TQM (Total Quality Management) system	A multi-level JAB labelling system will be introduced to ensure high-quality products, raise awareness of the JAB, and encourage closer collaboration between different sectors. The label will be valid for an entire business rather than individual products. In this context "Valais Excellence" (VsEx), based on a TQM system, serves as a platform: "JAB Excellence" label (working title). Collaboration with VsEx is the aim.	<p>1</p> <p>(Kosten für Vorabklärungen in Projekt Fiche P 03.02 eingegeben. Finanzierung des Pilotprojektes wird in Vereinbarung 2008-2011 eingegeben.)</p>	<p>Trägerschaft und Pilotgruppe. Danach Finanzierung über Lizenzen.</p> <p>----- Offerte Valais Excellence (VsEx) A) <i>Plattform VsEx für JAB Excellence</i>: Einmalige Kosten: CHF 9'680 Jährliche Kosten: CHF 750 pro Betrieb B) <i>Model IMS (Integriertes Managementsystem)</i>: Einmalige Kosten: CHF 960 Jährliche Kosten: CHF 3'700 C) <i>Software IMS für JAB-Leistungsträger</i>: Einmalige Kosten: von CHF 400 bis 960 Jährliche Kosten: von CHF 1'300 bis 3'200 (Kosten richten sich nach Grösse des Betriebes.) D) <i>Optional: Mandat für Coaching des Projektes durch VsEx</i>: Kosten inkl. Ausbildung pro Betrieb: ca. CHF 5'000</p>
3.5 and 3.6 and 3.7	2, 3	JAB pilot project motivates schoolchildren in Naters/Grindelwald	JAB as part of the curriculum, information exchange between teachers, raising awareness among schoolchildren, implementation of pilot project in all JAB communes.	<p>2</p>	<p>OS Naters jährliches Budget : Fr. 10'000.-- zur Verfügung. Für Schulprojekte, Spesen Schulf-Kurse, Administration Projektleitung usw. Schulen Grindelwald: keinen Budgetposten für solche Projekte Gesuch an Gemeinde</p> <p>----- keine Angaben. Für die Trägerschaft nur geringe Kosten verursachend</p>
3.5 and 3.6 and 3.7	2, 3	Follow-up project from A – spreading the idea among JAB communes	JAB as part of the curriculum, information exchange between teachers, raising awareness among schoolchildren, schools as points of contact for Switzerland as a whole	<p>1</p> <p>Kosten in Projekt-Fiche P 05.02 eingegeben (fallen 2007 an)</p>	<p>keine Angaben ----- Projekt B ist ein Folgeprojekt aus dem Pilotprojekt A. Erst wenn das Pilotprojekt evaluiert worden ist, können die Kosten für Projekt B abgeschätzt werden.</p>
3.5 and 3.6 and 3.7	2, 3	Projects at Secondary School Level II	JAB relevant projects at secondary school level II	<p>1</p> <p>Kosten ab 2008 relevant. Vorbereitungsarbeiten in Projekt-Fiche P05.02 enthalten</p>	<p>Schulen, Gemeinden, Bund, Kantone, Sponsoring.</p> <p>----- Je nach Umfang der Projekte.</p>

Principal Impact 3

Core Group*	Principal Impact** (1), (2), (3)	Activity Line	Objectives (key words)	Kategorie 1: Finanzert / teilfinanziert durch Trägerschaft Kategorie 2 Ideelle Unterstützung (nur Personalkosten) BEWILLIGTE PROJEKTE	Finanzierung durch ----- Geschätzte Kosten
1.3	3	Pilot project: pasture fencing on the Natischerberg	The pilot project "Pasture Fencing" will be implemented as a subproject "Upgrading of the Natischerberg natural and cultural landscape". Serves as a controlling element for this guideline. Creation of aesthetically appealing fencing on the Natischerberg.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	Kantone/Bund (Subventionen), FLS, Beiträge Dritter, Sponsoren. ----- Je nach Umfang des Projektes.
1.6	3	Travel without luggage	Luggage transport throughout the UNESCO region	2	noch keine Angaben
2.3	3	Offers for sports clubs and associations in northern Italy	Offers for sports clubs and associations	2	noch keine Angaben
2.3	3	Promotion of joint sports events	Marketing of joint sports events	2	noch keine Angaben
2.4	3	"Buuresunntig"	The "Buuresunntig" ("Farmers' Sunday") is a contribution to the Tasting Week in the BO. It offers an opportunity to raise awareness of local products.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	noch keine Angaben ----- Fachkräfte: BEKB Angestellte erledigen das Finanzielle. Sekretariat: bei der Landi. Leitung: Organisationskomitee; Erfolg nach Abrechnung: 6'000
2.4	3	Tourist services provided by farms (see Subprojects)		2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	noch keine Angaben -----
2.4	3	Subproject: Farm vacations for children	Taking children off their parents' hands for part of the vacation. Secondary source of income for farming families. Creates ties with nature and the landscape. Offers a stimulating experience for children.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	noch keine Angaben ----- Fachkräfte: Grafiker und Drucker für Prospekte. Sekretariat: Tourismusbüro.
2.4	3	Subproject: Work experience on the farm, with board	Guests learn about everyday life on the farm, image enhancement for the agricultural sector. Dialogue fosters mutual understanding.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	noch keine Angaben
2.4	3	Rainy-day programme: e.g. cooking local specialities	Guests learn about a local speciality (cooking + eating). Chats with the farmer's wife/female farmworker promote the image of the alpine region. Intensified contact = long-term affinity with the region. Special experience for visitors.	2 (Koordinationskosten seitens des MZ in Projekt- Fiche P 02.08 eingegeben)	noch keine Angaben



Annex 4

Karten zur Illustration

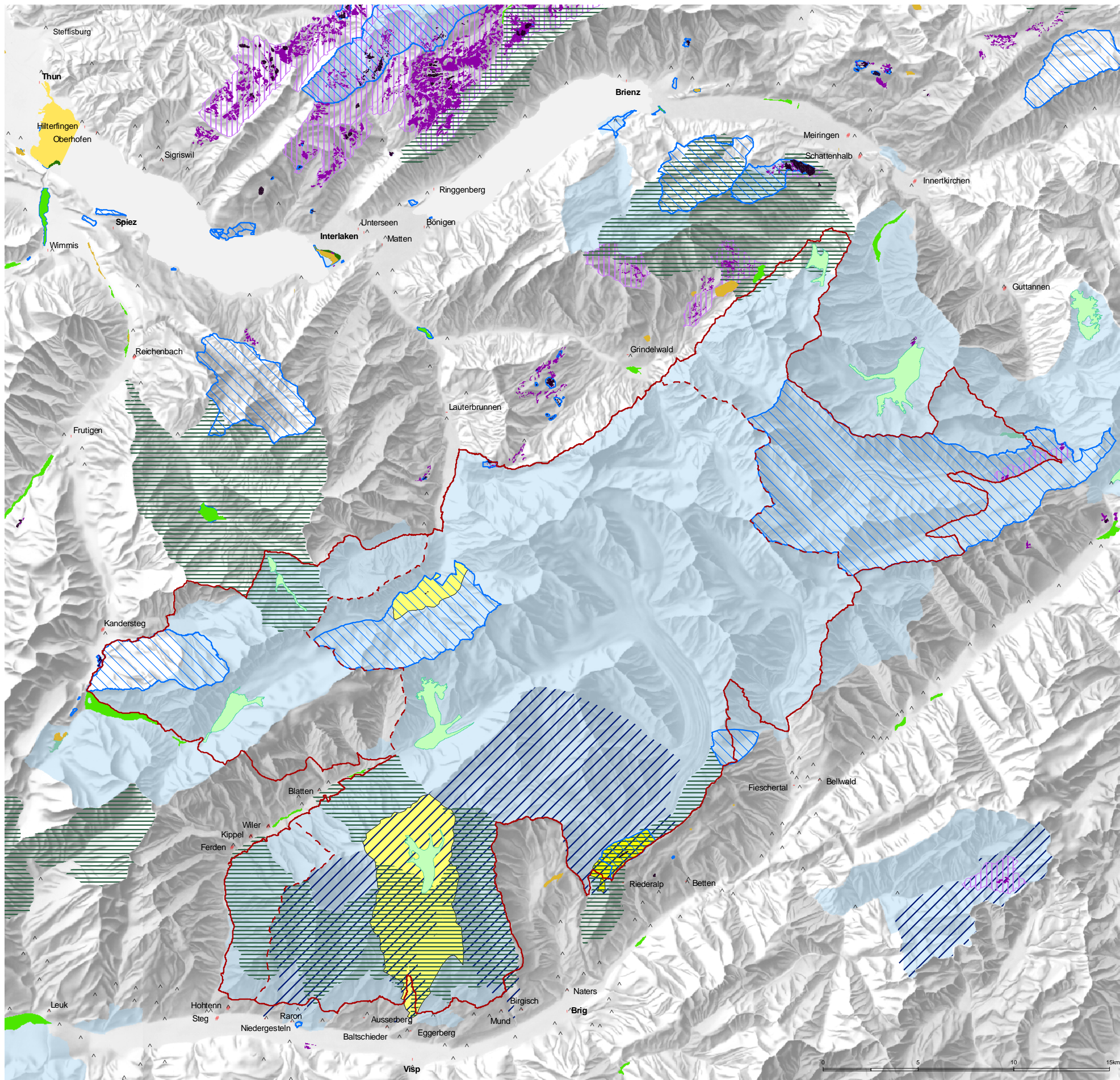
1. **Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete**
2. **Übersicht der privatrechtlichen Schutzgebiete von Schutzorganisationen**
3. **Mineralkluft Gerstenegg Geschütztes geologisches Objekt, Kanton Bern**
4. **Übersicht Trockenstandorte des Kantons Bern**
5. **Trockenstandorte des Kantons Bern – Ausschnitt Lauterbrunnen**
6. **Trockenstandorte des Kantons Bern – Ausschnitt Kandersteg**
7. **Übersicht der Aktivitäten von Gemeinden und Organisationen (Wanderwege, Hütten, Gebirgslandeplätze, Projekte)**
8. **Suonen Lötschberg Süd**

Naters und Interlaken, Februar 2007
Trägerschaft UNESCO Welterbe

Managementzentrum UNESCO WELTERBE

CH-3904 Naters • Postfach 444 • Telefon +41 (0)27 924 52 76
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Übersicht aller privatrechtlichen, nationalen und kantonalen Schutzgebiete



Legende

Privatrechtliche Schutzgebiete

Landschaftsschutz

- Landschaften und Naturdenkmäler (BLN°)
- Verordnung über die Abgeltung von Einbussen bei der Wasserkraftnutzung (VAEW)
- Moorlandschaften von besonderer Schönheit°
- kantonale Naturschutzgebiete (NSG)
- Schützenswerte Ortsbilder der Schweiz (ISOS°)

Biotopschutz

- Eidgenössische Jagdbanngebiete°
 - Hoch- und Übergangsmoore°
 - Flachmoore°
 - Gletschervorfeld (Auengebiete°)
 - Alpine Schwemmebene (Auengebiete°)
 - Fließgewässer (Auengebiete°)
 - Delta (Auengebiete°)
 - Amphibienlaichgebiete° (ortsfest)
 - Amphibienlaichgebiete° (Wanderobjekt)
 - Wasser- und Zugvogerreservate°°
- ° Bundesinventar von nationaler Bedeutung
°° Bundesinventar von internationaler und nationaler Bedeutung

Grundlegende

- Hauptorte der Standortgemeinden
- Hauptorte der Standortgemeinden (Erweiterung)
- Hauptorte der Gemeinden mit > 2'000 Einwohnern
- Perimeter des Weltkulturerbes (inkl. Erweiterungsvorschlag an UNESCO)
- Perimeter des Weltkulturerbes, Stand 2001

Datengrundlagen:

CH-Grenze, Seen: GG25 © 2002
 Bundesamt für Landestopographie (DV 002213)
 Gemeindepauptorte: SWISSNAMES © 2002
 Bundesamt für Landestopographie (DV 012687.1)
 Perimeter Weltkulturerbe, Stand 2001 und 2005, BUWAL
 Relief: PK 100 © 1998
 Bundesamt für Landestopographie (DV 351.5)
 BLN, Stand 2001, BFS GEOSTAT / BUWAL
 Inventar der Moorlandschaften, Stand 2004,
 BFS GEOSTAT / BUWAL
 VAEW-Vertragsgebiete, Stand 2004, BUWAL
 ISOS, Stand 1994, BUWAL
 NSG, Stand 2004, Kanton Bern
 NSG, Stand 2005, Kanton Valais
 Hochmoorinventar, Stand 2003, BFS GEOSTAT / BUWAL
 Flachmoorinventar, Stand 2004, BFS GEOSTAT / BUWAL
 Aueninventar, Stand 2003, BFS GEOSTAT / BUWAL
 Amphibieninventar, Stand 2003, BFS GEOSTAT / BUWAL
 Wasser- und Zugvogerreservate, Stand 2001, BFS GEOSTAT / BUWAL
 Privatrechtliche Schutzgebiete im Weltkulturerbe
 Trägerschaft Weltkulturerbe JAB, 2007

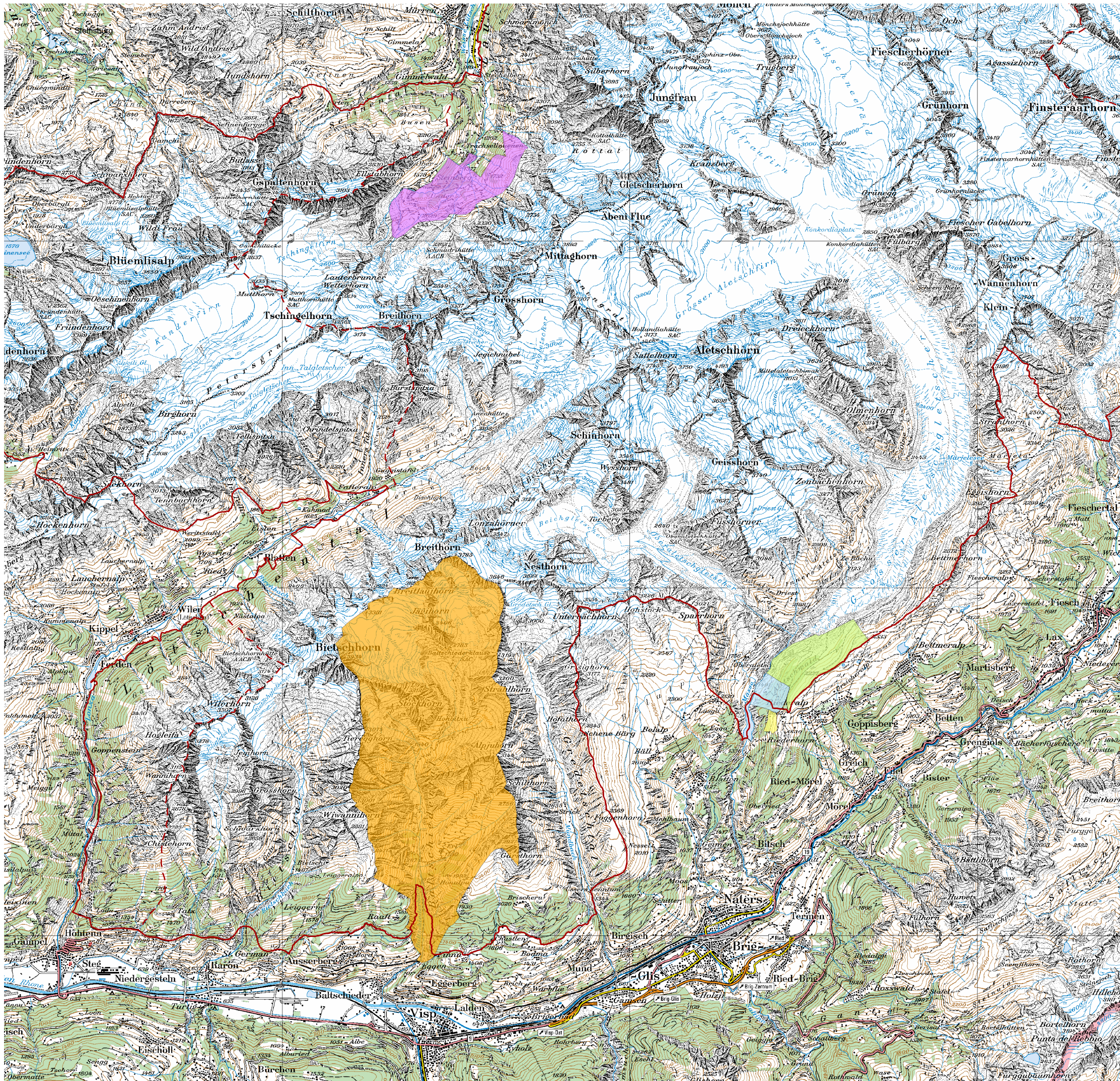
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 CDE (Centre for Development and Environment), Geographisches Institut Universität Bern,
 in Zusammenarbeit mit der Trägerschaft Weltkulturerbe Jungfrau-Aletsch-Bietschhorn, Interlaken und Naters, 02.2007



UNESCO WELTERBE
 Jungfrau-Aletsch-Bietschhorn






Privatrechtliche Schutzgebiete von Schutzorganisationen



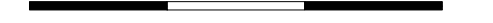
Legende

-  Hinteres Lauterbrunnental
-  Baltschiederl
-  Aletschwald
-  Teiffwald
-  Alp Nessel

Grundlegende

-  Hauptorte der Standortgemeinden
-  Hauptorte der Standortgemeinden (Erweiterung)
-  Hauptorte der Gemeinden mit > 2'000 Einwohnern
-  Perimeter des Weltnaturerbes (inkl. Erweiterungsvorschlag an UNESCO)
-  Perimeter des Weltnaturerbes, Stand 2001

0 2 4 6 km



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 Bundesamt für Landestopographie (DV012687.1)
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 Relief: PK500 © 1999
 Bundesamt für Landestopographie (DV 351.5)
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 Privatrechtliche Schutzgebiete im Weltnaturerbe
 Trägerschaft Weltnaturerbe JAB, 2007
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Kompilation und Kartographie:
 CDE (Centre for Development and Environment), Geographisches Institut Universität Bern,
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Mineralkluft Gerstenegg Geschütztes geologisches Objekt, Kanton Bern



Legende

-  Geschütztes geologisches Objekt:
Mineralkluft Gerstenegg
-  Perimeter des Weltkulturerbes, Stand 2005

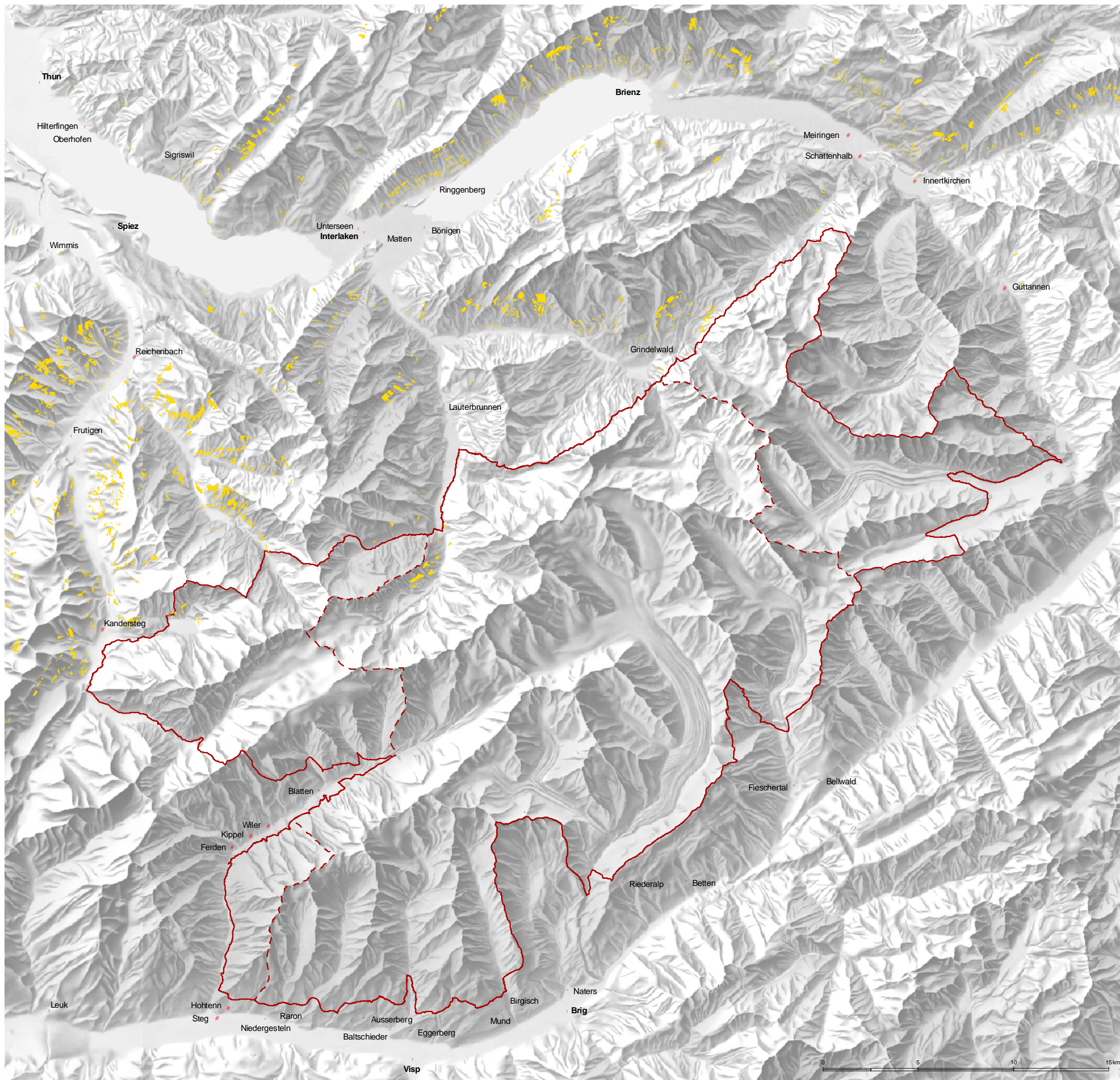


Datengrundlagen:
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 Perimeter Weltkulturerbe, Stand 2005, BUWAL
 Relief: PK500 © 1999
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 Geschützte geologische Objekte, Stand 2001
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Übersicht Trockenstandorte des Kantons Bern



Legende

Trockenstandorte

Grundlegende

- Hauptorte der Standortgemeinden
- Hauptorte der Standortgemeinden (Erweiterung)
- Hauptorte der Gemeinden mit > 2'000 Einwohnern
- Perimeter des Weltnaturerbes (inkl. Erweiterungsvorschlag an UNESCO)
- Perimeter des Weltnaturerbes, Stand 2001




Datengrundlagen:
 CH-Grenze, Seen: GG25 © 2002
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 Gemeindehauptorte: SWISSNAME S © 2004
 Bundesamt für Landestopographie (DV 012687)
 Perimeter Weltnaturerbe, Stand 2001 und 2005, BUWAL
 Relief: PK 100 © 1998 und PK500 © 1999
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 Trockenstandorte, Stand 2005
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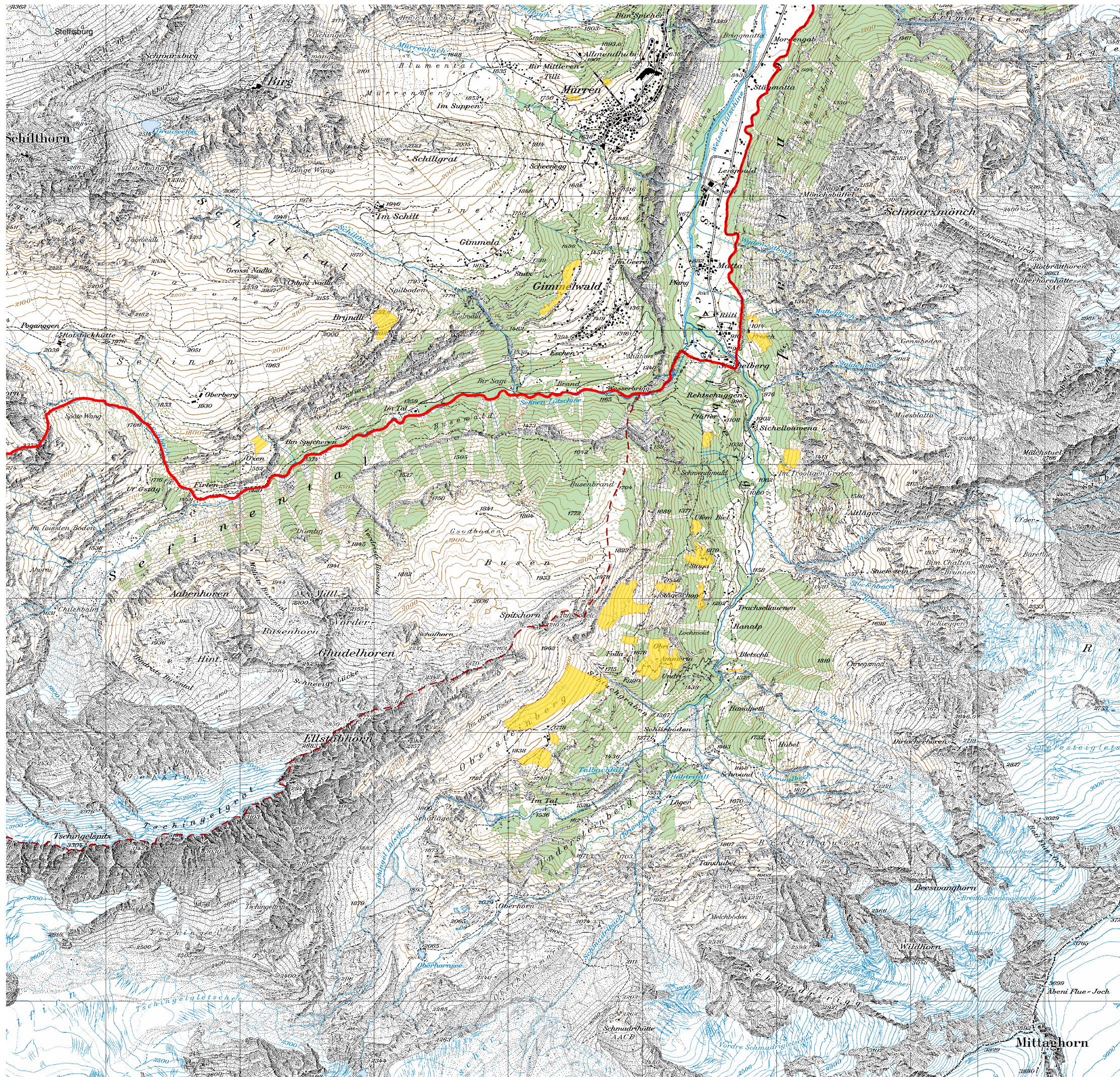
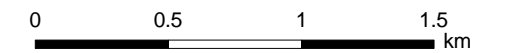
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 in Zusammenarbeit mit der Trägerschaft Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, Interlaken und Naters, 02.2007



Trockenstandorte des Kantons Bern Ausschnitt Lauterbrunnen

Legende

-  Trockenstandorte, Stand 2005
-  Perimeter des Welterbes, Stand 2005



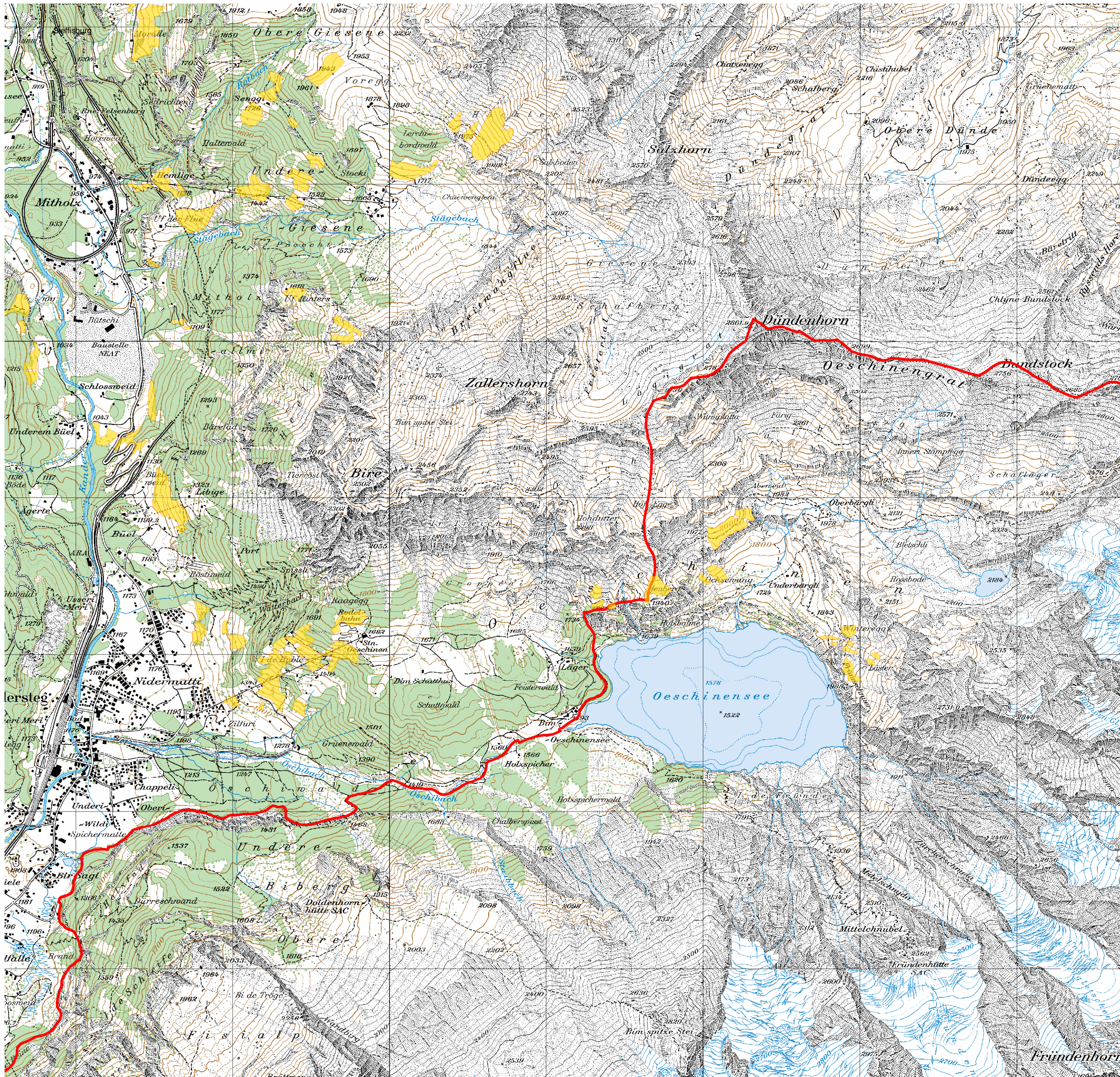
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 Relief: PK500 © 1999
 Bundesamt für Landestopographie (DV 351.5)
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Trockenstandorte des Kantons Bern Ausschnitt Kandersteg



Legende

-  Trockenstandorte, Stand 2005
-  Perimeter des Welterbes, Stand 2005



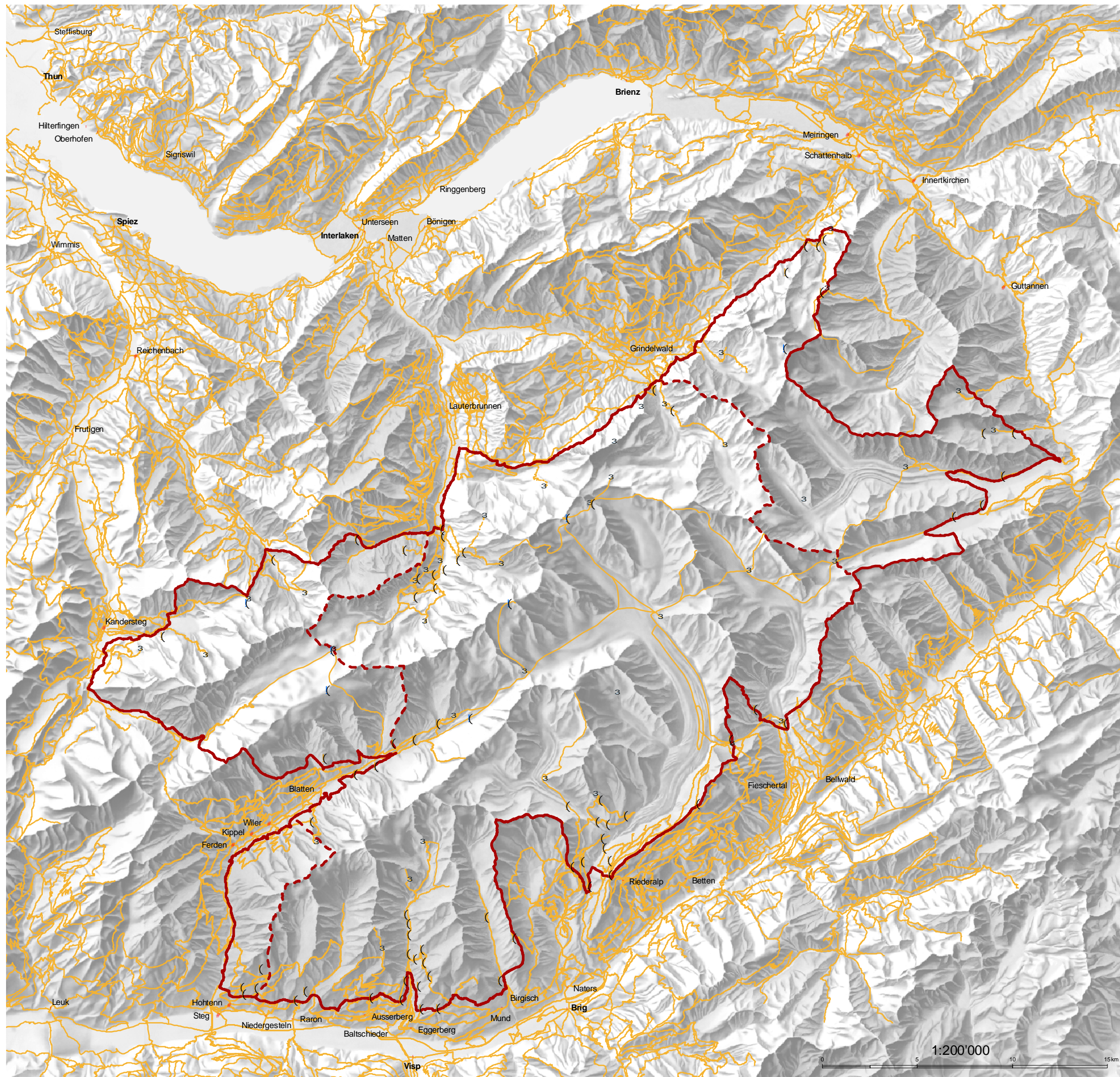
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 Perimeter Weltnaturerbe, Stand 2005, BUWAL
 Relief: PK500 © 1999
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Übersicht der Aktivitäten von Gemeinden und Organisationen



Legende

- (Aktivitäten / Projekte
- (Gebirgslandeplätze
- 3 SAC Hütte / Berghaus
- Wander-, Bergwege und Alpine Routen

Grundlegende

- Hauptorte der Standortgemeinden
- Hauptorte der Standortgemeinden (Erweiterung)
- Hauptorte der Gemeinden mit > 2'000 Einwohnern
- Perimeter des Weltkulturerbes (inkl. Erweiterungsvorschlag an UNESCO)
- Perimeter des Weltkulturerbes, Stand 2001



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 Gemeindehauptorte: SWISSNAME3 © 2004
 Bundesamt für Landestopographie (DV012687)
 Perimeter Weltkulturerbe, Stand 2005, BUWAL
 Relief: PK100 © 1998 und PK500 © 1999
 Bundesamt für Landestopographie (DV 351.5)
 Hütten innerhalb des Perimeters, Stand 2006
 Trägerschaft Welterbe JAB
 Gebirgslandeplätze innerhalb des Perimeters, Stand 2004
 Trägerschaft Welterbe JAB
 Wander- und Bergwege
 VECTOR 25, Stand 2006 © swisstopo (DV002232.1)
 Valais und Kanton Valais, Stand 2006
 Trägerschaft Welterbe JAB, Stand 2007
 Aktivitäten innerhalb des Perimeters, Stand 2007
 Trägerschaft Welterbe JAB

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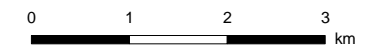
UNESCO WELTERBE
 Jungfrau-Aletsch-Bietschhorn

Suonen Lötschberg Süd



Legende

-  Suone
-  Hauptorte der Standortgemeinden
-  Perimeter des Weltnaturerbes (inkl. Erweiterungsvorschlag an UNESCO)



Datengrundlagen:
 CH-Grenze, Seen, Gemeindegrenze: GG25 © 2002
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 Gemeindehauptorte: SWISSNAMES © 2004
 Bundesamt für Landestopographie (DV012687)
 Perimeter Weltnaturerbe, Stand 2005, BUWAL
 Relief: PK500 © 1999
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 Bundesamt für Landestopographie (DV351.5)
 Suoneninventar, Stand 2004, Kanton Wallis

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 in Zusammenarbeit mit der Trägerschaft Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, Interlaken und Naters, 02.2007





Annex 5

Weiterführende Dokumentation zu den Anhängen 1 und 2: Verträge, Verordnungen, Schreiben von Bund, Kantonen, Organisationen

Naters und Interlaken, Februar 2007
Trägerschaft UNESCO Welterbe



Annex 6

Schreiben zur Finanzierung des Welterbes seitens des Bundes sowie der Kantone Bern und Wallis

Naters und Interlaken, Februar 2007
Trägerschaft UNESCO Welterbe

EUROPE / NORTH AMERICA

JUNGFRAU - ALETSCHE - BIETSCHHORN
(EXTENSION)

SWITZERLAND



WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

JUNGFRAU-ALETSCH-BIETSCHHORN (SWITZERLAND) – ID No. 1037 Bis

(Extension)

Background note: The existing World Heritage property, Jungfrau-Aletsch-Bietschhorn (JAB), was inscribed on the World Heritage List in 2001 under three natural criteria: (i) (now viii); (ii) (now ix); and (iii) (now vii). This recognised that the property provides an outstanding example of the formation of the High Alps, including the most glaciated area in the region and the largest and longest glacier in Eurasia; includes a wide diversity of ecosystems, including successional stages due particularly to the retreat of glaciers resulting from climate change; and has an impressive landscape that has played an important role in European art, literature, mountaineering and alpine tourism. The proposed extension would extend the property to the east and west, with an increase in area from 53,900 ha to 82,400 ha.

1. DOCUMENTATION

- i) **Date nomination received by IUCN:** April 2006
- ii) **Dates on which any additional information was officially requested from and provided by the State Party:** IUCN requested supplementary information on 4 October 2006 after the IUCN Evaluation Mission. The State Party responses were submitted on 27 November 2006 and 26 February 2007, including a new management plan and responses to all the issues raised by IUCN.
- iii) **UNEP-WCMC Data Sheet:** 13 references (including nomination)
- iv) **Additional literature consulted:** Wiesmann, U. et al. (2005). **Between conservation and development: Concretizing the first World Natural Heritage Site in the Alps through participatory processes.** Mountain Research and Development 25, 128-138.
- v) **Consultations:** 9 external reviewers. Extensive consultations were undertaken during the field visit with: representatives of the Federal Office for the Environment; representatives of the Office for Communes and Spatial Planning of the Canton of Berne and the Forest and Landscape Service of the Canton of Valais; representatives of 15 of the 26 communes on which the proposed extended World Heritage property is situated (mainly those in the proposed extensions); scientists from the University of Berne; representatives of Kraftwerke Oberhasli (KWO: hydro-electricity generating company); staff of the JAB Management Centre; and members of the JAB Supervisory Board and JAB Core Groups.
- vi) **Field visit:** Martin Price and Bastian Bomhard, September 2006
- vii) **Date of IUCN approval of this report:** April 2007

2. SUMMARY OF NATURAL VALUES

The current Jungfrau-Aletsch-Bietschhorn (JAB) World Heritage property covers an area of 53,900 ha on the territory of 15 communes in the Swiss Alps. The proposed extension would increase the area by 53% to 82,400 ha on the territory of 26 communes. Of this extended area, 57% lies in the Canton of Valais (18 communes) and 43% in the Canton of Berne (8 communes). The Summary of Natural Values in the 2001 IUCN Technical Evaluation of the current property largely covers the key points for the extended property. Significant additions include the following:

- 1) A number of new glaciers, especially those in the upper basin of the Aar catchment (Oberaar, Lauteraar, Finsteraar, Unteraar, Rosenloui, Oberer Grindelwald) to the east and the plateau glacier of the Kanderfirn/Petergrat to the west, so that the glaciated area increases from 24,900 to 35,000 ha, with five of the longest glaciers in the Swiss Alps. Many of these have global importance for monitoring climate change, particularly the Lauteraar glacier, which has been a key site for glaciological research since the work of Louis Agassiz in the 1840s;
- 2) The extension of the northern perimeter of the property, from 25 to 40 km, so that it now includes almost the entire dramatic north wall of the Bernese

Alps, including the Bluemlisalp group in the west and the Wetterhorn and Wellhorn in the east;

- 3) The Grimsel area, the Doldenhorn group, and parts of the Bietschhorn massif which are not included in the current property;
- 4) Other key landscape features, such as the Oeschinensee (glacial lake), the roche moutonnée landscape in the Grimsel region, and the Rosenlauischlucht (fluvial gorge); and
- 5) New elements from the Helvetic sedimentation region.

3. COMPARISONS WITH OTHER AREAS

The comparison made in the 2001 IUCN Technical Evaluation covers the key points for the proposed extended property and the proposed extensions only add to the logic of the argument, as exemplified by the significant additions mentioned above.

4. INTEGRITY

4.1 Legal status

The communes own most of the land in the extended JAB property; another major landowner is KWO, which owns 8500 ha in the Grimsel area. Almost all of the proposed extended property (77,400 ha: 94%) is protected within two sites of the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN). In addition, 41% of the area has additional protection status. This includes five biotopes of national importance (1,150 ha, 1.4%), six federal hunting reserves (9,000 ha, 11%), four landscapes protected under the Ordinance Concerning Compensation for Losses in Hydropower Generation (16,000 ha, 19%) – these designations are more strictly protected than BLN; as well as 29 cantonal nature protection areas (13,110 ha, 16%). Many of these designations overlap; of the 5.6% of the proposed extended property that is not under BLN protection, 2%, in the Engelhörner massif at the northeast extremity of the expanded site, is protected as a federal hunting reserve. Thus, only 3.6% is not under any type of protection. The two relatively small areas concerned (one in the commune of Blatten in the Lötschental, the other below the Doldenhorn north of the Oeschinensee) were visited, and discussions in the field concluded that their natural values are not at risk, and therefore the proposed boundaries of the extended property are appropriate. Eventually, it would be desirable for these two small areas, as well as the small area in the Engelhörner massif, to be included in the BLN during the ongoing process of review and revision.

In addition, it should be noted that, within the Canton of Valais, the natural and cultural heritage protection legislation of 1 October 2000 requires communal land-use plans to list the JAB property as a protected area of international importance. In the Canton of Berne, the Cantonal Landscape Development Concept includes location-specific statements on 'cantonal priority areas' which include all the federally-designated sites mentioned

above, and there is a special policy to implement the JAB property.

4.2 Boundaries

The delineation of the boundaries of the current JAB property resulted from intensive consultations among 14 of the region's communes and other stakeholders. At the time of the evaluation mission to the originally nominated site in March 2001, it was noted that extensions to the west and east would be likely. The new boundaries for the proposed extensions were again intensively negotiated from 2001 to 2004, this time with 26 communes and other stakeholders. Overall, the proposed boundaries, as noted in Section 2 of this report, significantly increase the values for which the JAB property has been inscribed. These boundaries are largely those of the two BLN sites in the region (see above). The primary exception is to the east of the area, where the majority of the commune of Innertkirchen (especially the Gaudi glacier and forefield) falling within the BLN site was not included because of concerns from the traditional agricultural and tourism sectors. During the mission in September 2006, representatives of this commune stated that this land might be proposed for inclusion at a later date. Also to the east, the boundaries of the proposed extended property around the Grimsensee have been drawn to allow for possible raising of the hydropower dam. For related reasons, a considerable part of the commune of Gutannen falling within the BLN site is not included because of extensive hydropower infrastructure (and it should be noted that there is an extensive network of tunnels for this purpose under much of the proposed eastern extension, though these do not in any way endanger the characteristics for which the property is designated). To the west, the boundary of the extension also does not match the BLN site, as the Balmhorn massif is excluded. However, the location of the boundary along the north side of the Gasterntal is appropriate.

4.3 Management

Following extensive participatory processes, a highly democratic institutional structure has been implemented through the JAB World Heritage Association, registered in May 2002 under Swiss law. The four main elements of this Association are:

- ◆ An assembly of delegates, with 24 members from each of the two cantons, representing regions, communes and organisations;
- ◆ A supervisory board, with 6 members from each of the cantons, representing regions, communes and organisations;
- ◆ A strategic steering committee, with representatives from the Confederation and the two cantons; and
- ◆ A management centre, with two offices, one each in the Cantons of Bern and Wallis, with a staff of two full-time equivalents who are highly qualified and have some administrative support.

In addition, the staff of the management centre work with core groups, including representatives of key stakeholders, in developing and implementing work in 21 'fields of action' that relate to a wide range of activities

within the proposed extended World Heritage property and also across the entire area of each of the 26 communes which have parts of their territory within the proposed extended World Heritage property, what is referred to as a 'World Heritage Region', as discussed below.

This institutional structure is appropriate given the institutional complexity. The 'management plan' dated 1 December 2005 was developed in an exemplary participatory process directly involving 256 people from the full range of stakeholder groups. The overall goals of this document, however, are not entirely consistent with the natural values for which the existing World Heritage property (and equally its proposed extension) has been inscribed; for instance, the goals referring to economic use. This reflects the fact that the document refers to a larger 'World Heritage Region' with 35,000 inhabitants which includes, as its core, a World Heritage property which has only 10 permanent inhabitants, though it has both seasonal residents (e.g., at mountain huts and occupied with grazing animals) and, throughout the year but especially in winter, very large numbers of visitors to sites on or near its boundary as well as mountaineers and skiers, some of whom arrive by helicopter. Consequently, this document is not an effective plan for the management of the proposed extended property, for three reasons:

- 1) Although the document outlines a very large number of highly desirable actions, it does not state how they will be practically achieved. More accurately, it could be described as a 'management strategy';
- 2) It does not refer in any great detail to many actions already being undertaken in the area which contribute to the maintenance of the values for which the property has been inscribed. Such activities are undertaken by federal and cantonal employees and others, including employees of various conservation and recreation NGOs; and
- 3) It does not adequately differentiate between actions which directly contribute to the maintenance of these values, those which indirectly contribute, and those which are desirable but more generally of relevance for the sustainable development of the so-called broader 'World Heritage Region'.

IUCN therefore recommended on 4 October 2006 that this 'management plan' should be regarded as a 'management strategy', and that a new management plan should be prepared, which should clearly identify 1) priorities for action, differentiating between activities that directly contribute to the maintenance of the values of the natural World Heritage property and its integrity (i.e., essential measures) vs. those that contribute indirectly and/or to regional sustainable development; and 2) specific activities, each with the responsible organisation(s) and the resources (especially in terms of funding and manpower) allocated to them. Given the many conservation designations in the area, IUCN also noted that it is essential that the new management plan clearly states how these activities are to be coordinated and, in this, what is the role in planning and management of the respective organisations, including the management centre.

In response to IUCN's recommendation the State Party prepared a new management plan which was submitted on 26 February 2007. Together with its six annexes, this new management plan provides all the necessary information on the activities, responsible organisations and resources for the conservation of the World Heritage property, and how these activities are to be coordinated.

The establishment of the management centre, with two offices, was essential for the coordination of a large number of activities by diverse stakeholders over a large area. The current levels of staffing at the management centre appear appropriate. There are also a number of staff employed by federal and cantonal institutions and both recreation and conservation NGOs who work within the proposed extended World Heritage property. However, IUCN noted on 4 October 2006 that, while long-term funding commitments from members of the Association and the Canton of Berne are in place, core funding to support the key activities of the management centre is not guaranteed, especially from the Canton of Valais and the Confederation. In response to IUCN's recommendation the State Party submitted on 26 February 2007 letters from the Federal Office for the Environment as well as the Cantons of Berne and Valais confirming their commitment and financial support for the implementation of essential measures and key activities into the foreseeable future.

4.4 Threats and human use

The proposed extension will not change the relatively small number of threats to the property. Tourist developments are limited, and a federal review of the use of the area for helicopter skiing is currently underway. This appears likely to limit the number of landing sites and flights. Climate change is certainly affecting the property, as shown by the retreat of the glaciers. However, this – and its ecological consequences – should be recognised as ongoing glaciological / geomorphological and ecological processes (criteria viii and ix) of which the property provides an outstanding example.

IUCN considers that the proposed extension meets the conditions of integrity as required under the Operational Guidelines.

5. ADDITIONAL COMMENTS

5.1 Name

While the name of the existing World Heritage property is appropriate, the proposed extension would add a considerable area, so that some of the surrounding communes (especially those added as a result of the extension process) have little affinity to the three names in the name of the current property, i.e., Jungfrau, Aletsch, Bietschhorn. Following discussions during the evaluation mission, it was therefore suggested that a more appropriate name for the extended property should be identified, which should have at least three benefits: 1) it should have greater acceptance by the majority of people in the concerned communes; 2) it should be more widely recognised at the international scale (and also potentially avoid confusion with existing tourist-oriented names such as Jungfrau Region); and 3) it should leave open the

possibility of serial nominations within the Alps on the territories of other States (see below). Given that other sites within the Swiss Alps have been named for much more local characteristics (e.g., Monte San Giorgio, Benedictine Convent of St John at Münstair), such renaming should not cause any confusion. Options for the renaming of the property are currently under consideration and the State Party should be encouraged to bring forward a new name for the property in due course.

5.2 Possible future extensions

As noted above, the majority of the commune of Innertkirchen (especially the Gault glacier and forefield) within the boundaries of the BLN site was not included in the proposed extended property because of concerns from the traditional agricultural and tourism sectors. It would be desirable if this relatively small area could be included at a later date, through a minor boundary modification, to further strengthen the integrity of the property.

5.3 Possible future inclusion in a serial property

There have been many discussions, including those at a regional thematic expert meeting held in June 2000 in Austria, concerning a serial World Heritage nomination in the Alps. Such discussions are ongoing, particularly within the context of the Alpine Network of Protected Areas.

6. APPLICATION OF CRITERIA / STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The proposed extended JAB property has been nominated under criteria (vii), (viii) and (ix). The arguments presented in the nomination are in line with those identified in the 2001 IUCN Technical Evaluation and remain valid. IUCN considers that the nominated property meets these criteria and proposes the following Statement of Outstanding Universal Value:

The Jungfrau-Aletsch-Bietschhorn region is the most glaciated part of the European Alps, containing Europe's largest glacier and a range of classic glacial features, and provides an outstanding record of the geological processes that formed the High Alps. A diverse flora and fauna is represented in a range of habitats, and plant colonization in the wake of retreating glaciers provides an outstanding example of plant succession.

Criterion (vii): Superlative natural phenomena or natural beauty and aesthetic importance

The impressive landscape within the property has played an important role in European art, literature, mountaineering and alpine tourism. The area is globally recognised as one of the most spectacular mountain regions to visit and its aesthetics have attracted an international following. The impressive north wall of the High Alps, centred on the Eiger, Mönch and Jungfrau peaks, is a superlative scenic feature, complemented on the southern side of the Alpine divide by spectacular peaks and a valley system which supports the two longest glaciers in western Eurasia.

Criterion (viii): Earth's history, geological and geomorphic features and processes

The property provides an outstanding example of the formation of the High Alps resulting from uplift and compression which began 20-40 million years ago. Within an altitude range from 809 m to 4,274 m, the region displays 400 million-year-old crystalline rocks thrust over younger carbonate rocks due to the northward drift of the African tectonic plate. Added to the dramatic record of the processes of mountain building is a great abundance and diversity of geomorphological features such as U-shaped glacial valleys, cirques, horn peaks, valley glaciers and moraines. This most glaciated part of the Alps contains the Aletsch glacier, the largest and longest in Europe, which is of significant scientific interest in the context of glacial history and ongoing processes, particularly related to climate change.

Criterion (ix): Ecological and biological processes

Within its altitudinal range and its dry southern/wet northern exposures, the property provides a wide range of alpine and sub-alpine habitats. On the two main substrates of crystalline and carbonate rocks, a variety of ecosystems have evolved without significant human intervention. Superb examples of plant succession exist, including the distinctive upper and lower tree-line of the Aletsch forest. The global phenomenon of climatic change is particularly well-illustrated in the region, as reflected in the varying rates of retreat of the different glaciers, providing new substrates for plant colonization.

Conditions of Integrity, Protection and Management

The property is well managed, with a management strategy and plan in place which have been developed through an exemplary participatory process. Almost all of the property is under some form of legal protection. Key management issues include the potential impact from climate change, the management of tourism, and the need to ensure effective coordination of management responsibility between federal, cantonal and communal levels of government.

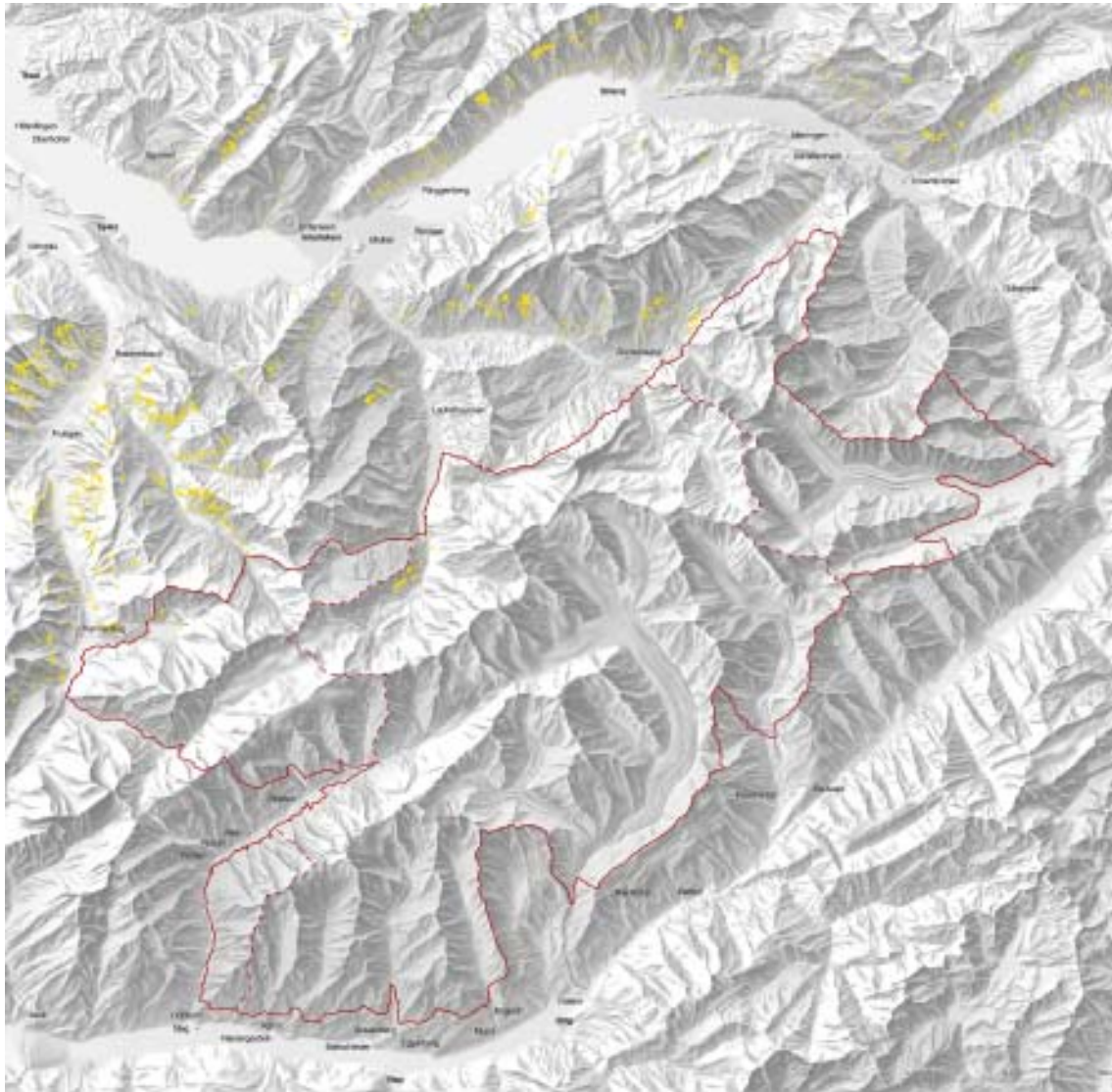
7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee **extends** the Jungfrau-Aletsch-Bietschhorn property, Switzerland, on the World Heritage List on the basis of criteria (vii), (viii), and (ix).

IUCN recommends that the World Heritage Committee commends the State Party for preparing a comprehensive management plan and strategy to ensure the effective conservation and management of the property.

IUCN also recommends that the State Party be requested to consider changing the name of the property to better reflect its extended area and notes that the State Party has already initiated a process to identify a suitable name.

Map 1: Location and boundaries of nominated property



**Übersicht
Trockenstandorte des
Kantons Bern**

Legende

Trockenstandorte

Grenzfunktion

- Kanton der Nominationsgebiete
- Kanton der Nominationsgebiete (Erweiterung)
- Kanton der Gemeinden mit > 2000 Einwohnern
- Politische Gebiete des JAB (Erweiterungsbereich der UNESCO)
- Politische Gebiete des JAB (Nominationsgebiet)



Wichtiges:
 Die Karte zeigt die Nominationsgebiete des JAB (Jungfrau-Aletsch-Bietschhorn) im Kanton Bern. Die Nominationsgebiete sind in der Karte durch eine rote gestrichelte Linie markiert. Die Nominationsgebiete sind in der Karte durch eine rote gestrichelte Linie markiert. Die Nominationsgebiete sind in der Karte durch eine rote gestrichelte Linie markiert.

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EUROPE / AMÉRIQUE DU NORD

JUNGFRAU - ALETSCHE - BIETSCHHORN
(EXTENSION)

SUISSE



CANDIDATURE AU PATRIMOINE MONDIAL – ÉVALUATION TECHNIQUE DE L’UICN

JUNGFRAU-ALETSCH-BIETSCHHORN (SUISSE) – ID No. 1037 Bis (Extension)

Note d’introduction : le Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn (JAB) a été inscrit en 2001 sur la Liste du patrimoine mondial, au titre de trois critères naturels : (i) (aujourd’hui viii) ; (ii) (aujourd’hui ix) ; et (iii) (aujourd’hui vii). Ces critères reconnaissent que le bien offre un exemple exceptionnel de la formation des Hautes Alpes, comprenant la zone la plus glacée de la région et le glacier le plus long et le plus grand d’Eurasie ; qu’il compte une grande diversité d’écosystèmes, avec des étapes de succession résultant en particulier du recul des glaciers sous l’effet des changements climatiques ; le tout dans un paysage impressionnant qui a joué un rôle important dans l’art, la littérature, l’alpinisme et le tourisme alpin en Europe. L’extension proposée agrandirait le bien à l’est et à l’ouest et sa superficie passerait de 53 900 ha à 82 400 ha.

1. DOCUMENTATION

- i) **Date de réception de la proposition par l’UICN :** avril 2006
- ii) **Informations complémentaires officiellement demandées puis fournies par l’État partie :** l’UICN a demandé des informations complémentaires le 4 octobre 2006, après sa mission d’évaluation. Les réponses de l’État partie ont été soumises le 27 novembre 2006 et le 26 février 2007, avec un nouveau plan de gestion et des réponses à tous les points soulevés par l’UICN.
- iii) **Fiches techniques PNUE-WCMC :** 13 références (y compris la proposition)
- iv) **Littérature consultée :** Wiesmann, U. et al. (2005). **Between conservation and development: Concretizing the first World Natural Heritage Site in the Alps through participatory processes.** Mountain Research and Development 25, 128-138.
- v) **Consultations :** 9 évaluateurs indépendants. De larges consultations ont eu lieu durant la mission d’évaluation avec : des représentants de l’Office fédéral de l’environnement ; des représentants de l’Office des communes et de la planification spatiale du canton de Berne et du Service des forêts et des paysages du canton du Valais ; des représentants de 15 des 26 communes où est située l’extension proposée du bien du patrimoine mondial (essentiellement celles qui se trouvent dans les extensions proposées) ; des chercheurs de l’université de Berne ; des représentants de Kraftwerke Oberhasli (KWO: compagnie de production hydroélectrique) ; du personnel du Centre de gestion du Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn ; et des membres du Conseil de surveillance du Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn et des ‘groupes de base’ du JAB.
- vi) **Visite du bien proposé :** Martin Price et Bastian Bomhard, septembre 2006
- vii) **Date à laquelle l’UICN a approuvé le rapport :** avril 2007

2. RÉSUMÉ DES CARACTÉRISTIQUES NATURELLES

Le Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn (JAB) actuel a une superficie de 53 900 hectares, sur le territoire de 15 communes des Alpes suisses. L’extension proposée augmenterait cette superficie de 53 % pour un total de 82 400 ha, sur le territoire de 26 communes. 57 % de cette extension se trouve dans le canton du Valais (18 communes) et 43% dans le canton de Berne (8 communes). Le résumé des caractéristiques naturelles, contenu dans l’Évaluation technique du bien actuel, réalisée en 2001 par l’UICN, couvre largement les caractéristiques clés du bien étendu. Les ajouts importants sont :

- 1) plusieurs nouveaux glaciers, en particulier ceux du bassin versant supérieur de l’Aar (Oberaar, Lauteraar, Finsteraar, Unteraar, Rosenloui, Oberer Grindelwald) à l’est et le glacier de plateau du Kanderfirn/Petergrat à l’ouest, de sorte que la zone glacée augmente de 24 900 à 35 000 ha, avec cinq des plus longs glaciers des Alpes suisses. Beaucoup revêtent une importance mondiale du point de vue du suivi des changements climatiques, en particulier le glacier du Lauteraar, qui est un site clé pour la recherche en glaciologie, depuis les travaux pionniers de Louis Agassiz, dans les années 1840 ;
- 2) l’extension du périmètre nord du bien, de 25 à 40 km, de sorte qu’il englobe maintenant presque entièrement le mur nord spectaculaire des Alpes

- bernoises, y compris, à l'ouest, le groupe Bluemlisalp et, à l'est, le Wetterhorn et le Wellhorn ;
- 3) la région du Grimsel, le groupe du Doldenhorn et certains secteurs du massif du Bietschhorn qui n'étaient pas inclus dans le bien actuel ;
 - 4) d'autres caractéristiques paysagères importantes, comme le Oeschinensee (lac glaciaire), le paysage de roche moutonnée de la région du Grimsel et le Rosenlauschlucht (gorge fluviale) ; et
 - 5) de nouveaux éléments de la région de sédimentation helvétique.

3. COMPARAISON AVEC D'AUTRES SITES

La comparaison établie dans l'Évaluation technique de l'UICN de 2001 couvre les points essentiels relatifs au bien étendu proposé et les extensions proposées ne font que renforcer la logique de l'argument, comme l'illustrent les ajouts importants mentionnés plus haut.

4. INTÉGRITÉ

4.1 Statut juridique

Les communes possèdent la majeure partie des terres de l'extension du Bien JAB ; KWO, qui possède 8500 ha dans la région du Grimsel est un autre propriétaire important. Pratiquement la totalité du bien étendu proposé (77 400 ha : 94%) est protégée dans deux sites de l'Inventaire fédéral des paysages, sites et monuments naturels d'importance nationale (IFP). En outre, 41% de la région bénéficie d'un statut de protection supplémentaire avec cinq biotopes d'importance nationale (1150 ha, 1,4%), six réserves fédérales de chasse (9000 ha, 11%), quatre paysages protégés par l'Ordonnance concernant la compensation pour les pertes en production hydroélectrique (16 000 ha, 19%) – ces inscriptions assurent une protection plus stricte que l'IFP ; ainsi que 29 zones naturelles protégées au niveau cantonal (13 110 ha, 16%). Beaucoup de ces inscriptions se chevauchent ; sur les 5,6 % du bien étendu proposé qui ne bénéficient pas de la protection de l'IFP, 2%, dans le massif des Engelhörner à l'extrémité nord-est du site étendu, sont protégés comme réserve de chasse fédérale. En conséquence, 3,6% seulement ne bénéficient d'aucun type de protection. Les deux zones relativement petites concernées (l'une dans la commune de Blatten, dans le Lötschental et l'autre, au-dessous du Doldenhorn, au nord de l'Oeschinensee) ont été visitées et les discussions, sur place, ont conclu que leurs caractéristiques naturelles ne courent pas de risque, de sorte que les limites proposées pour le bien étendu sont appropriées. Le cas échéant, il serait souhaitable que ces deux petites zones, ainsi que la petite zone du massif des Engelhörner soient incluses dans l'IFP, durant le processus permanent d'examen et de révision en cours.

Par ailleurs, il convient de noter que dans le canton du Valais, la loi sur la protection du patrimoine culturel et naturel du 1^{er} octobre 2000 exige que les plans communaux d'occupation des sols inscrivent le Bien JAB en tant qu'aire protégée d'importance internationale. Dans le canton de Berne, le Concept cantonal de mise en valeur des paysages prévoit des déclarations spécifiques sur les 'zones cantonales prioritaires' qui comprennent tous les

sites inscrits au niveau fédéral et mentionnés ci-dessus, ainsi qu'une politique spéciale d'application pour le Bien JAB.

4.2 Limites

La délimitation du Bien JAB actuel est le fruit de consultations intenses entre 14 communes de la région et d'autres acteurs. Au moment de la mission d'évaluation dans le site proposé à l'origine, en mars 2001, il a été noté que des extensions, à l'ouest et à l'est, étaient probables. Les nouvelles limites des extensions proposées ont, une fois encore, été activement négociées entre 2001 et 2004, cette fois avec 26 communes et d'autres acteurs. Globalement, les limites proposées, comme mentionné dans la section 2 du présent rapport, augmentent de manière significative les valeurs pour lesquelles le Bien JAB a été inscrit. Ces limites sont essentiellement celles des deux sites de l'IFP de la région (voir ci-dessus). La principale exception se trouve à l'est de la région où la majeure partie de la commune d'Innertkirchen (en particulier le glacier du Gauli et le front du glacier) qui fait partie du site de l'IFP n'a pas été incluse en raison de préoccupations concernant les secteurs de l'agriculture traditionnelle et du tourisme. Durant la mission, en septembre 2006, des représentants de cette commune ont déclaré que ces terres pourraient être proposées pour inscription à une date ultérieure. À l'est également, les limites du bien étendu proposé autour du Grimsensee ont été tracées de manière à permettre le relèvement éventuel du barrage hydroélectrique. Pour des raisons semblables, une partie considérable de la commune de Gutannen qui entre dans le site de l'IFP n'est pas incluse en raison d'importantes infrastructures hydroélectriques (et il convient de noter qu'il y a un réseau étendu de tunnels à cet effet, sous une bonne partie de l'extension proposée vers l'est, bien que ce réseau ne mette aucunement en danger les caractéristiques pour lesquelles le bien est proposé). À l'ouest, les limites de l'extension ne correspondent pas non plus au site de l'IFP car le massif du Balmhorn est exclu. Toutefois, le positionnement des limites le long du versant nord du Gasterntal est approprié.

4.3 Gestion

Suite à un vaste processus participatif, une structure institutionnelle hautement démocratique a été mise en œuvre par l'intermédiaire de l'Association du Bien du patrimoine mondial JAB, créée en mai 2002, au titre de la loi suisse. Les quatre organes principaux de cette association sont :

- ◆ une assemblée de délégués comptant 24 membres de chacun des deux cantons, représentant les régions, les communes et les organisations ;
- ◆ un Conseil de surveillance, comptant six membres de chacun des cantons, représentant les régions, les communes et les organisations ;
- ◆ un Comité directeur stratégique, avec des représentants de la Confédération et des deux cantons ; et
- ◆ un Centre de gestion, avec deux bureaux, un dans le canton de Berne et un dans le canton du Valais, disposant d'un personnel équivalent à deux postes à plein temps, hautement qualifié et épaulé au niveau administratif.

En outre, le personnel du Centre de gestion travaille avec des 'groupes de base', qui comprennent des représentants des principaux acteurs, afin d'élaborer et d'appliquer des tâches dans 21 domaines d'action relatifs à une large gamme d'activités, dans le bien étendu proposé mais aussi dans toute la région des 26 communes dont une partie du territoire se trouve dans le bien étendu proposé, région connue sous le nom de « Région du patrimoine mondial » comme on le verra ci-après.

Compte tenu de la complexité institutionnelle, la structure est appropriée. Le plan de gestion, daté du 1^{er} décembre 2005, a été mis au point au terme d'un processus participatif exemplaire auquel ont directement participé 256 personnes représentant tout l'éventail des groupes d'acteurs. Les objectifs généraux de ce document ne sont, toutefois, pas totalement conformes avec les valeurs naturelles qui ont justifié l'inscription du bien du patrimoine mondial actuel (ainsi que de l'extension proposée) ; par exemple, les objectifs qui font référence à l'utilisation économique. Cela s'explique par le fait que le document fait référence à une « Région du patrimoine mondial » plus vaste, comptant 35 000 habitants. Cette région englobe, en son centre, un bien du patrimoine mondial où il n'y a que 10 habitants permanents – bien qu'il ait à la fois des résidents saisonniers (p.ex., dans des abris de montagne, et qui pratiquent l'élevage) et, toute l'année, mais en particulier en hiver, de très nombreux visiteurs dans le site ou à proximité de ses limites, ainsi que des alpinistes et des skieurs, certains arrivant en hélicoptère. En conséquence, ce document n'est pas un plan efficace pour la gestion du bien étendu proposé, et cela pour trois raisons :

- 1) bien que le document décrive un très grand nombre de mesures hautement souhaitables, il n'explique pas comment elles seront appliquées en pratique ; on pourrait plus justement le décrire comme une « stratégie de gestion » ;
- 2) il ne fait pas référence en détail à de nombreuses mesures déjà appliquées dans la région et qui contribuent au maintien des valeurs pour lesquelles le bien a été inscrit ; ces activités sont entreprises par des employés fédéraux et cantonaux, entre autres, y compris des employés de différentes ONG de conservation et de loisirs ; et
- 3) il n'établit pas correctement de différence entre les activités qui contribuent directement au maintien des valeurs, celles qui y contribuent indirectement et celles qui sont souhaitables mais relatives au développement durable de ladite « Région du patrimoine mondial », le bien étendu proposé

Le 4 octobre 2006, l'UICN a donc recommandé que ce 'plan de gestion' soit considéré comme une 'stratégie de gestion' et que l'on prépare un nouveau plan de gestion déterminant clairement 1) les mesures prioritaires, en précisant la différence entre les activités qui contribuent directement au maintien des valeurs du bien du patrimoine mondial naturel et à son intégrité (c.-à-d. les mesures essentielles) et les mesures qui contribuent indirectement et/ou qui contribuent au développement durable régional; et 2) les activités spécifiques, avec mention pour chacune de l'organisation (des organisations) responsable(s) et des ressources (notamment en matière de financement et de main-d'œuvre) qui leur seront attribuées. Compte tenu des nombreuses catégories de protection qu'il y a dans

la région, l'UICN faisait aussi remarquer qu'il est essentiel que le nouveau plan de gestion énonce clairement les moyens de coordination de ces activités ainsi que le rôle des organisations respectives, y compris le Centre de gestion, en matière de planification et de gestion.

En réponse à la recommandation de l'UICN, l'État partie a préparé un nouveau plan de gestion qui a été soumis le 26 février 2007. Avec ses six annexes, ce nouveau plan fournit toute l'information nécessaire sur les activités, les organisations responsables et les ressources attribuées à la conservation du bien du patrimoine mondial et explique comment les activités seront coordonnées.

La création du Centre de gestion, disposant de deux bureaux, était essentielle à la coordination d'un grand nombre d'activités entreprises par différents acteurs sur une si vaste région. Il semble que ce Centre de gestion dispose actuellement d'un personnel suffisant. Plusieurs membres du personnel sont aussi employés par des institutions fédérales et cantonales et des ONG s'occupant de loisirs et de conservation de la nature travaillent dans le bien du patrimoine mondial étendu proposé. Toutefois, le 4 octobre 2006, l'UICN notait que si les membres de l'Association et le canton de Berne ont pris des engagements financiers fermes, à long terme, le financement administratif d'appui aux activités du Centre de gestion n'était pas garanti, notamment de la part du canton du Valais et de la Confédération. En réponse à la recommandation de l'UICN, l'État partie a soumis, le 26 février 2007, des lettres de l'Office fédéral de l'environnement, du canton de Berne et du canton du Valais, confirmant leur engagement et leur appui financier, à l'avenir, pour l'application des mesures essentielles et des activités clés.

4.4 Menaces et activités anthropiques

L'extension proposée ne changera rien au nombre relativement limité de menaces pour le bien. Le développement touristique est limité et l'utilisation de la région pour le ski avec hélicoptère est en train d'être réexaminée au niveau fédéral. Il est probable que le nombre de sites d'atterrissage et de vols soit limité. Il est clair que les changements climatiques affectent le bien, comme le prouve le recul des glaciers. Toutefois, ce phénomène – et ses conséquences écologiques – doit être reconnu parmi les processus écologiques et géomorphologiques/glaciologiques en cours (critères viii et ix) dont le bien fournit un exemple exceptionnel.

L'UICN considère que le bien proposé remplit les conditions d'intégrité requises par les Orientations.

5. AUTRES COMMENTAIRES

5.1 Le nom du bien

Le nom du bien du patrimoine mondial actuel est approprié mais l'extension proposée ajoutera une superficie considérable de sorte que certaines des communes environnantes (en particulier celles qui seront ajoutées suite au processus d'extension) ont peu d'affinité avec les trois noms qui constituent le nom du bien actuel, c.-à-d. Jungfrau, Aletsch, Bietschhorn. Des discussions ont eu lieu à ce sujet durant la mission d'évaluation et il a été

proposé de trouver un nom plus approprié pour le bien étendu, ce qui aurait au moins trois avantages : 1) il serait mieux accepté par la majorité des communes concernées ; 2) il pourrait être plus largement reconnu au niveau international (et éviterait peut-être une confusion avec des noms à vocation touristique telle l'actuelle 'Région de la Jungfrau') ; et 3) il devrait laisser ouverte la possibilité de propositions sérielles avec des régions des Alpes se trouvant sur le territoire d'autres États (voir ci-dessous). Vu que d'autres sites des Alpes suisses ont été proposés pour des caractéristiques beaucoup plus locales (p.ex., Monte San Giorgio, le Couvent bénédictin Saint-Jean-des-Sœurs à Münstair) le nouveau nom ne devrait pas être cause de confusion. Des options sont actuellement à l'étude et l'État partie devrait être encouragé à proposer un nouveau nom pour le bien, en temps voulu.

5.2 Éventuelles extensions futures

Comme mentionné plus haut, la majeure partie de la commune d'Innertkirchen (en particulier le glacier du Gault et le front du glacier) située dans les limites du site de l'IFP n'a pas été incluse dans le bien étendu proposé en raison de préoccupations concernant les secteurs de l'agriculture traditionnelle et du tourisme. Il serait souhaitable que cette zone relativement petite soit incluse à une date ultérieure, par une modification mineure des limites, afin de renforcer encore l'intégrité du bien.

5.3 Éventuelle intégration future dans un bien sériel

De nombreuses discussions ont eu lieu, y compris lors d'une réunion d'experts thématique et régionale qui a eu lieu en juin 2000, en Autriche, concernant la possibilité de proposer un bien du patrimoine mondial sériel des Alpes. Les discussions sont en cours, notamment dans le contexte du Réseau alpin d'aires protégées.

6. APPLICATION DES CRITÈRES / ATTESTATION DE VALEUR UNIVERSELLE EXCEPTIONNELLE

L'extension du Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn est proposée au titre des critères (vii), (viii) et (ix). Les arguments de la proposition sont conformes à ceux qui avaient été approuvés dans l'Évaluation technique de l'UICN, en 2001 et restent valables. L'UICN considère que le bien proposé remplit ces critères et propose l'Attestation de valeur universelle exceptionnelle suivante :

La région de la Jungfrau-Aletsch-Bietschhorn est la partie la plus glacée des Alpes d'Europe. On y trouve le plus grand glacier d'Europe ainsi qu'une série de caractéristiques glaciaires classiques et elle est une archive exceptionnelle des processus géologiques qui ont formé les Hautes Alpes. Une flore et une faune diverses sont représentées dans toute une palette d'habitats et la colonisation par les plantes, dans le sillage des glaciers en retraite, fournit un exemple exceptionnel de succession végétale.

Critère (vii) : phénomène naturel ou beauté et importance esthétique exceptionnels

Le paysage impressionnant du bien a joué un rôle important en Europe dans l'art, la littérature, l'alpinisme et le tourisme alpin. La région est reconnue, au niveau mondial, comme une des régions de montagne les plus spectaculaires et ses qualités esthétiques ont attiré des visiteurs du monde entier. L'impressionnant mur nord des Hautes Alpes, centré sur les pics de l'Eiger, du Mönch et de la Jungfrau, est une caractéristique panoramique exceptionnelle, complétée sur le versant sud de la ligne de partage des eaux alpines par des pics spectaculaires et un réseau de vallées où l'on trouve les deux plus longs glaciers de l'Eurasie occidentale.

Critère (viii) : histoire de la terre, caractéristiques et processus géologiques et géomorphologiques

Le bien offre un exemple exceptionnel de la formation des Hautes Alpes qui résulte du relèvement et de la compression qui ont commencé il y a 20 à 40 millions d'années. Avec une gamme d'altitudes qui vont de 809 m à 4274 m, la région expose des roches cristallines vieilles de 400 millions d'années recouvrant des roches carbonatées plus jeunes, conséquence de la dérive vers le nord de la plaque tectonique africaine. À ces archives spectaculaires de processus orographiques s'ajoutent la grande abondance et la diversité des formations géomorphologiques telles que les vallées glaciaires en U, les cirques, les pics acérés, les glaciers de vallées et les moraines. C'est dans cette partie très glacée des Alpes que se trouve le glacier d'Aletsch, le plus grand et le plus long d'Europe, qui présente un intérêt scientifique important dans le contexte de l'histoire et des processus glaciaires en cours, notamment en rapport avec les changements climatiques.

Critère (ix) : processus écologiques et biologiques

Avec sa gamme d'altitudes et ses expositions, sèche au sud/humide au nord, le bien présente un large éventail d'habitats alpins et subalpins. Sur les deux substrats principaux de roches cristallines et carbonatées, des écosystèmes divers ont évolué sans intervention importante de l'homme. On trouve de superbes exemples de succession végétale, y compris la ligne des arbres distincte, supérieure et inférieure, de la forêt d'Aletsch. Le phénomène mondial des changements climatiques est particulièrement bien illustré dans la région comme en témoignent les différents degrés de retraite des différents glaciers, fournissant de nouveaux substrats pour la colonisation par les plantes.

Conditions d'intégrité, protection et gestion

Le bien est bien géré. La stratégie et le plan de gestion en vigueur ont été élaborés au moyen d'un processus participatif exemplaire. Pratiquement tout le bien bénéficie d'une protection juridique. Les problèmes de gestion clés sont l'impact potentiel des changements climatiques, la gestion du tourisme et la nécessité de garantir une coordination efficace des responsabilités de gestion entre les paliers de gouvernement fédéral, cantonal et communal.

7. RECOMMANDATIONS

L'UICN recommande que le Comité du patrimoine mondial **approuve l'extension** du Bien du patrimoine mondial Jungfrau-Aletsch-Bietschhorn, Suisse, au titre des critères (vii), (viii) et (ix).

L'UICN recommande que le Comité du patrimoine mondial félicite l'État partie d'avoir préparé un plan d'aménagement complet et une stratégie qui garantiront la conservation et la gestion efficace du bien.

L'UICN recommande que le Comité du patrimoine mondial demande à l'État partie d'envisager de changer le nom du bien afin de mieux tenir compte de la zone étendue et note que l'État partie a déjà entamé le processus de recherche d'un nom approprié.

