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UNESCO Region: ASIA AND THE PACIFIC

SITE NAME: Three Parallel Rivers of Yunnan Protected Areas

DATE OF INSCRIPTION: 5th July 2003

STATE PARTY: CHINA

CRITERIA: C (i)(ii)(iii)(iv)

DECISION OF THE WORLD HERITAGE COMMITTEE:

Excerpt from the Report of the 27th Session of the World Heritage Committee

Criterion (i): The property is of outstanding value for displaying the geological history of the last 50 million years associated with the collision of the Indian Plate with the Eurasian Plate, the closure of the ancient Tethys Sea, and the uplifting of the Himalaya Range and the Tibetan Plateau. These were major geological events in the evolution of the land surface of Asia and they are on-going. The diverse rock types within the site record this history and, in addition, the range of karst, granite monolith, and Danxia sandstone landforms in the alpine zone include some of the best of their type in the mountains of the world.

Criterion (ii): The dramatic expression of ecological processes in the Three Parallel Rivers site has resulted from a mix of geological, climatic and topographical effects. First, the location of the area within an active orographic belt has resulted in a wide range of rock substrates from igneous (four types) through to various sedimentary types including limestones, sandstones and conglomerates. An exceptional range of topographical features - from gorges to karst to glaciated peaks -- is associated with the site being at a "collision point" of tectonic plates. Add the fact that the area was a Pleistocene refugium and is located at a biogeographical convergence zone (i.e. with temperate and tropical elements) and the physical foundations for evolution of its high biodiversity are all present. Along with the landscape diversity with a steep gradient of almost 6000m vertical, a monsoon climate affects most of the area and provides another favourable ecological stimulus that has allowed the full range of temperate Palearctic biomes to develop.

Criterion (iii): Superlative natural phenomena or natural beauty and aesthetic importance The deep, parallel gorges of the Jinsha, Lancang and Nu Jiang are the outstanding natural feature of the site; while large sections of the three rivers lie just outside the site boundaries, the river gorges are nevertheless the dominant scenic element in the area. High mountains are everywhere, with the glaciated peaks of the Meili, Baima and Haba Snow Mountains providing a spectacular scenic skyline. The Mingyongqia Glacier is a notable natural phenomenon, descending to 2700 m altitude from Mt Kawagebo (6740 m), and is claimed to be the glacier descending to the lowest altitude for such a low latitude (28° N) in the northern hemisphere. Other outstanding scenic landforms are the alpine karst (especially the 'stone moon' in the Moon Mountain Scenic Area above the Nu Jiang Gorge) and the 'tortoise shell' weathering of the alpine Danxia.

Criterion (iv): Biodiversity and threatened species Northwest Yunnan is the area of richest biodiversity in China and may be the most biologically diverse temperate region on earth. The site encompasses most of the natural habitats in the Hengduan Mountains, one of the world's most important remaining areas for the conservation of the earth's biodiversity. The outstanding topographic and climatic diversity of the site, coupled with its location at the juncture of the East Asia, Southeast Asia, and Tibetan Plateau biogeographical realms and its function as a N-S corridor for the movement of plants and animals (especially during the ice ages), marks it as a truly unique landscape, which still retains a high degree of natural character despite thousands of years of human habitation. As the last remaining stronghold for an extensive suite of rare and endangered plants and animals, the site is of outstanding universal value

BRIEF DESCRIPTIONS

Consisting of eight geographical clusters of protected areas within the boundaries of the Three Parallel Rivers National Park, in the mountainous north-west of Yunnan Province, the 1.7 million hectare site features sections of the upper reaches of three of the great rivers of Asia: the Yangtze (Jinsha), Mekong and Salween run roughly parallel, north to south, through steep gorges which, in places, are 3,000 m deep and are bordered by glaciated peaks more than 6,000 m high. The site is an epicentre of Chinese biodiversity. It is also one of the richest temperate regions of the world in terms of biodiversity

1.b State, Province or Region: Lijiang Prefecture, Diqing Tibetan Autonomous Prefecture and Nujiang Lisu Autonomous Prefecture, Yunnan Province

1.d Exact location: N27 53 42 E98 24 23

THREE PARALLEL RIVERS NATIONAL PARK

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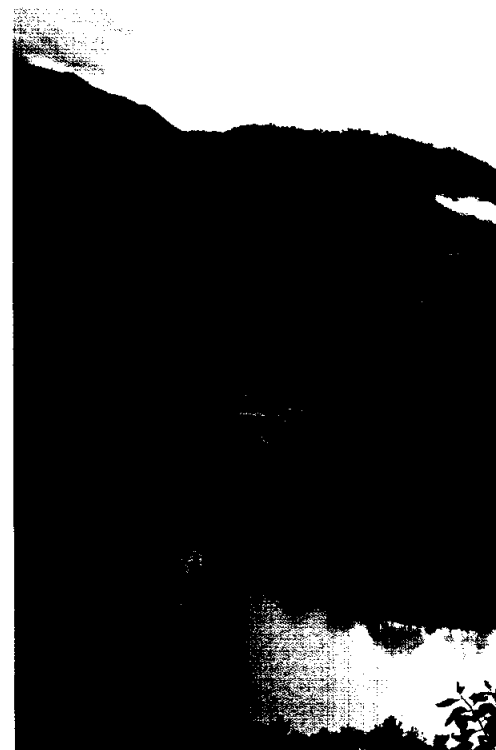
Three Parallel Rivers

National Park

photo-1 Nujiang River (Bingzhongluo in Gongshan)



photo-2 Lancang River (Yezhi in Weixi County)



1. Identification of the Property

1.1 Country

The People's Republic of China

1.2 Province and city

Lijiang Prefecture, Diqing Tibetan Autonomous Prefecture and Nujiang Lisu Autonomous Prefecture, Yunnan Province

1.3 Name of property

Three Parallel Rivers National Park

1.4 Exact location on map and indication of geographical coordinates to the nearest second

It is located at 98°00' - 100°31' E and 25°30' - 29°00' N

1.5 Maps

The maps and plans of the property and buffer zone:

See attached maps 1-9, including

Map 1: Location of the Three Parallel Rivers National Park in China

Map 2: Boundary and Geographic Relationship to Neighboring Provinces/ Countries of the Three Parallel Rivers National Park.

Map 3: Current Zoning Levels of the Three Parallel Rivers National Park

Map 4: Satellite Image of the Three Parallel Rivers National Park

Map 5: Currently Protected Areas Within Three Parallel Rivers National Park

Map 6: Biodiversity Distribution of the Three Parallel Rivers National Park

Map 7: Vegetation Distribution of the Three Parallel Rivers National Park

Map 8: Planned Zoning Levels of the Three Parallel Rivers National Park

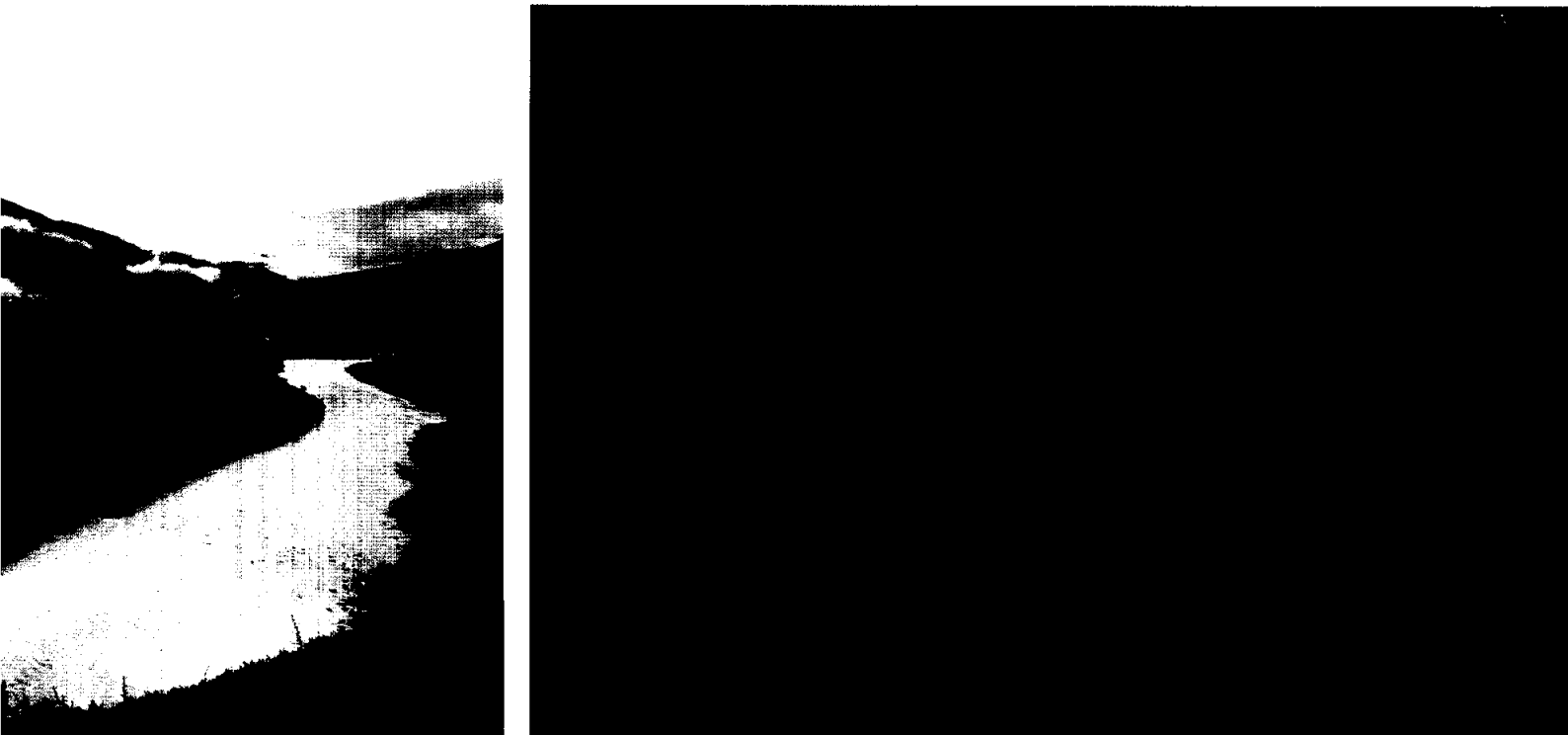
Map 9: Geology of the Three Parallel Rivers National Park

1.6 Area of the property

Total area: 1,700,000 ha. Including core area: 860,910ha.

Buffer zone: 1,1,730,700 ha.

Photo-3 Jinsha River (Benzilan in Deqin)



2. Justification for inscription

2.1 The property is a key area that reflects the important periods and events of the evolution of earth such as Tethys structural domain's evolution history, collision between Indian plate and Eurasian plate, formation of the Hengduan Mountain huge intracontinental orogenic belt and the uplift of the Qinghai-Tibet Plateau. It is also an outstanding representative area of various types of alpine landscape and their evolution. It constitutes the world's first-class natural trace areas of geology and landform. It conforms to the Criteria I and Criteria II of the World Convention for natural properties.

2.1.1 It is the world's most compressive and narrowest huge composite orogenic belt. In an area of about 150 kilometres' wide huge maintains and deep river valleys standing side by side, i.e. Dandanglika Mountain, Dulong River, Gaoligong Mountain, Nujiang River, Nushan Mountain, Lancang River, Yunling Mountain and Jinsha River. They constitute the main body of Hengduan Mountains and in the world, are a unique example of three parallel rivers amid high mountains.

2.1.2 It is a key area that represents geological evolution.

2.1.2.1 The property preserves fairly developed ophiolite. It occurs in association with deep water silicalite, ellipsoidal lava and stratiform gabbro, recording the history of oceanic geology.

2.1.2.2 It preserves various melanges and represents the complicated process of regional geological structural change.

2.1.2.3 The property preserves the strata records from Palaeozoic era to Quaternary era. The complexity and distinct characteristics of lithologic and facies indicate the depositional variations from platform through continental slope to deep sea basin.

2.1.2.4 In the property area, igneous rocks occur extensively, which recorded rich information about deep geological evolution.

2.1.2.5 The metamorphic rock belts in Dulongjiang, Gaoligong, Xuelongshan and Shigu in the area have left

rich information about the multiphase metamorphic and deformational and superimposed deformation as a result of orogenics. Therefore, it is an ideal area to study metamorphic and deformational process of intracontinental orogenic belt.

2.1.2.6 In the area, the geological structure is very complex. It not only reflects the characteristics of the geological structure during Tethys evolution, but also indicates the strong deformational feature of the Himalayan intracontinental orogenics, especially the neotectonic movement characterized by the large-scale thrust-nappe structure and shift shear zone.

2.1.3 Unique, meticulous and various types of landforms constitute a natural geographical region with world's first-class aesthetic value.

2.1.3.1 In the area, snow mountains and peaks are common. There are 118 peaks higher than 5,000 metres (Snow line is generally between 4,600 to 4,800 metres). It is where the low-latitude alpine glaciers are concentrated. The highest peak in the region is Kawagebo (6,740 metre above sea level). Other famous snow mountains are Baimang, Haba, Biluo, Jiawu and Chali. Quite a few modern glaciers are also located here, the most famous one being Mingyong under the peak of Kawagebo. Its glacier tongue, 2,700 metres above sea level, penetrates into the forest. In the remnant plateau tops and glacier valleys are 424 glacial scour lakes of various sizes, which form an alpine glacial scour lake area. At the same time, a large number of glacial moraines and glacial landforms have also remained. This area demonstrates the geological landforms of the Quaternary alpine glaciers and modern glaciers.

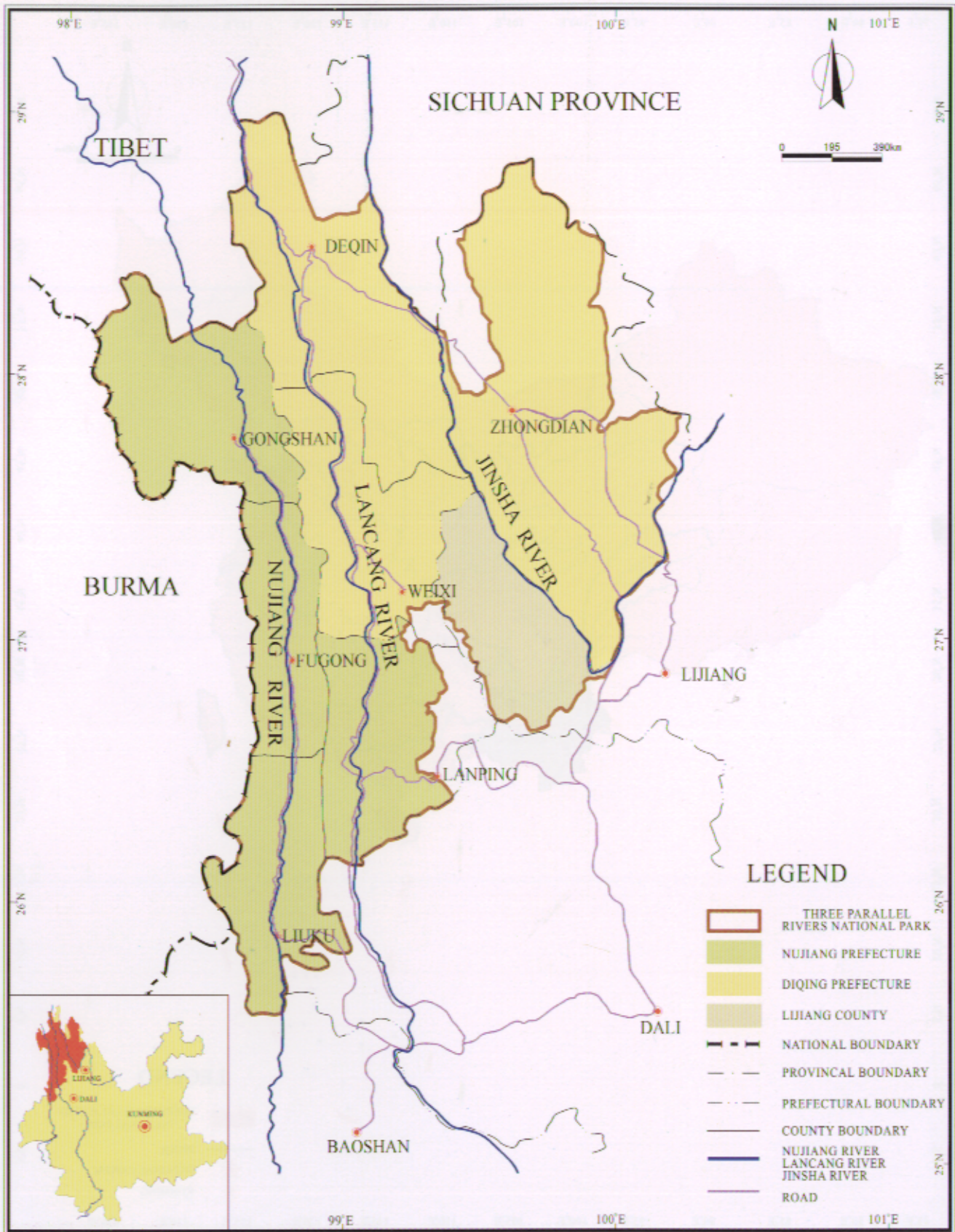
2.1.3.2 The property is a typical area of alpine Danxia landform (old Tertiary red calcareous sandstone ice erosion and water erosion landforms). The typically developed area is Lijiang Liming -- Liguang, Lanping Luoguoqing area.

2.1.3.3 From Fugong to Gongshan, a large area of granite erosional peak clusters has developed.

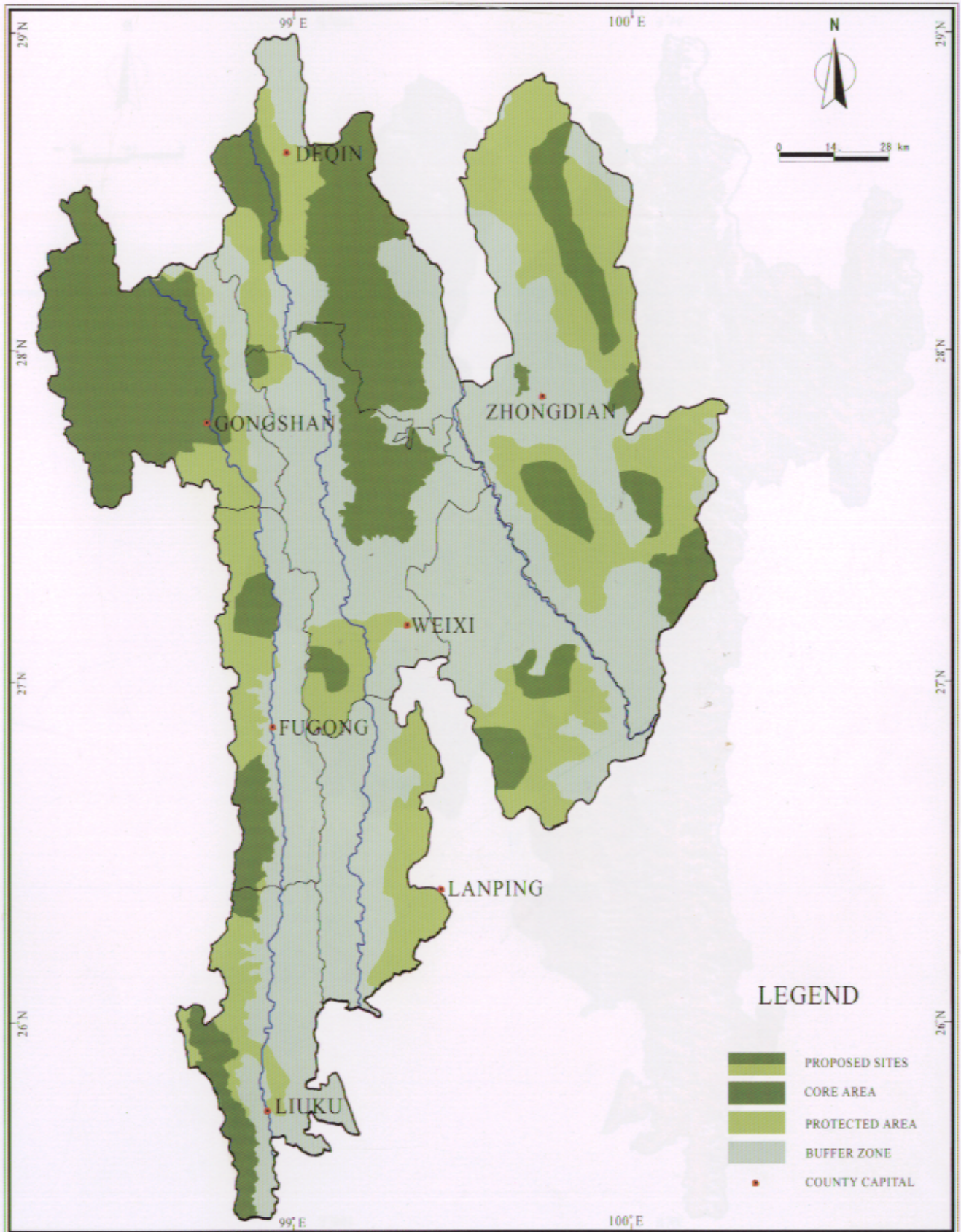
LOCATION OF THE THREE PARALLEL RIVERS NATIONAL PARK IN CHINA



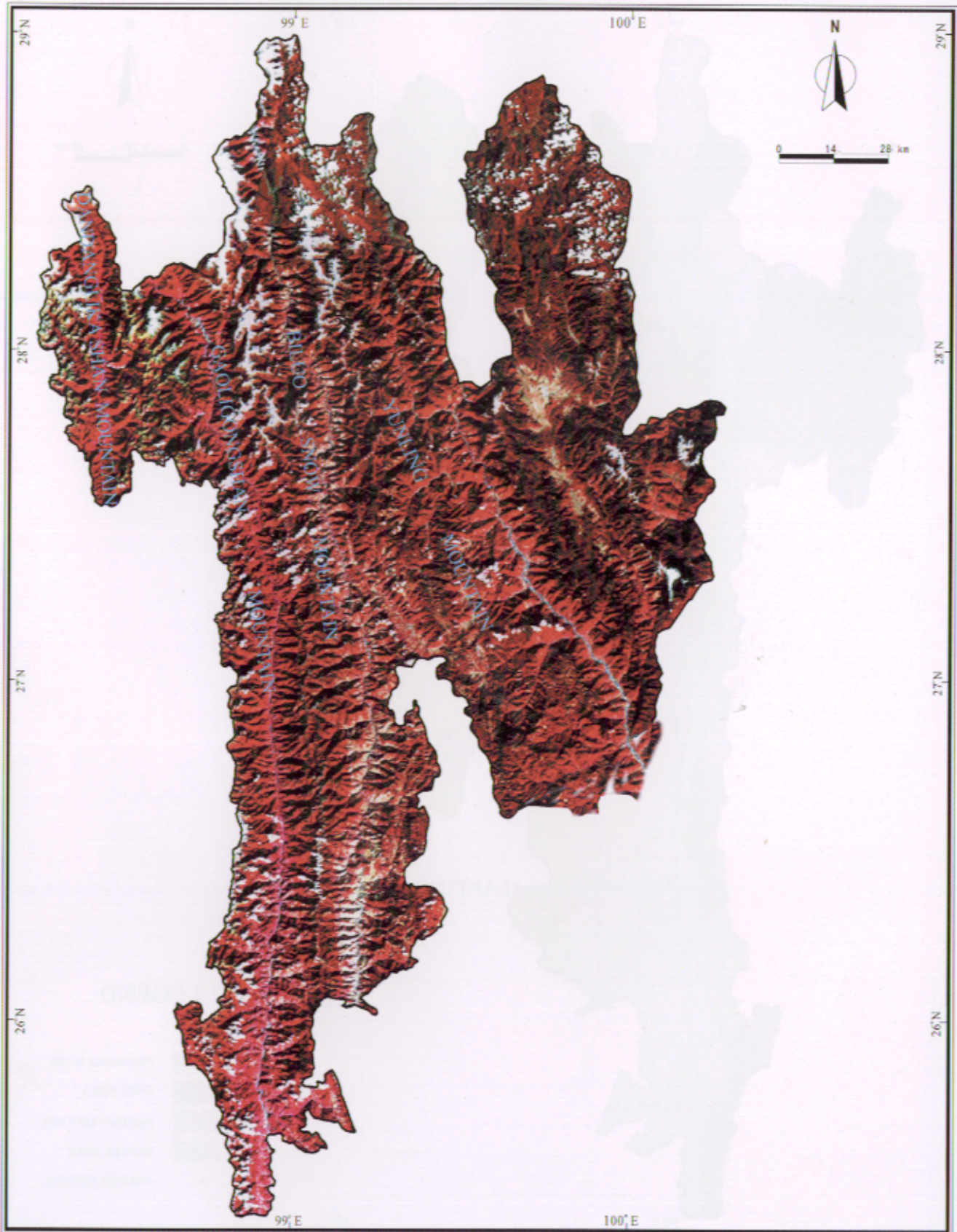
BOUNDARY AND GEOGRAPHIC RELATIONSHIP TO NEIGHBORING PROVINCES/COUNTRIES OF THE THREE PARALLEL RIVERS NATIONAL PARK



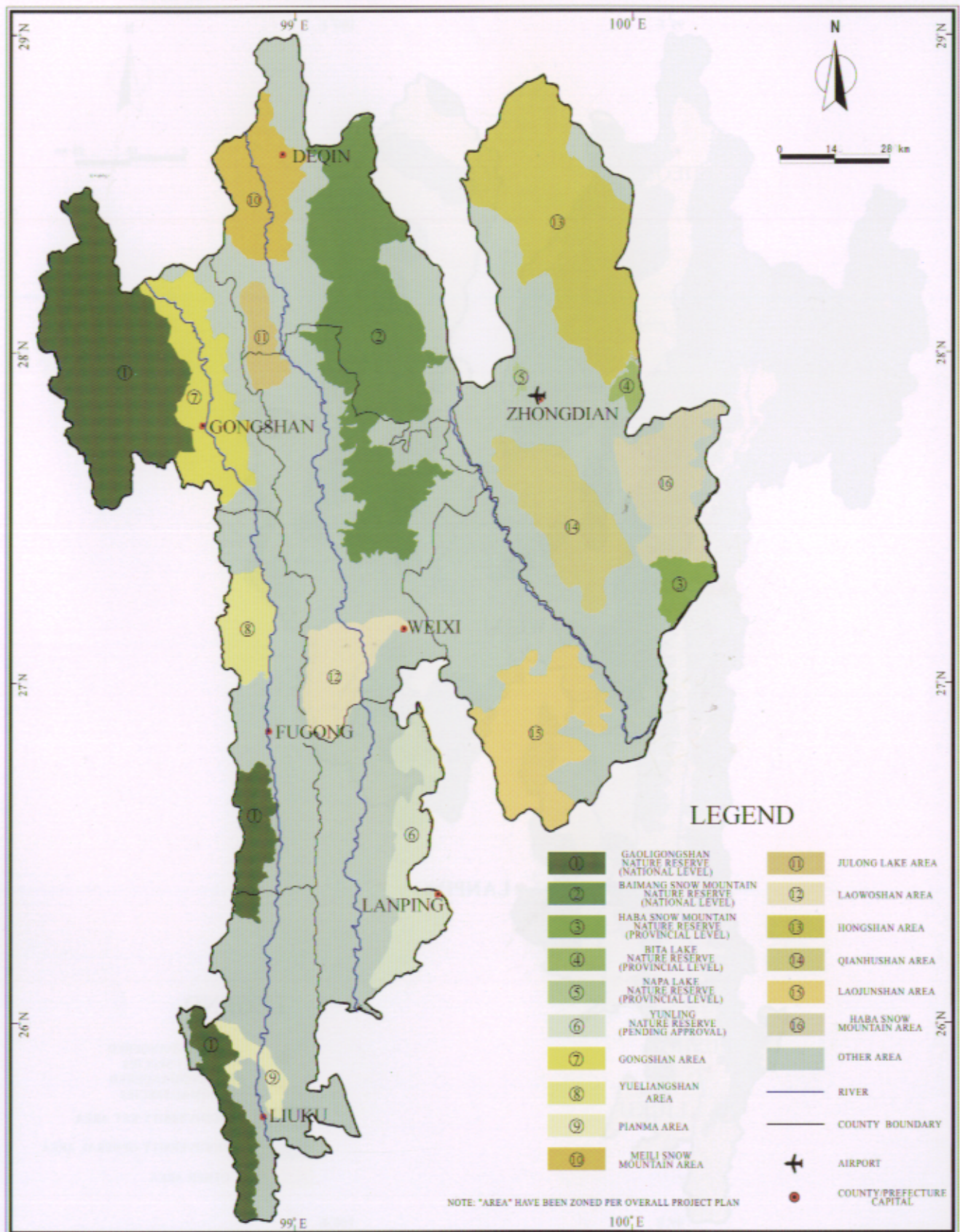
CURRENT ZONING LEVELS OF THE THREE PARALLEL RIVERS NATIONAL PARK



SATELLITE IMAGE OF THE THREE PARALLEL RIVERS NATIONAL PARK



CURRENTLY PROTECTED AREAS WITHIN THE THREE PARALLEL RIVERS NATIONAL PARK



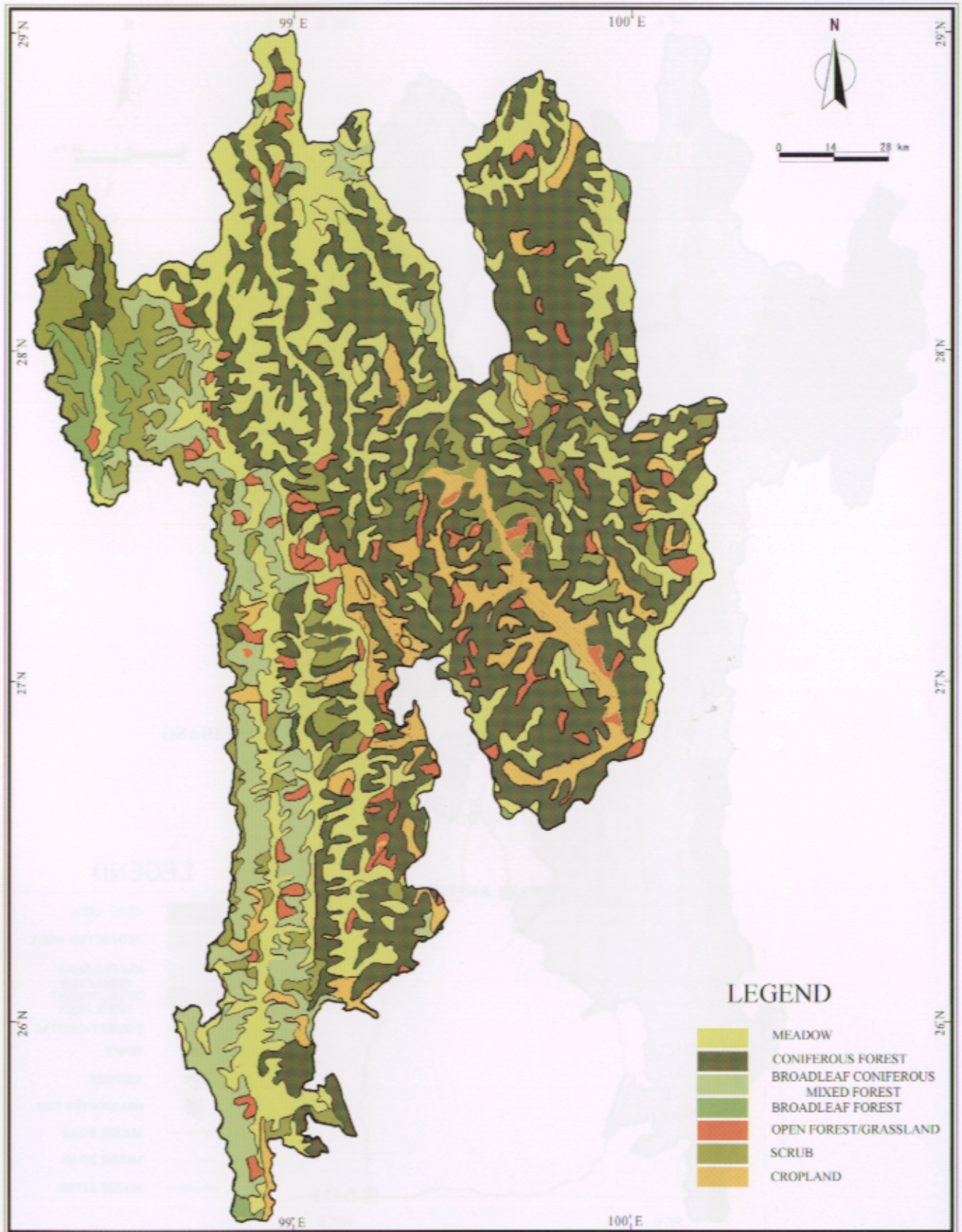
BIODIVERSITY DISTRIBUTION OF THE THREE PARALLEL RIVERS NATIONAL PARK



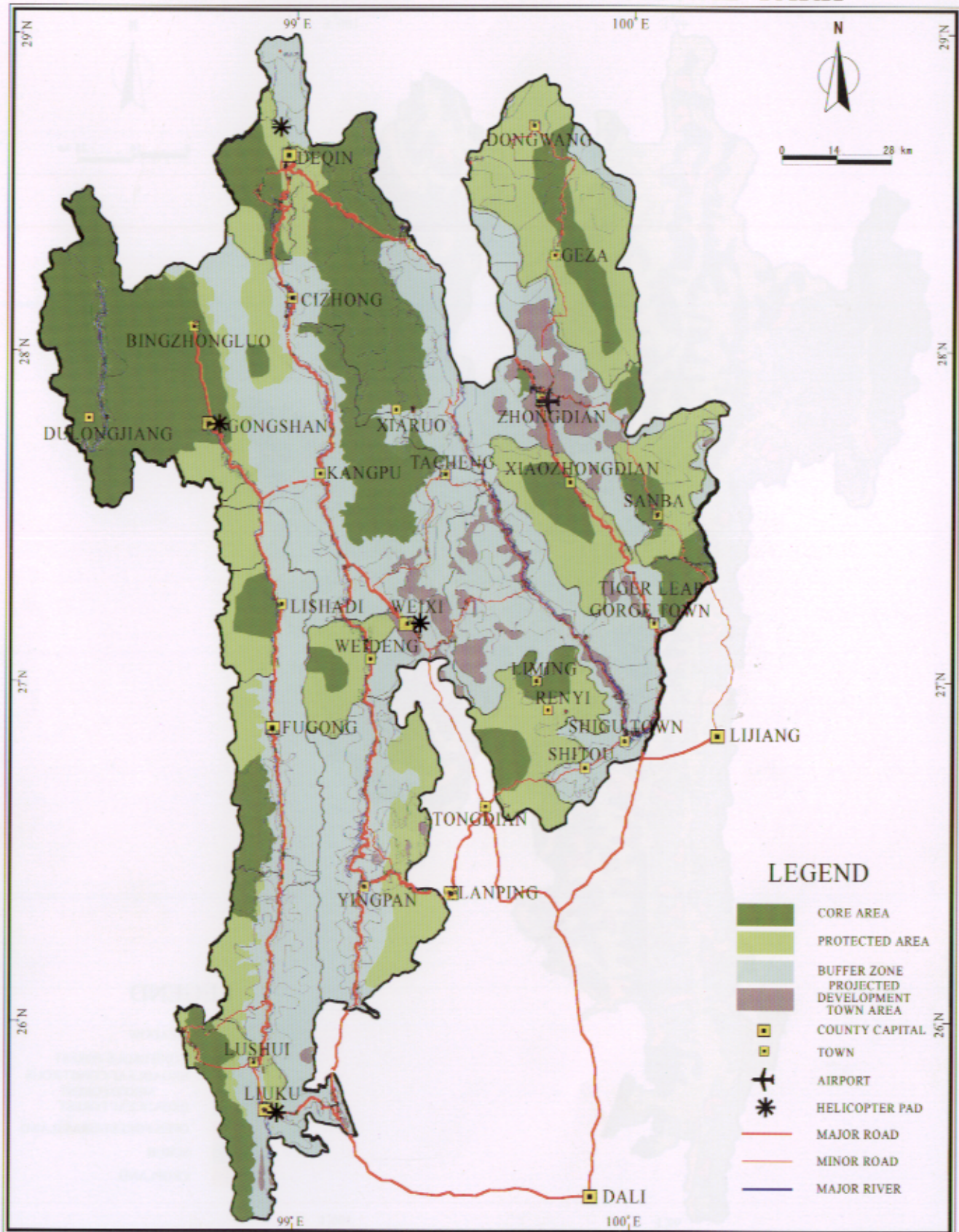
LEGEND

- RARE/ENDANGERED PLANT SPECIES
- ▲ RARE/ENDANGERED ANIMAL SPECIES
- BIODIVERSITY KEY AREA
- BIODIVERSITY GENERAL AREA
- OTHER AREA

VEGETATION DISTRIBUTION OF THE THREE PARALLEL RIVERS NATIONAL PARK



PLANNED ZONING LEVELS OF THE THREE PARALLEL RIVERS NATIONAL PARK



2.1.3.4 There exist a rich variety of alpine karst features, represented by karst caves (the "Stone Moon" in Fugong and Walaya cave system in Lushui), calcareous tufa deposit (Baishuitai in Zhongdian and Shigu-Shitou in Lijiang) and the alpine karst peak clusters (Binzhongluo in Gongshan, Wongshui and Gezan in Zhongdian, Shigu-Shitou in Lijiang) resulted from actions of glaciers, snow and ice melting and erosion.

2.1.3.5 The relic plateau top landform is extensively developed and well preserved in major and minor Zhongdian, Large snow Mountain, Small snow Mountain and Gezan area.

2.1.3.6 A large number of waterfalls and streams can be seen on the first-order and second-order tributaries.

2.2 It is one of the areas which displays the world's richest biodiversity.

In the area exist multiple climate types equivalent to the Northern Hemisphere southern subtropical zone, central subtropical zone, northern subtropical zone, warm temperate zone, temperate zone, cold temperate zone and cold zone. It is actually an epitome of Eurasia continent's ecological environment. The area is also the place where the most intense biological species community differentiation has occurred since Cenozoic era. In addition, as it was not covered by continental glaciers during the Quaternary ice age, and the mountains and rivers all go from north to south, the area has become a main corridor for Eurasian biological species to move from south to north. It was also a main refuge for Eurasian living organisms during the Quaternary ice age. Therefore, the area is one of the world's with richest biodiversity. The property meets the Criterion I and Criterion IV of World Convention for natural properties.

2.2.1 The property area has the richest biodiversity in Eurasian continent. It has more than 200 families, more than 1,200 genera and more than 6,000 species of higher plants. The area, which covers only 0.2% of the country's territory, is home to 20% of its higher plants. The area has 173 recorded species of mammals, 417 species of birds, 59 species of reptiles, 36 species of amphibious animals,

76 species of fresh water fish and 31 species of papilionoid insects. They account for more than 25% of the total animals species, which is unique to China and even to the Northern Hemisphere or the world.

2.2.2 The property area has one of the richest biological communities in the Eurasian continent. It has 10 vegetation types, 23 vegetation sub-types and more than 90 formations, which cover most of the biological communities in the Northern Hemisphere. Therefore, it is almost a miniature of the ecological environment in the Northern Hemisphere.

2.2.3 The property is one of the areas in the world with the most per-unit-area ecological systems. Either in terms of vegetation types or sub-types or formations, the property area has most of the ecological system types in Northern Hemisphere.

2.2.4 The area was the main refuge for living things in the Eurasian continent during the Quaternary ice age. It has many relic species and rare and endangered species. One can find 34 species of plants under state-level protection, 37 plant species under Yunnan provincial-level protection, 77 animal species under state-level protection and 79 species of animals have been listed in CITES Appendixes. Therefore, the area has a large concentration of the most rare and endangered animals in China.

2.2.5 It is the world's most famous animal and plant type specimen locality. About 1,500 types of plant specimen and more than 80 types of animal specimen have been collected.

2.2.6 It is the animal and plant species differentiation and original centre in Eurasian continent. In the area, the primitive and specialized animal species coexist; relic species and evolution species live together; and there are many initial groups, special groups, monothetic genera and oligo genera of animals.

2.2.7 The area is a typical representative and core zone of Hengduan Mountain biological realm. It is the area with the richest biodiversity in China, and it is ranked first among the 17 key areas in China's biodiversity protection. The realm in the property area combines southern and northern, eastern and western biological characteristics,

with some unique elements.

2.3 The natural scenes in the area are colourful and unique, thus bearing incomparable comprehensive value.

In addition to the wonder of three parallel rivers, the area has snow mountains and valleys, alpine lakes, glaciers, alpine meadows, rare animals and plants, Danxia landform, tufa terrace. One can view the magnificent, precipitous, bizarre and mysterious scenes. Investigation shows that there are nearly 100 scenes, each with an area larger than 50 square kilometres, and other smaller-scale scenes are numerous. It is no exaggeration to say it is a grand view garden of all natural scenes except deserts and oceans in the Northern Hemisphere. This meets the requirement of criterion III for natural heritage site.

2.3.1 The rich variety and high quality of the natural scenes are rare in the world. The vegetation covers from 760 metres to 6,740 metres above sea level and climate changes from subtropical to frigid, plus its extremely rich landscape and biodiversity, make the property area the world's rare, precious place.

2.3.2 The uniqueness and rareness of the natural scenes are seen in the area. One can find the world's only scene of "Three parallel rivers," dozens of different alpine lake groups with a sharp visual contrast, the southernmost modern oceanic glacier of the North Hemisphere, and the dwelling styles of 14 ethnic groups living harmoniously with the nature.

2.4 The property, with its extraordinary biodiversity, geo-diversity and landscape diversity, has the following unique characteristics compared with the heritage sites of the same kind:

2.4.1. The natural wonder - three parallel rivers - is undoubtedly unique in the world.

2.4.2 The rich eco-system, biodiversity, vast area and complete and undisturbed biological corridor which has provided integrated space for biological and ecological protection constitute its unique advantages compared with the similar heritage places in China.

2.4.3 Either for the eco-system, or for the biological

species, the number of relic species and labelled specimens, the property is more diversified and complete compared with similar heritage sites. It is the area in China with the richest biodiversity.

2.4.4 The property, as a key area that experienced important stages and events in the history of crust evolution, is of irreplaceable scientific value.

2.4.5 The property's rich varieties of landscapes present incomparable natural beauty, thus bearing comprehensive value compared with similar heritage sites.

2.4.6 The property fully meets the requirements of integrity in terms of its superlative natural features.

2.5 In short, the property is of great scientific and aesthetic values in terms of its geo-diversity, biodiversity and landscape diversity. It therefore conforms to the Criteria I, II, III and IV concerning natural heritage of World Heritage Convention.

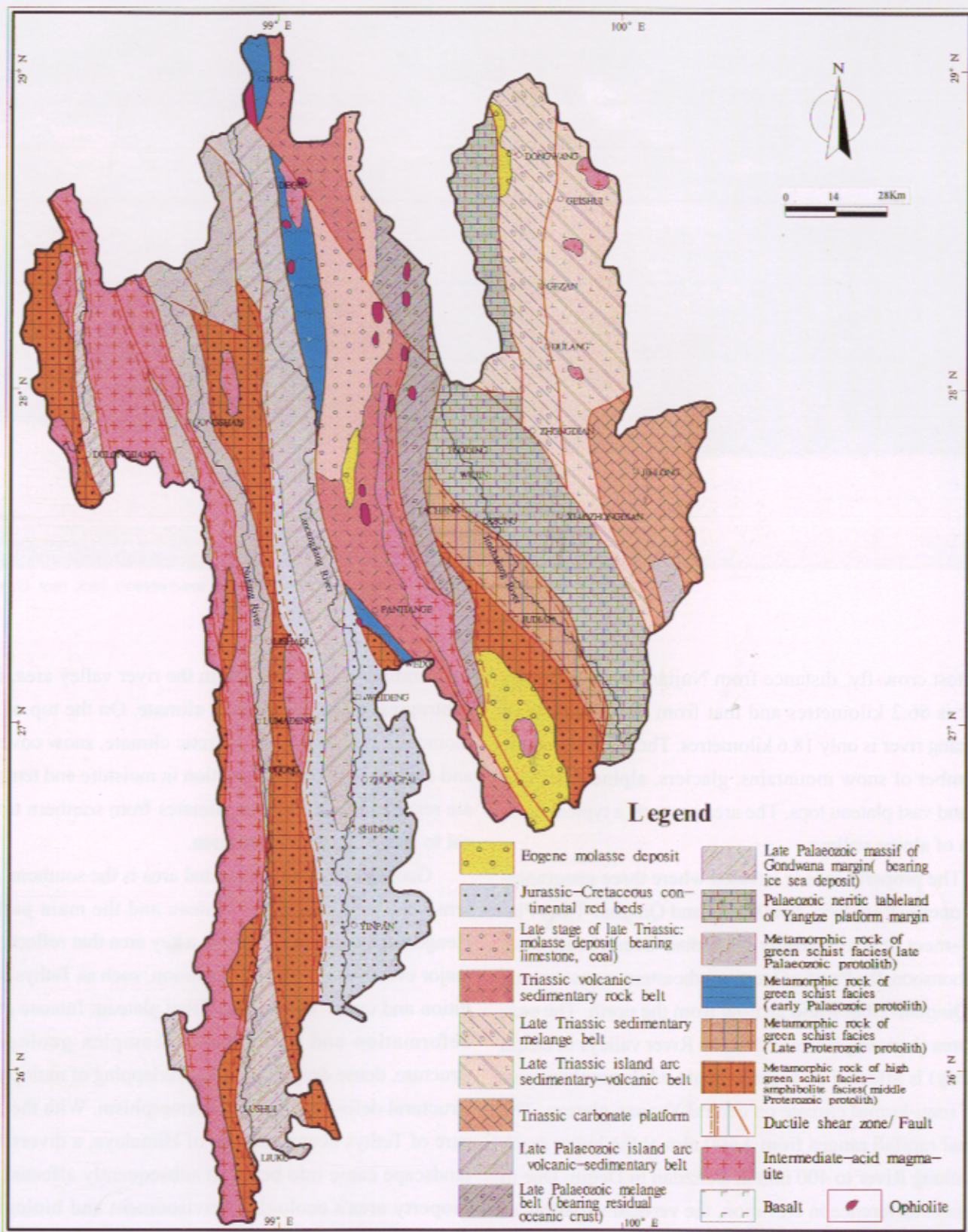
3. Description

3.1 Description of natural conditions of the nominated property .

The property is located in the southeastern rim of Qinghai-Tibet Plateau. The Nujiang, Lancang and Jinsha rivers flow in parallel from south to north amongst the huge mountains: Dandanglika, Gaoligong, Nushan (Biluo Snow Mountain) and Yunling mountains, hence the name "Three Parallel Rivers."

The Dandanglika, Gaoligong, Nushan (Biluo Snow Mountain) and Yunling mountains, which go from south to north, are all more than 4,000 metres above sea level. The highest peak in Yunnan Province -- Kawagebo Peak, 6,740 metres above sea level -- stands in the northern section of Nushan Mountain. From west to east are Dulong River (upper reach of Enkai River), Nujiang (upper reach of Sa'erwen River), Lancang River (upper reach of Mekong River) and Jinsha River (upper reach of Yangtze River), flowing from north to south. In the area, from the 760-metre Nujiang river valley to 6,740-metre Kawagebo Peak, the difference is nearly 6,000 metres. The distances among the four rivers are between 100 to 120 kilometres. The

GEOLOGY OF THE THREE PARALLEL RIVERS NATIONAL PARK



Legend

- | | | | |
|--|--|--|---|
| | Eogene molasse deposit | | Late Palaeozoic massif of Gondwana margin(bearing ice sea deposit) |
| | Jurassic-Cretaceous continental red beds | | Palaeozoic neritic tableland of Yangtze platform margin |
| | Late stage of late Triassic: molasse deposit(bearing limestone, coal) | | Metamorphic rock of green schist facies(late Palaeozoic protolith) |
| | Triassic volcanic-sedimentary rock belt | | Metamorphic rock of green schist facies(early Palaeozoic protolith) |
| | Late Triassic sedimentary melange belt | | Metamorphic rock of green schist facies(Late Proterozoic protolith) |
| | Late Triassic island arc sedimentary-volcanic belt | | Metamorphic rock of high green schist facies- amphibolite facies(middle Proterozoic protolith) |
| | Triassic carbonate platform | | Ductile shear zone/ Fault |
| | Late Palaeozoic island arc volcanic-sedimentary belt | | Intermediate-acid magmatite |
| | Late Palaeozoic melange belt(bearing residual oceanic crust) | | Basalt |
| | | | Ophiolite |



Photo-4 Contact of ophiolite and sedimentary rock near Gongka Village of Deqin County

shortest crow-fly distance from Nujiang river to Jinsha river is 66.3 kilometres and that from Nujiang river to Lancang river is only 18.6 kilometres. There are also quite a number of snow mountains, glaciers, alpine lakes and flat and vast plateau tops. The area presents a typical land-form of alpine valleys.

The property area is situated where three geographical zones -- East Asia, South Asia and Qinghai-Tibet Plateau--meet. It is affected by the Indian Ocean southwestern monsoon, the Pacific Ocean southeastern monsoon and the Qinghai-Tibet frigid airflow from the north. The central area (Lancang River and Jinsha River valleys in Deqin County) is affected by foehn climate while southern part is of semi-humid climate on central Yunnan plateau. The annual rainfall ranges from 4,600 mm at the lower reach of Dulong River to 400 mm at Benzilan in Deqin. Due to the great difference in elevation, the vertical variation of

temperature is also obvious. In the river valley area, it is subtropical and even tropical climate. On the top of the mountain, it is cold zone or arctic climate, snow covered and cold all year round. Variation in moisture and temperature resulted in the various climates from southern tropical to arctic climates in the area.

Geologically, the nominated area is the southern extension of Qinghai-Tibet Plateau and the main part of Hengduan Mountains. It is also a key area that reflects the major events of the globe's evolution, such as Tethys evolution and uplift of Qinghai-Tibet plateau. Intense crust deformation and uplift lead to complex geological structure, dense deep faults and overlapping of multiphase structural deformation and metamorphism. With the closure of Tethys ocean and rise of Himalaya, a diversified landscape came into being. It subsequently affected the property area's ecological environment and biological

species, making the area a place in the world with extremely differentiated biological species and communities.

Besides, as it was not covered by the continental glacier during the Quaternary ice age, the area functions as a main channel for biological species on the Eurasian continent and a shelter for the species on the continent during the Quaternary ice age.

3.2 The area has also experienced the major geological events and evolutionary process in a certain period of global evolution, and therefore is an important place to study Tethys structural domain's evolution since late Palaeozoic era.

3.2.1 Geological development history

3.2.1.1 Stratigraphy and paleontology

The regional geologic evolution is closely related to the development of Tethys structure, especially during late Palaeozoic era. With the Lancang River fault as the boundary, (which was once the suture between the Gondwana and Eurasian continents), the western stratigraphy and paleontology mainly show a close relation with that of the Gondwana, characterized by the development of Carboniferous-Permian glacier and glaciomarine sediment and cold-cool water biota. In the eastern area is characterized by a strong flavour of Yangtze affinity biotic area. The middle Cambrian series-permian strata that occur in Zhongdian also bear the characteristics of western Yangtze stratigraphy and paleontology. Turning westward, the Carboniferous-Permian strata shows obvious variations of lithologies and facies. There exist deep-water basin and sediment of island arc, but the biological fossils maintain

photo-5 ophiolite near Gongka Village of Deqin County



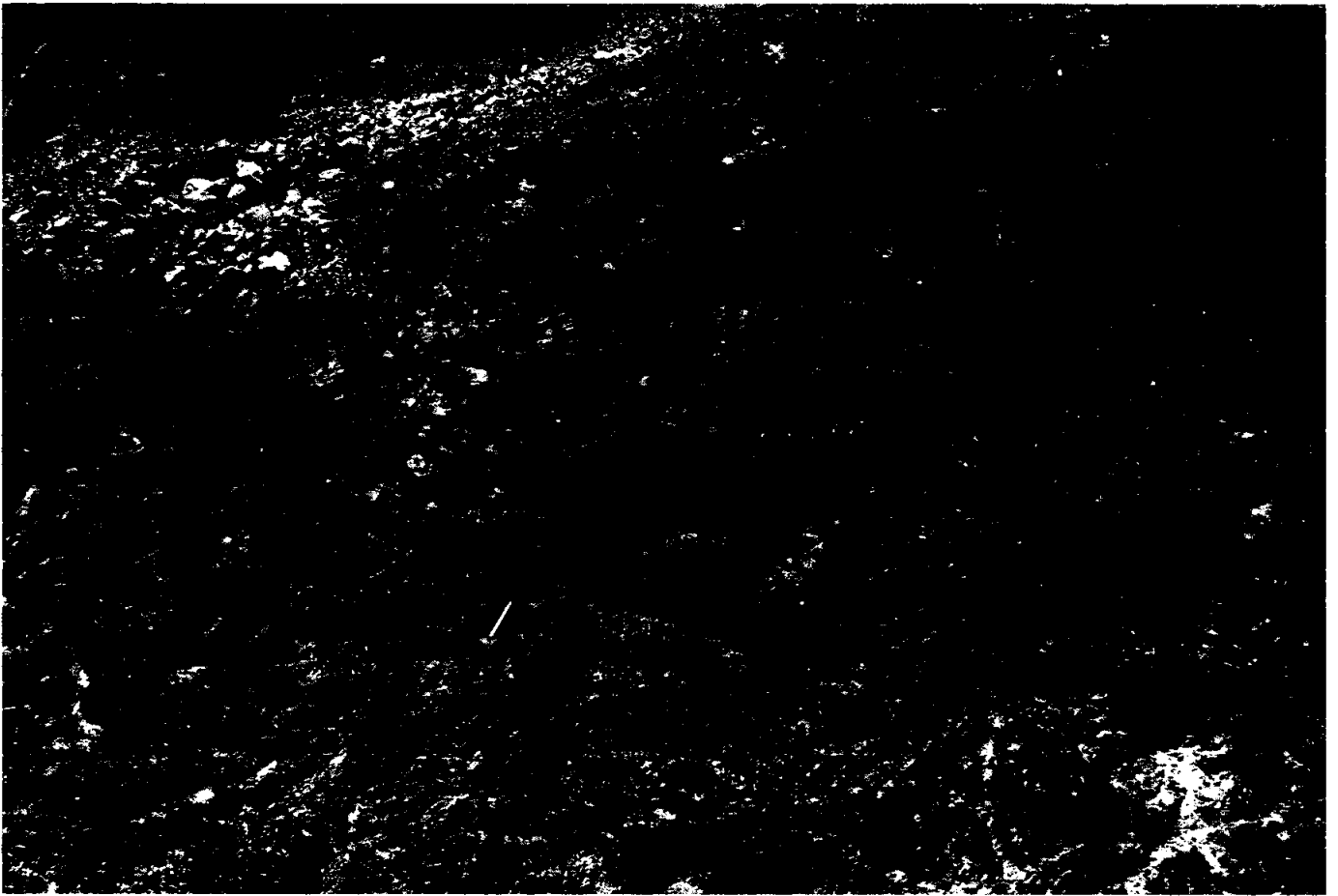


Photo-6 Deep-sea deposited purple radiolaria silicalite near Gongka Village in Deqin County



photo-7 Metamorphic peridotite at northeast of Dongzhulin Temple in Deqin County

the Yangtze affinity nature. The Triassic strata is well developed in the eastern part with the deposits in different environments of plateau, plateau basin and island arc. But they are not obviously different in terms of biological fossils. The sedimentary strata after Triassic era only occur in the east of Lancang River fault. The Jurassic-Eogene continent facies red detrital deposits and Eocene-Oligocene molasse deposits in Lanping area are the typical representatives of the intracontinental evolution period.

3.2.1.2 In the property area, there are different types of igneous rock, including ultrabasic, basic, intermediate acid and alkali rock. Besides ophiolite, there still exist a large amount of intrusive and volcanic rocks. Particularly, multiphase basic volcanic rock, intermediate-acid intrussive rock and extrusive rock occurred in large area. The space-time distribution pattern in which various mag-

matic activities took place is clearly shown.

3.2.1.3 In a narrow area of Dulongjiang-Shigu are coexisting Dulongjiang, Gaoligong, Nushan (Biluo Snow Mountain) and Xuelong Mountain and Shigu metamorphic rock belts, which is rare in the world for its various types, multiple phases and obvious superimposition of metamorphism.

3.2.1.4 The property area is a gigantic composite orogenic belt, which can be divided into several secondary orogenic belts. They record the Tethys evolution at a certain phase and display the process of Tethys orogenic belt's multiphase gradual convergence and divergence. Himalayan orogenic movement brought about a strong restructuring and reorganization to Tethys orogenic belt, leading to a large-scale deformation and warping of the original structural system and forming a new structural combination

photo-8 Geomorphic feature of ophiolite at the nek of Baimang Snow Mountain



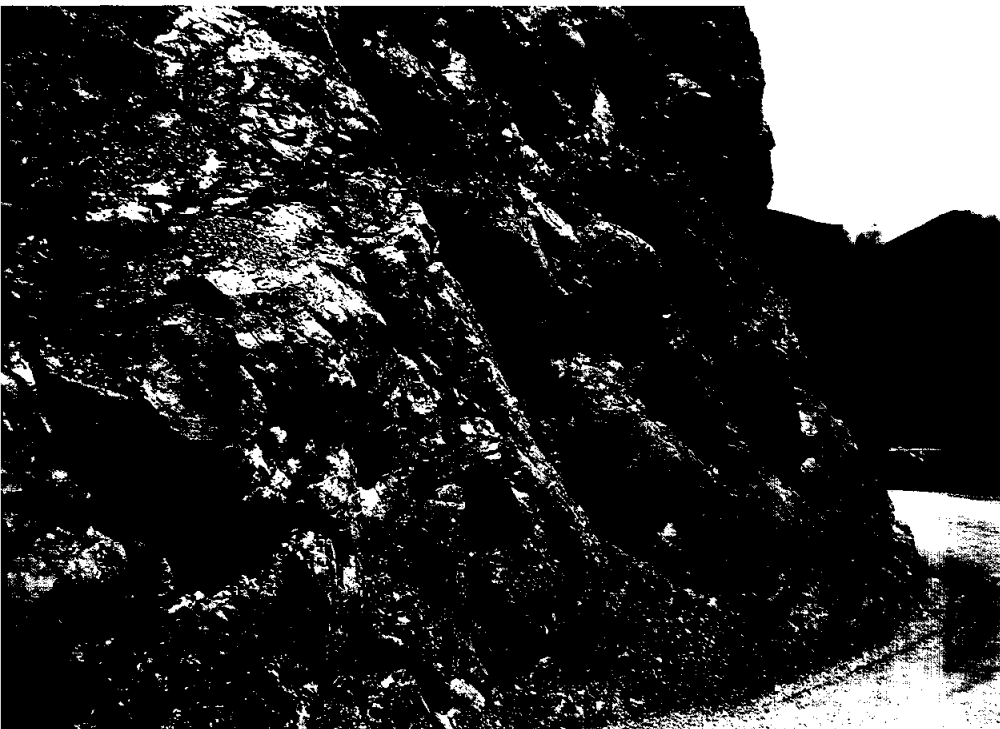
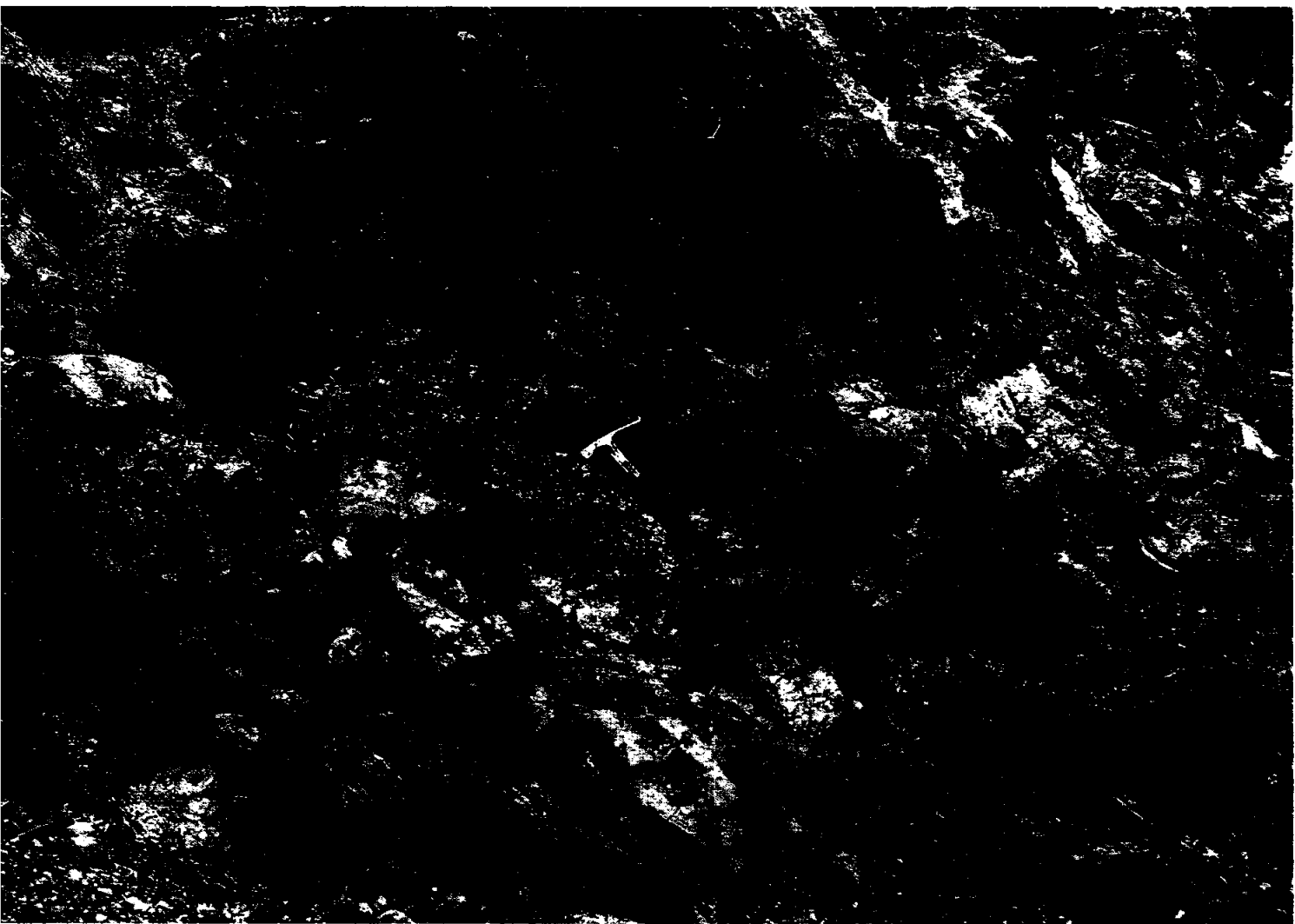


photo-9 Ellipsoidal lava at Baimang Snow Mountain

photo-10 Ellipsoidal lava near Dongzhulin Temple



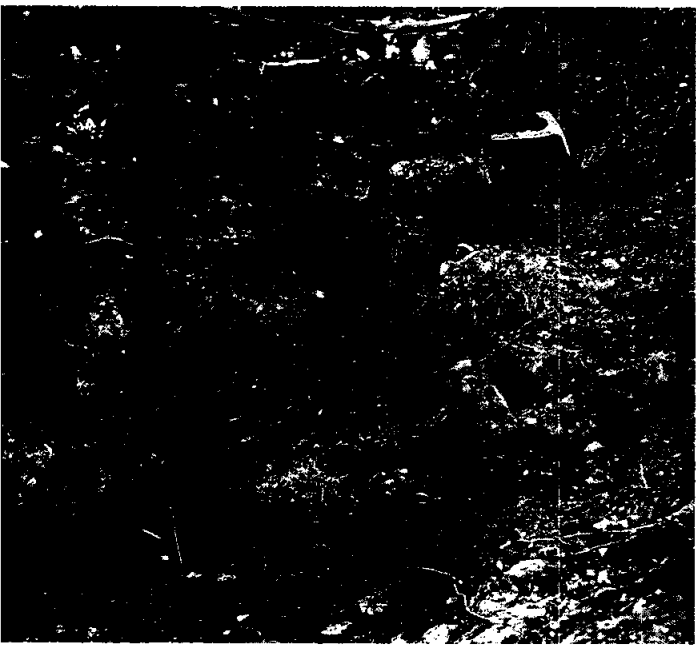


Photo-11 Typical crop of Jinsha River melange belt near Dongzhulin Temple

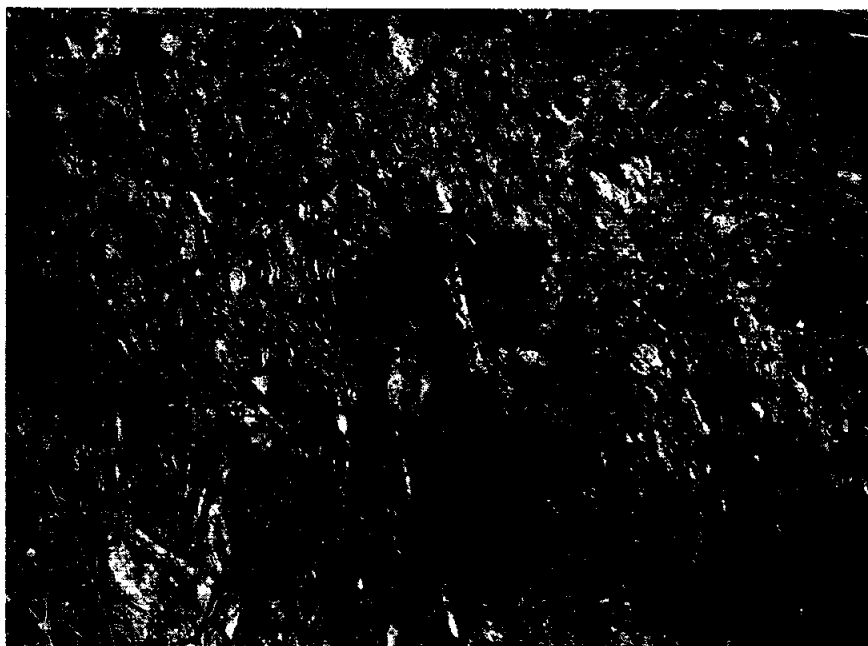


Photo-12 Melange near Dongzhulin Temple

pattern characterized by large-scale thrust-nappe structure and wrench shear zone. It is also a main factor contributed to the formation of “three parallel rivers” and “gathering mountains.”

3.2.1.5 The property area has experienced four major geological evolution phases:

Proterozoic era-Early Palaeozoic era (Proto-Tethys).

It may have experienced the break of Pangea and the for-

mation of early Tythys sea. The Yangtze plate was separated from Gondwana continent and gradually developed into a large-scale block with its own development.

Late Palaeozoic era-Triassic period (Palaeo-Tethys). It is the phase that Tethys sea evolved from ocean to land. It was a process that “multi-island sea” gradually converged, closed, collided and accreted to the southern rim of Eurasian continent. Finally, a strong collision

Photo-13 Macro feature of melange in mudstone and sandstone groundmass near Dongzhulin Temple



photo-14 Collapsing Conglomerate at Tuodingdugu in the Jinsha River belt





photo-15 Cambrian limestone at Yinchanggou in Zhongdian County

during late Triassic period led to the structural pattern of Palaeo-Tethys orogenic belt.

Late Triassic period-early Cretaceous period (Neo-Tethys). A certain scale of ocean basin environment kept in Nujiang area. It converged, closed and collided during late Cretaceous period and then directly patched to the southern rim of Eurasian continent, becoming a part of the property's composite orogenic belt.

Cenozoic era (Intracontinental evolution). During mid- and late Eocene period, the orogenesis caused by the strong collision of Indian plate and Eurasian continent led to the complete closing and disappearance of Neo-Tethys sea. This has greatly affected the property area and remoulded the old mountains formed during the Tethys evolution in the area. As the Indian Plate squeezed into

Eurasian continent, large-scale superimposition, disjunction and slip occurred among the landmasses divided by faults, creating a large thrust-nappe and shift shear or wrench movement. The Yangtze plate in the east side and Indian plate in the west squeeze tightly, strongly compress the property area and causing slip among the structural units of different blocks in the area. Subsequently, large-scale lens-like structure formed, causing discontinuity or even "loss" of some tectonic units. The most severely squeezed part is from 27°30'-28°00' N where a tightly bound structural knot is formed. As a result of strong compression, spreading driving force built up under the Qinghai-Tibet Plateau. It dragged external movement with overriding block mass. With this "structural knot," the northern block cannot move southward due to the

photo-16
Sedimentary rocks of
Devonian, Carboniferous and
Triassic in Zhongdian



photo-17 Granite near Bapo at Dulong River

restriction, thus creating a constraint and blockade to the northern block moving southward. As a result, the northern block rises sharply and becomes high mountains. This tectogenesis controls the regional geological tectonic development and evolution. The current overwhelming deep valley and high mountain feature in the property area is the result of neotectonism which follows former tectonic pattern. This process, at the same time, also affects climate and the differentiation and evolution of some biological species and the formation of some new species. It laid the foundation for the development of the regional physical geographical scenes, ecological environment and biodiversity.

3.2.2 Important geological relics

3.2.2.1 Ophiolite-related rock composition and abyssal sedimentation.

3.2.2.1.1 Metamorphic peridotite (pyrolite) near Gongka in Deqin and deep-sea purple radiolaria silicalite occur together. They occur as tectonic emplacement in the county strata. Metamorphic peridotite is seen in Dongzhulin and Shusong. It can also be seen near west



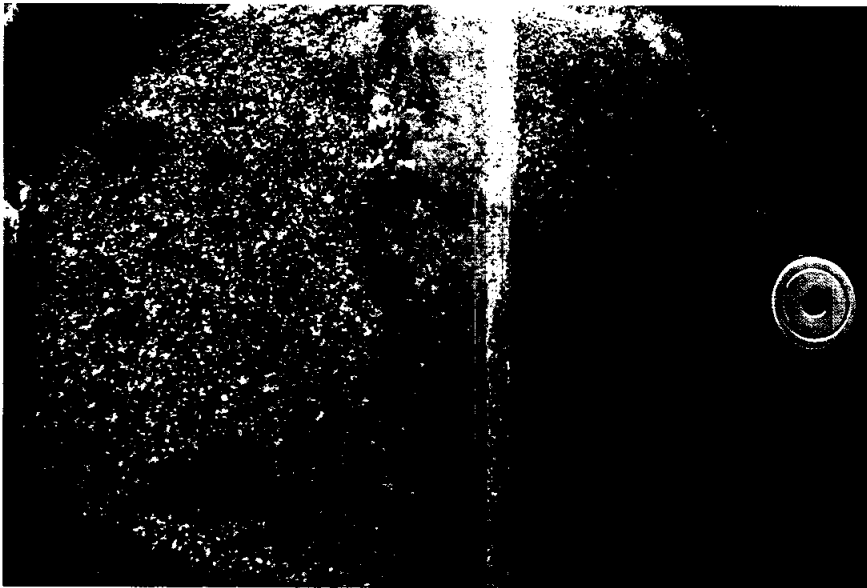


photo-18 Granite at Xishaofang

photo-21 Landscape of granodiorite on
Baimang Snow Mountain



photo-19 Tonalite at Dongshao fang

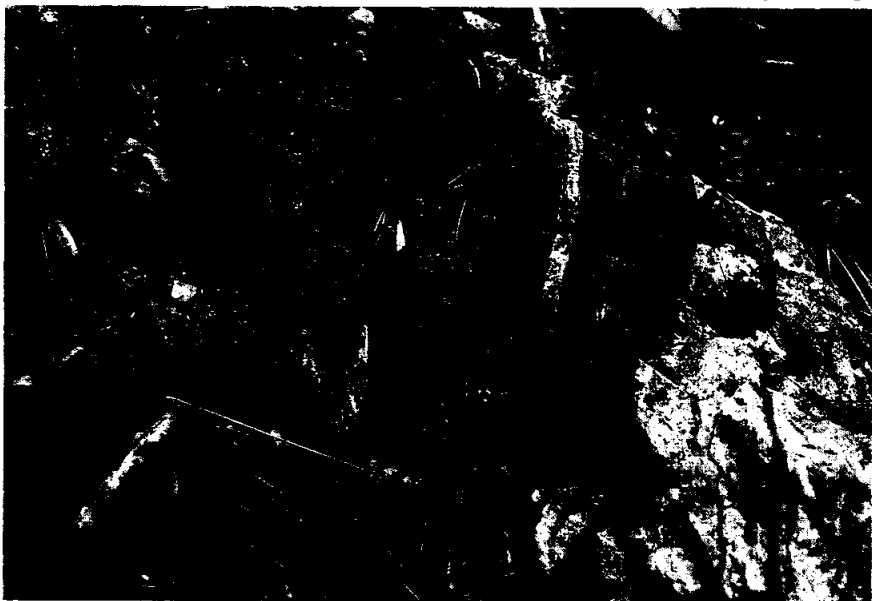


photo-20 Crops of basic-ultrabasic basic rocks near
Jiyidu of XiaYuo Village



nek of Baimang Snow Mountain, Deqin county , Deqin's asbestos mine, Yangla and Xialuoge Gonglong.

3.2.2.1.2 Ellipsoidal lava. It occurs extensively in the area near water ditch of Xini Power Station in Zhongdian County, near the highway by Dongzhulin Temple, near the highway to Baimang Snow Mountain and the Gudu Village to the west of Tuoding. Most of them belong to Permian period.

3.2.2.1.3 There are radiolaria silicalite, Devonian-

Carboniferous period, along the ditch of Weixi Tacheng Power Station. It is the records of Jinsha River deep-water basin deposit.

3.2.2.2 Melange

3.2.2.2.1 The melange, together with ophiolite, mainly occur along the Jinsha River from Benzilan to Dongzhulin temple. A large amount of exotic blocks or clastic rocks of different times, can be seen in the ground-mass of Permian period.



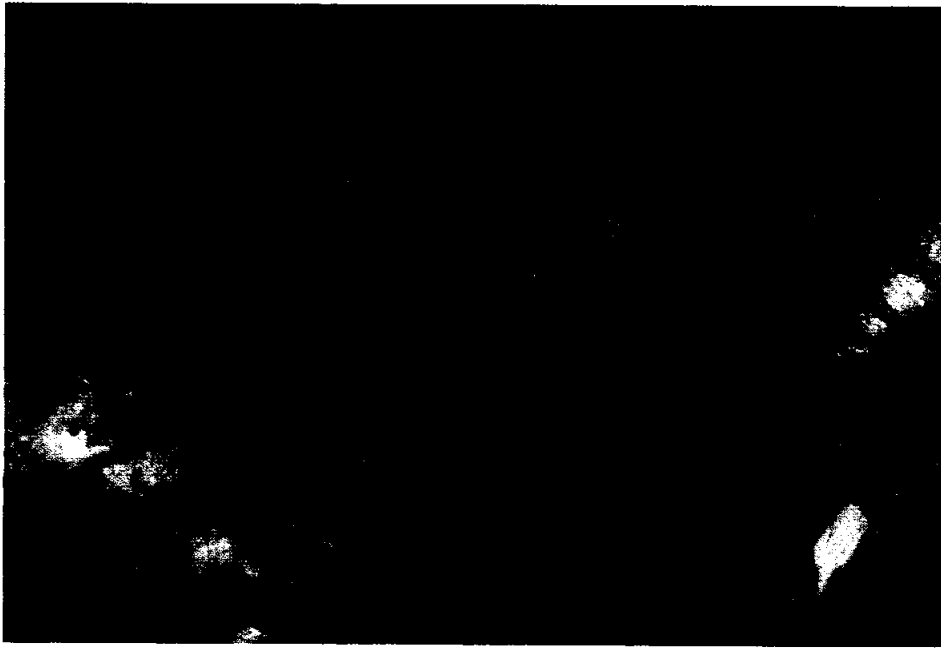


photo-22 Complex folds on the geological section of Tiger leap Gorge



photo-23 Fold deformation on the Gelabo profile of Gongshan

photo-25 Mylonite on the ductile shear belt, west of Gongshan



3.2.2.2 Symmictite is mainly developed in the strata of late Triassic period near Zhongdian. The groundmass is sandshale interbedded with limestone and silicalite of upper Triassic, exotic rock of different times and facies coexist with it.

3.2.2.2.3 Basic volcanic rocks with xenolith of different periods can be seen widely in the area.

3.2.2.3 Stratigraphic and paleontologic phenomena

3.2.2.3.1 Mid-Cambrian-Carboniferous system strata profile in the ditch of Jinjiang Silver Mine of Zhongdian County.

3.2.2.3.2 Lower-Mid Triassic system strata profile at Bulun of Zhongdian County.

3.2.2.3.3 Strata profile of Lower Tertiary system at west Shigu of Lijiang County.

3.2.2.3.4 The fossilbed of bivalve of upper Triassic series in Tuozhi Village, Weixi County, and near Yueliangping in Jianchuan County.

3.2.2.3.5 Rich coral and brachiopod fossil in limestone of the upper Triassic series on the Baimang Snow Mountain.

3.2.2.3.6 Bivalve and brachiopod fossils in the sandshale of upper Triassic series at northwest of Luna of

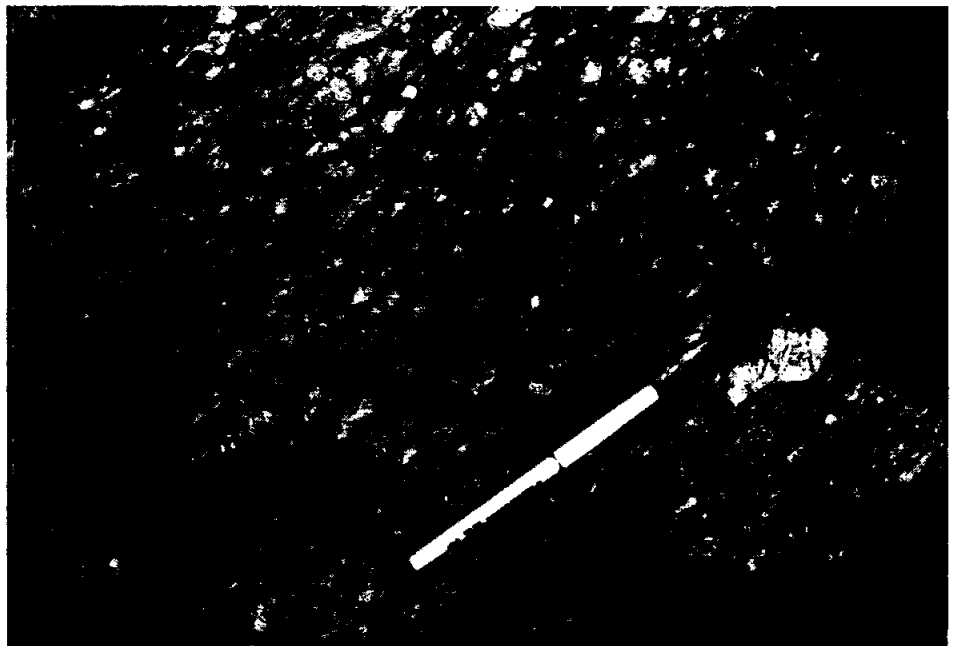


photo-24 Mylonite near Fugong

photo-26 Compressed and deformed Jurassic-Cretaceous red beds in
Lanping County

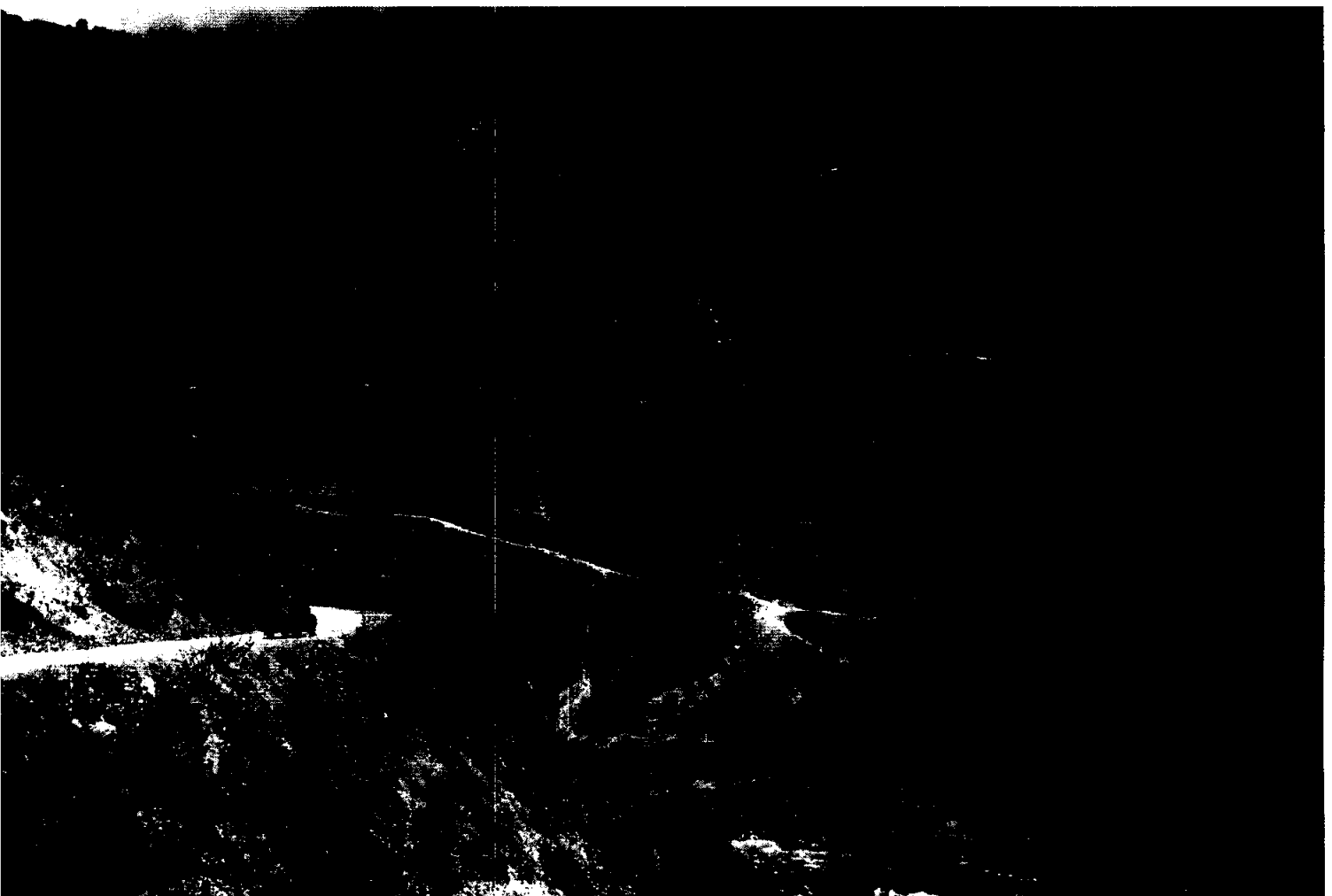




photo-27 Mylonite on Xuelong Mountain



photo-28 Mylonite on Dulong River fault belt



Deqin County.

3.2.2.3.7 Rich fusulinida fossile of Maokou period in the limestone of lower Permian system at the asbestos mine in Deqin County.

3.2.2.3.8 Jurassic bivalve fossils near Jianjiading in Deqin.

3.2.2.4 Igneous rock

3.2.2.4.1 From Gongshan to Dulongjiang crop out a

great deal of the crops of Yanshan period intermediate acid intrusive rocks.

3.2.2.4.2 Well-preserved crops of basic, ultra-basic rocks can be seen near Jichaxi asbestos mine in Weixi County, along the highway from Baijixun to Weideng and near Jiyidu of Xiaruo village in Deqin County.

3.2.2.4.3 On the highway from Lijiang to Weixi, from Ludian to nek and on the highway from Weixi to Tacheng, from Cuiyibi to Kela, one can see the outcrops of well-exposed Ludian granite.

3.2.2.4.4 On the southern side of west nek of Baimang Snow Mountain, one can see a large exposure of

granodiorite.

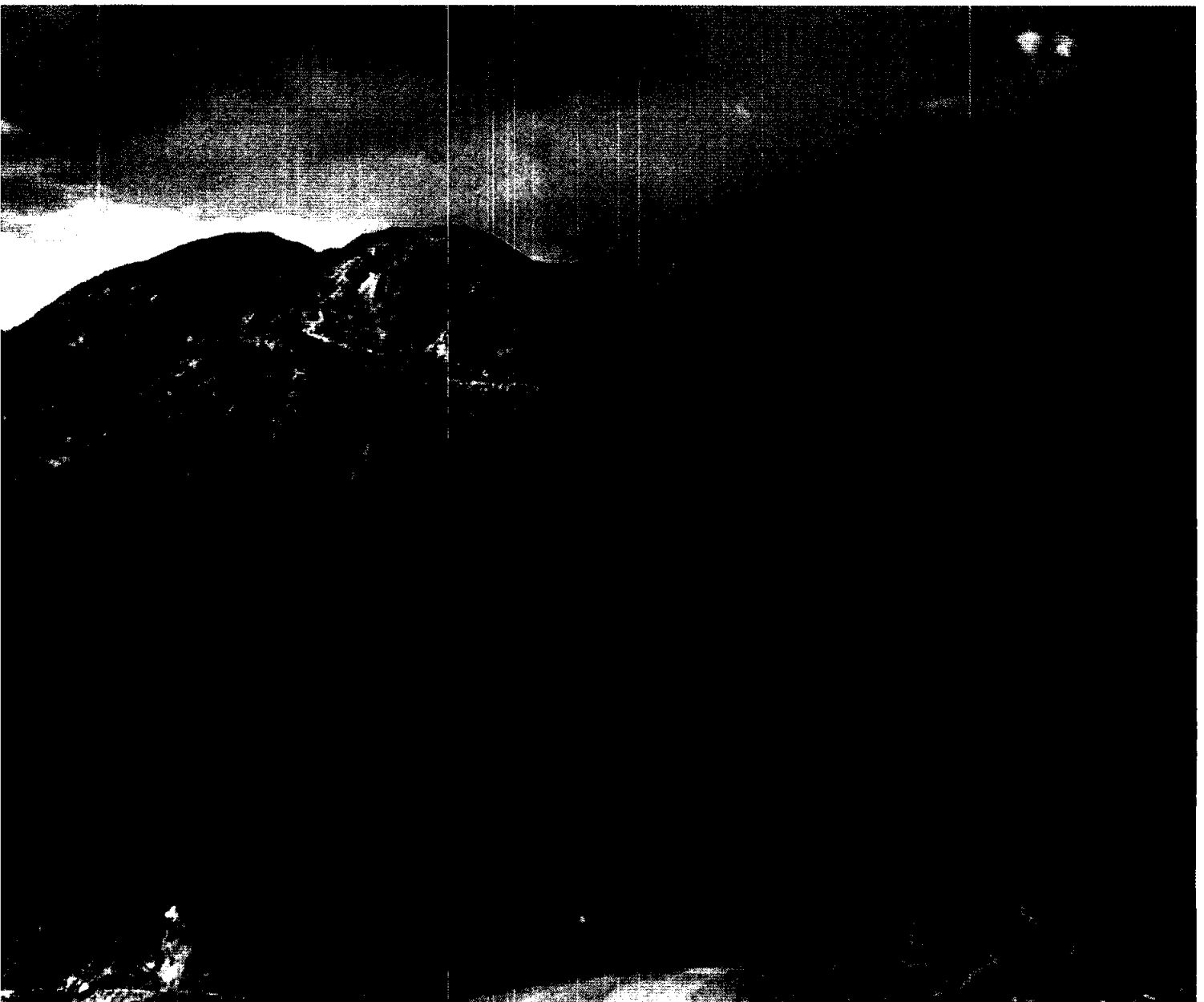
3.2.2.4.5 On the road from Lishadi to Shimen-Deng, one can see the continuous crops of deformed granite.

3.2.2.5 Metamorphic rock

3.2.2.5.1 On the highway from Judian to Weixi are the profiles from mesometamorphic to epimetamorphic of Proterozoic Shigu group and Judian group. In the Liming and Zhonghe of Shigu town in Lijiang County expose the profiles of mesometamorphic series of Proterozoid Shigu group. One can see characteristic metamorphic minerals: kyanite and sillimanite.

3.2.2.5.2 From Chahe to Gongjiang along the Weixi-

photo-29 Nouth-west fault near Shangqiaotou



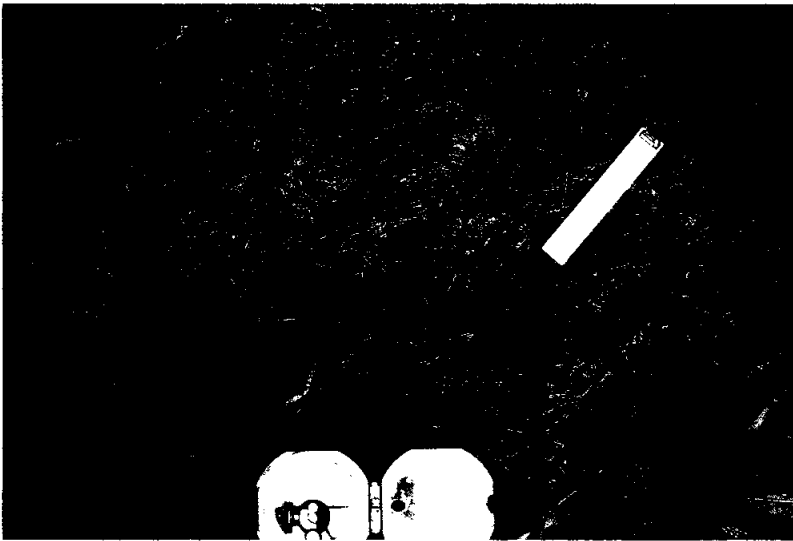


photo-30 Inclined folds on Dulong River fault belt



photo-31 Vertical cleavage on the Langcang River fault belt



Hexi highway and from Hexi to Jinsichang, one can see the well-exposed profile of Xuelong Mountain metamorphic rock group of Proterozoic era.

3.2.2.5.3 Geological structural section of epimetamorphic series of upper Palaeozoic era occur continuously along the Hutiao Gorge. Also, this area keeps rich relics of complex fold deformation.

3.2.2.5.4 Section of Chongshan group metamorphic rocks can be seen from the fork of road to Chongshan nek along the Liuku-Lanping highway.

3.2.2.5.5 The Gongshan Galabo profile and Dangzhu profile also show the continuation of strata with complex

photo-32 Jinsha River gorge



fold deformation.

3.2.2.5.6 Palaeozoic metamorphic rock series well exposed near Deqin County , and glaucophane has been found in the rock.

3.2.2.5.7 On the west bank of Lancang River near Tu'e in Lanping County, Jurassic-Cretaceous red beds have been tightly folded as a result of strong deformation, affected by Lancang River fault movement. Also affected by dynamic metamorphic process, it transformed into slate, phyllite and metamorphosed sandstone.

3.2.2.6 Geological structure relics.

In addition to the characteristics mentioned above, other geologic features include:

3.2.2.6.1 In the Gaoligong Mountain metamorphic belt, shift ductile shear belt characterized by mylonite is well developed. It is the structural trace caused by the strong reworking of Himalayan intracontinental orogenesis. This phenomena take place well along the road from west of Gongshan to Dulongjiang and from Lushui

to Pianma and near Maji and Fugong in Nujiang River valley.

3.2.2.6.2 The ductile shear zone characterized by the development of mylonite is extensively developed in various regional metamorphic belts.

3.2.2.6.3 From Erlongqiao to Dongzhulin on the highway from Zhongdian to Deqin continuously and well expose tectonic melange, reflecting the closing and disappearance of Jiashajiang oceanic basin of Palaeozoic era.

3.2.2.6.4 In Benzilan-Shangqiaotou-Nixi area, north-west strike-slip fault developed well.

3.2.2.6.5 On the Baijixun-Weideng highway, large Jicha fault striking north-south exposed well.

3.2.2.6.6 Near Gongjiang on the highway from Weixi to Hexi, one can see north-west Xuelong Mountain fault.

3.2.2.6.7 Many thrust faults can be seen on the section of Shigu group and Judian group of Judian-Xinzhu.

3.2.2.6.8 In the Jinding lead-zinc mine in Lanping County, one can see well developed nappe structure.

photo-33 Plateau glacial lake and horn peak



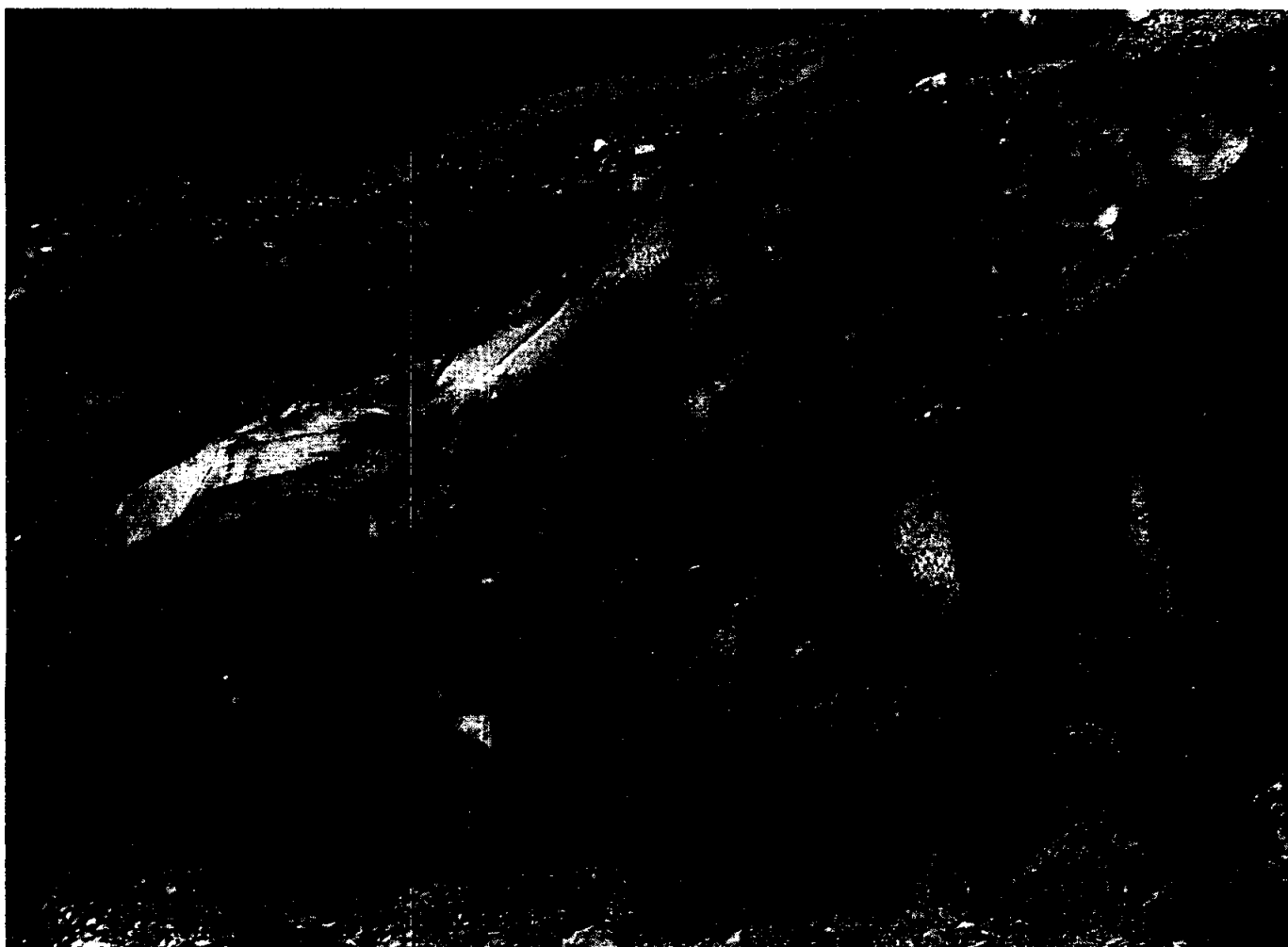


photo-34 Modern low-latitude glacier (Mingyong glacier on the Meili snow Mountain)

3.2.2.6.9 Along Tongjiang River and near A're in Zhongdian, large Gezanhe faults can be seen in many places.

3.2.2.6.10 In the area, there exist large mylonite belts along the regional faults (Dulongjiang, Nujiang and Lancang river faults), which display the obvious right shift ductile shear zone. Faults can be seen almost everywhere.

3.2.3 Diversified landforms

3.2.3.1 Gorges

Gorges are very typical in the property area. The gorges are deep and grandiose on the main river ways of Jinsha, Lancang, Nujiang and Dulong rivers. Flanked by Yunling, Nushan (Biluo Snow Mountain), Gaoligong and Dandanglika mountains, the river flow across the nomi-

nated area from north to south. The valley slopes are steep and precipitous. From river surface to mountain ridge is 2,000 to 5,000 metres. Along with these magnificent, there is the natural wonder-three rivers flowing abreast.

In addition, the gorges not only reflect the characteristics of young landform - constant uplift of Hengduan orogenic belt since late Cenozoic era, intensive erosion and rapid downcutting rivers, but also demonstrates the inherited development feature. The deep-cut meanders in the relative recent gorges are the inherited feature of former rivers, that is, before the nominated area was uplifted, the rivers had once come to their old stage. But now they are revitalized. The first bend on the Nujiang River and Lancang River canyon in Meili Snow Mountain are good evidences to the rise of plateau.

3.2.3.2 Glaciers

The property area is the place in Yunnan with the strongest glacier movement and most extensively distributed and typically developed glacier remains. It is also the southernmost area in China which witnesses modern glacial activity. The whole area is a low-latitude high altitude oceanic alpine glacier area. The glacial horn and snow-capped peaks are common. Incomplete statistics shows that, there are 118 peaks higher than 5000 metres and nearly 800 peaks ranging from 4,000 to 5,000 metres above sea level. At 3,200 metres altitude, there extensively exist glacial eroded material, glacial deposit and glacial outwash. In the area from 3,200 to 4,500 metres above sea level, there are 424 glacial erosion lakes and drift lakes, which cover more than 10,000 ha. They join to form a picturesque mountainous glacial erosion lake group.

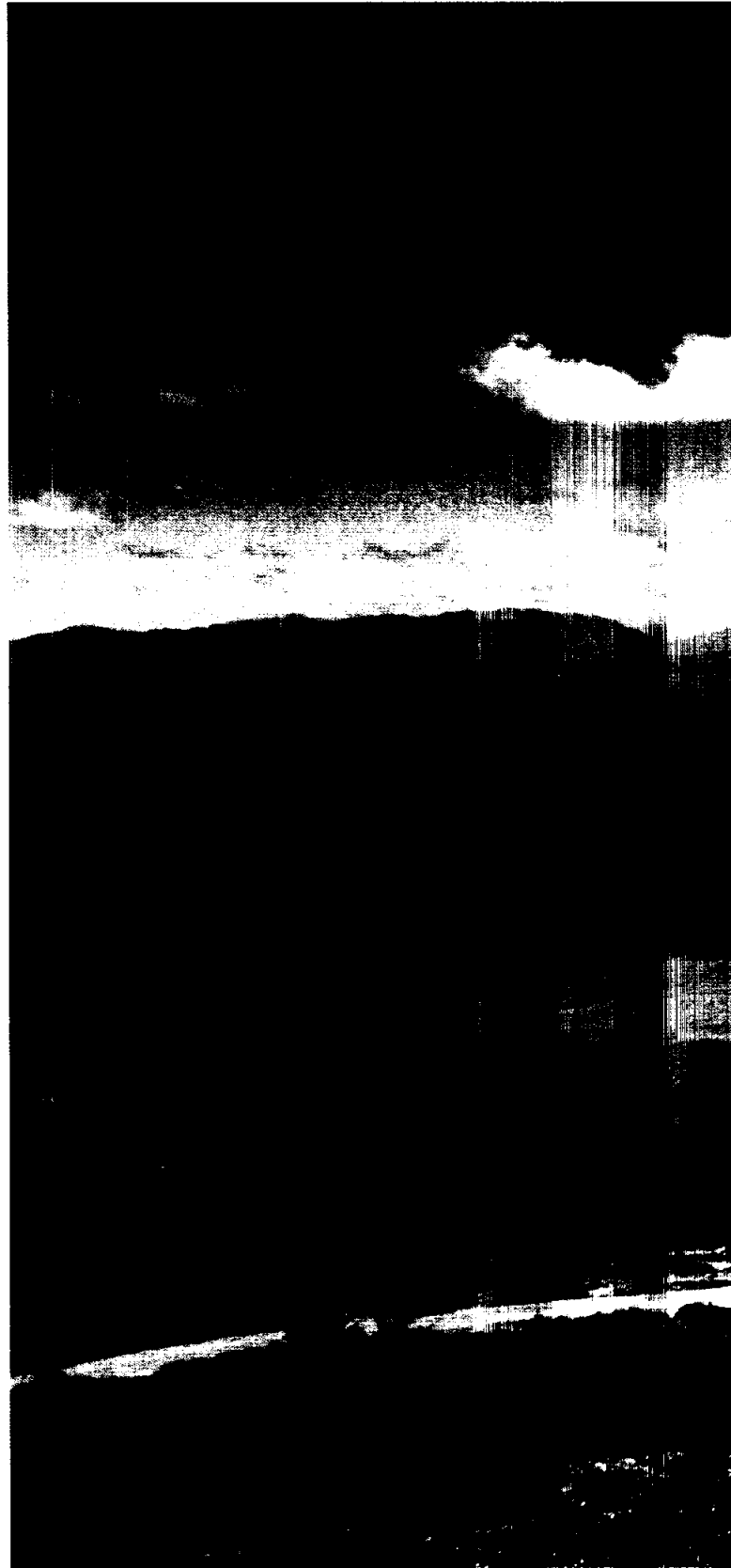
3.2.3.3 Alpine Danxia landform

A large area of early Tertiary red sandstone is seen in the area, covering 1,500 square kilometres. It is a result of lacustrine deposition and talus accumulation. The rise of crust since late Cenozoic era, with the help of erosion of glacier and water and disintegration, formed a huge cliff and peak cluster landform and develops a colorful alpine Danxia landform. The typical places are Liguang in Liming and Luoguoqing in Lanping.

3.2.3.4 Planation surface (Plateau top)

The Hengduan hummocky planation surface is extensively developed in the upper reach areas of the three rivers and their watersheds. The typical sections are Zhongdian planation surface, with 90 kilometres from south to north, 30 to 40 kilometres from east to west and 3,800 to 4,000 metres above sea level. The planation surface on the top of Biluo Snow Mountain is 100 kilometres long from south to north and 2 to 4 kilometres wide from east to west. In the property area is widely developed second- to third-grade plane of denudation. The most typical ones are those in Deqin County, respectively at 2,600-2,700 metres above sea level and 3,000-3,200 metres above sea level. They reflect the characteristics of the intermittent rise of crust.

3.2.3.5 Alpine karst landform



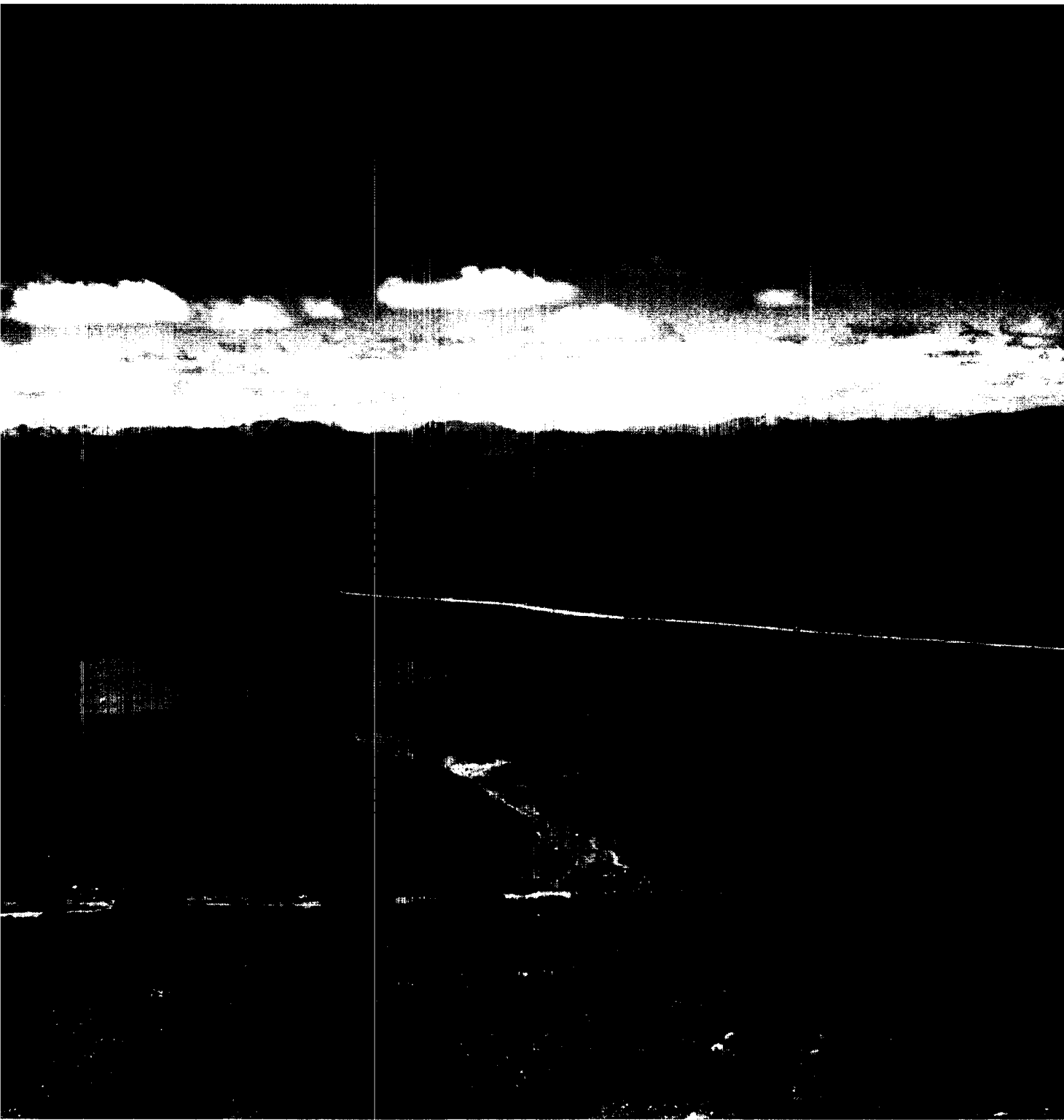


photo-36 Plateau top landform (Red Mountain in Zhongdian)

photo-37 Alpine karst peak clusters(wenshui)



Carbonate rocks are widely seen in the property area. Affected by glacial erosion, thawing and attack, they form alpine karst landforms such as clusters, cliffs, large springs and karst caves. On the surface of rocks, the attack is not developed, and corroded depression and dolina are seldom seen. The typical karst clusters are found in Wengshui in Zhongdian, Shitou in Lijiang and Lishadi in Fugong. Baishuitai in Zhongdian and Zhenzhutan in Niru are of alpine sinter deposit, the former being most developed. One can see travertine stromatolithic structure and rimstone dam combination just like the terrace fields. Large karst cave systems are developed in the favourable place where surface water and underground water transfer. The Walaya in Liuku cave system is 27 kilometres long. The Stone Moon (Karst Cave) in Yueliang Mountain hangs nearly 2,000 metres above Nujiang river. Besides, there are quite a few hot-water sinter deposits, such as Tianshengqian (Arch) in Zhongdian and Hot water Pool in Liuku.



photo-38 Granite clusters (Luoguqing at Lanping)





photo-39 The first bend of Yangze River, Shigu



3.2.3.6 The first bend of the Yangtze River -- Shigu

The turbulent Yangtze River rushing from the north is blocked by the rock of Hailuo Mountain at Shigu town in Lijiang. It then turns northeast, forming a "V" shaped bend. The river here is 1,750 metres above sea level while the mountain top by the bank exceeds 2,000 metres above sea level. Geological and geographical study shows that the "first bend" is a result of the piracy of river.

3.2.3.7 Granite clusters

The mountains composed of granite and metamorphic rocks, affected by the strong structural movement, lead to the development of vertical cliffs and fault cracks. Later, affected by nival effect, water erosion and physical weathering, the granite bodies are divided into peak clusters. The typical ones are located on the Gaoligong Mountain, west of Lishadi in Fugong.

3.3 Biodiversity

3.3.1 Plant diversity

3.3.1.1 Introduction

The nominated place has more than 210 families, more than 1,200 genera and more than 6000 species of higher plants. The area, which account for only 0.2% of the country's territory, accommodates about 20% of its higher plants. Among them, 45% are endemic to China, 10% are endemic to this area. It is the place with richest plant categories in Eurasia and is also one of the places with plentiful plant communities in the world.

Floristically, the nominated area belongs to the Hengduan Mountain Region of East Asiatic Plant Kingdom. The composition of its flora is very rich, and has distinct altitudinal distribution. The flora assembles elements from north and south, east and west, as well as

old and new, and the endemism is outstanding. It is the worlds famous plant type speciemen locality. More than 1500 plant type specimen have been collected here.

The famous wild flowers, such as *Rhododendron*, *Primula*, *Gentiana*, *Meconopsis*, *Pedicularis*, *Iris*, *Lilium* and *Ochidaceae* come together in crowds here. There are more than 200 species of *Rhododendron*, about 100 species of *Primula*, and about 100 species of *Gentiana*. It is also the present geographical distribution center of alpine flowers such as *Pedicularis* and *Meconopsis*.

There are 33 plant species of national protection and 37 species of provincial protection in the nominated area. With an area of 0.2% of the country's territory, hosts 8.5% of the countrys rare and precious and endangered plant species.

About 500 species of medicinal plants are found in the nominated area, including *Aconitum brachypodum*, *Anisodus acutangulus*, *Cordyceps sinensis*, *Ephedra likiangensis*, *Fritillaria cirrhosa*, *Gentiana crassiaulis*, *Lamiophlomis rotata*, *Meconopsis integrifolia*, *Picrorhiza scrophulariiflora*, *Polygonum paleaceum*, *Psammosilene tunicoides*, *Rheum officinale*, *Rhodiola saera*, *Saussurea eriocephala*, *Sinopodophyllum emodi* and *Thamnolia vermicularis*.

There are various types of forests in the nominated area, such as *Pinus yunnanensis* forest, *Cupressus ducloxiana* forest, evergreen broadleaved forest, *Pinus griffithii* forest, *Taiwania flouxiana* forest, *Pinus densata* forest, high mountain *Quercus* forest, *Tsuga dumosa* forest, *Picea likiangensis* forest, *Abies nukiangensis* forest, *Abies*

delavayi forest, *Larix potaninii* forest, *L. P. var. macrocarpa* forest and *Abies georgei* forest. The plentiful tree species, including more than 300 species of timber trees, makes this district one of the major natural forest protected areas of China. These forests are playing important role in improving hydrological conserve, preventing soil erosion and preserving biodiversity along Jinsha River, Lancang River and Nujiang River. There are 34 species (belong to 17 genera, and 6 families) of coniferous trees, mainly distributed at an altitude of 3000-4000m. It is one of the centers of divesity of Pine and Cypress in the world.

3.3.1.2 Plant species diversity

3.3.1.2.1 Diversity of species

There are more than 210 families, 1,200 genera and 6,000 species of higher plants in the area. It is known as the area with richest species diversity of higher plants in China and has been listed number one of 17 critical regions for biodiversity conservation in China. (China Biodiversity: A Country Study. 1998) It is also located within one of the hot spots (Himalaya) in the biodiversity conservation of the world.

Table 1 Higher plants of the nominated area

Taxa	Families	Genera	Species
Bryophyta	70	200	300
Pteridophyta	45	120	500
Gymnospermae	6	16	40
Angiospermae	120	950	5200

The fungus and lichens are widely distributed. The higher fungus commonly seen, such as *Cordyceps sinensis*, *Tricholoma matsutake* etc. are world-famous, while lichens, such as *Thamnolia vermicularis* and *Usnea longissima* can be found everywhere (Table 2).

Table 2 Common higher fungus of the nominated area

Order	Families	Species
Clavicipitales	Clavicipitaceae	<i>Cordyceps crassispora</i> <i>C. sinensis</i>
Pezizales	Morchellaceae	<i>Morchella angusticeps</i> <i>M. conica</i> <i>M. esculenta</i>
Auriculariales	Auriculariaceae	<i>Auricularia auricula</i>
Tremellales	Tremellaceae	<i>Tremella aurantialba</i> <i>T. mesenterica</i>
Aphyllphorales	Ganodermataceae Hericiaceae	<i>Ganoderma applanatum</i> <i>Hericium alpestre</i> <i>H. caput-medusae</i> <i>H. caput-ursi</i> <i>H. coralloides</i> <i>H. ramosum</i>
Agaicales	Amanitaceae Tricholomataceae	<i>Termitomyces robustus</i> <i>Tricholoma bakamatsutake</i> <i>T. matsutake</i>
Boletales	Boletaceae	<i>Aureoboletus thibetanus</i> <i>Boletus citrifragrans</i>

3.3.1.2.2 The Flora

Gramineae, Compositae, Rosaceae, Papilionaceae, Ranunculaceae, Orchidaceae, Scrophulariaceae, Umbelliferae, Ericaceae, Labiatae, Cyperaceae, Gentianaceae and Primulaceae are the larger families of this area. The species included in these 13 families reaches 3500 species, accounting for 58% of the total number of higher plants collected here.

The flora consists of 15 geographical elements. Among them, the North temperate (20.2%) element is the most abundant one in geographical elements of genus, next to it is Pan-tropical element, (14.2%), Tropical-Asian element (13.0%) and East-Asian element (13.0%). As for the

geographical elements of species, then, the most abundant is Chinese endemic (45.0%), next to it is East-Asian (25.0%) and Tropical-Asian (8.05). (Table 3)

Table 3 The geographical elements of the flora of the nominated area

Geographical elements	Number of genera	% of total number	Number of species	% of total number
I. Worldwide	84	7.0	12	0.2
II. Pan-tropical	170	14.2	30	0.5
III. Tropical-Asian and Tropical-American disjunctive distribution	24	2.0	30	0.5
IV. Old world tropical	60	5.0	24	0.4
V. Tropical-Asian and Tropical-Oceanian	48	4.0	60	1.0
VI. Tropical-Asian and Tropical-African	60	5.0	60	1.0
VII. Tropical-Asian	156	13.0	480	8.0
VIII. North-temperate	242	20.2	420	7.0
IX. East-Asian and North-American disjunctive distribution	72	6.0	12	0.2
X. Old world temperate	60	5.0	300	5.0
XI. Temperate-Asian	12	1.0	300	5.0
XII. Mediterranean, West-Asian and Central-Asian	6	0.5	12	0.2
XIII. Central-Asian	6	0.5	60	1.0
XIV. East-Asian	156	13.0	1500	25.0
1. East-Asian wide spread		(120)	(20)	
2. China-Himalayan		(1200)	(20.0)	
3. China-Japan		(180)	(3.0)	
XV. Endemic of China	45	3.7	2700	45.0
1. Chinese endemic		(2100)	(25.0)	
2. Endemic of the nominated area		(600)	(10.0)	
Total number	1200	100%	6000	100.0%

The floral endemism is particularly prominent. The nominated area is the place with most abundant endemic plants in northern hemisphere. There are 13 endemic families of East Asia: Cistaceae, Euphorbiaceae, Dipentodontaceae, Kingdoniaceae, Ginkgoaceae, Stachyuraceae,

Helwingiaceae, Toricelliaceae, Sladeniaceae, Eucommiaceae and Davidiaceae and 45 endemic genera of China (Table 4), 2700 endemic species of China. Among them, 600 species are endemic to the nominated area (Table 5).

Table 4 Endemic Genera in China from the nominated area

	Genus(Family)	Number of species	Distribution
	Pteridophyta		
1	<i>Sorolepidium</i> (Dryopteridaceae)	3	Hengduan Mountain area
	Gymnospermae		
2	<i>Taiwania</i> (Taxodiaceae)	2	Yunnan, Guizhou, Hubei, Taiwan
	<i>Ginkgo</i> (Ginkgoaceae)	2	China
	Angiospermae		
3	<i>Ancyclostemon</i> (Gesneriaceae)	10	Yunnan, Sichuan, Hubei
4	<i>Anemoclema</i> (Ranunculaceae)	1	Yunnan, Sichuan
5	<i>Antiotrema</i> (Boraginaceae)	1	Yunnan, Sichuan, Guizhou, Guangxi
6	<i>Arcuatopteris</i> (Umbelliferae)	3	Yunnan, Sichuan, Tibet
7	<i>Asteropyrum</i> (Ranunculaceae)	2	Yunnan, Sichuan, Hubei etc.
8	<i>Berneuxia</i> (Diapensiaceae)	1	Yunnan, Sichuan
9	<i>Bolbostemma</i> (Cucurbitaceae)	2	Yunnan, Northern China
10	<i>Bulleyia</i> (Orchidaceae)	1	Endemic of Yunnan
11	<i>Craspedolobium</i> (Papilionaceae)	1	Endemic of Yunnan
12	<i>Cyclorrhiza</i> (Umbelliferae)	2	Yunnan, Sichuan, Tibet
13	<i>Davidia</i> (Davidiaceae)	1	Southwest China etc.
14	<i>Davidia</i> (Davidiaceae)	1	Yunnan, Sichuan, Tibet
15	<i>Dipoma</i> (Cruciferae)	2	Yunnan, Sichuan, Tibet
16	<i>Diuranthera</i> (Liliaceae)	2	Yunna, Sichuan, Guizhou
17	<i>Dysosma</i> (Podophyllaceae)	7	Southwest China etc.
18	<i>Formania</i> (Compositae)	1	Endemic of northwestern Yunnan
19	<i>Haplosphaera</i> (Umbelliferae)	2	Yunnan, Sichuan, Tibet

	Genus(Family)	Number of species	Distribution
20	<i>Harrysmithia</i> (Umbelliferae)	2	Yunnan, Sichuan
21	<i>Hemilophia</i> (Cruciferae)	2	Yunnan, Sichuan
22	<i>Homocodon</i> (Campanulaceae)	1	Yunnan, Sichuan, Guizhou
23	<i>Kingdonia</i> (Kingdoniaceae)	1	Yunnan, Sichuan, Shanxi, Gansu
24	<i>Lomatogoniopsis</i> (Gentianaceae)	2	Yunnan, Tibet Qinghai
25	<i>Metanemone</i> (Ranunculaceae)	1	Endemic of northwestern Yunnan
26	<i>Musella</i> (Musaceae)	1	Endemic of Yunnan
27	<i>Notopterygium</i> (Umbelliferae)	4	Yunnan, Sichuan, Tibet, Qinghai, Gansu
28	<i>Nouelia</i> (Compositae)	1	Yunnan, Sichuan
29	<i>Ostryopsis</i> (Corylaceae)	2	Yunnan, Sichuan, Northern China
30	<i>Paragutzlaffia</i> (Acanthaceae)	2	Yunnan, Sichuan, Guizhou, Hubei
31	<i>Parakmeria</i> (Magnoliaceae)	5	Yunnan, Tibet etc.
32	<i>Psammosilene</i> (Caryophyllaceae)	1	Yunnan, Tibet Guizhou
33	<i>Pterygiella</i> (Scrophulariaceae)	4	Yunnan, Sichuan, Guizhou, Guangxi
34	<i>Rhabdothamnopsis</i> (Gesneriaceae)	1	Yunnan, Sichuan, Guizhou
35	<i>Sinocarum</i> (Umbelliferae)	7	Yunnan, Sichuan, Tibet
36	<i>Sinolimprichtia</i> (Umbelliferae)	1	Yunnan, Sichuan, Tibet, Qinghai
37	<i>Skapanthus</i> (Labiatae)	1	Yunnan, Sichuan
38	<i>Smithorchis</i> (Orchidaceae)	1	Yunnan, Sichuan
39	<i>Spenceria</i> (Rosaceae)	1	Endemic of northwestern Yunnan
40	<i>Tibetia</i> (Papilionaceae)	7	Yunnan, Sichuan, Tibet
41	<i>Trailliaedoxa</i> (Rubiaceae)	1	Yunnan, Sichuan, Gansu, Qinghai
42	<i>Tremacron</i> (Gesneriaceae)	4	Yunnan, Sichuan
43	<i>Xanthopappus</i> (Compositae)	1	Yunnan, Sichuan, Gansu, Qinghai
44	<i>Yinshania</i> (Cruciferae)	8	Yunna, Sichuan, Tibet etc.

Table 5 Common endemic species in China from the nominated area

	Name of Species	Distribution
	Pteridophyta	
1	<i>Angiopteris esculenta</i> (angiopteridaceae)	Endemic of the nominated area
2	<i>Phlegmariurus yunnanensis</i> (Huperziaceae)	Endemic of the nominated area
3	<i>Phymatopteris chrysotricha</i> (Polypodiaceae)	Endemic of the nominated area
4	<i>sorolepidium glaciale</i> (Dryopteridaceae)	Endemic of the nominated area
	Gymnospermae	
5	<i>Abies ferrea</i> (Pinaceae)	Endemic of the nominated area
6	<i>Abies ernestii</i> (Pinaceae)	Endemic of the nominated area
7	<i>Abies georgei</i> (Pinaceae)	Endemic of the nominated area
8	<i>Abies nukiangensis</i> (Pinaceae)	Endemic of the nominated area
9	<i>Larix potaninii</i> var. <i>macrocarpa</i> (Pinaceae)	Yunnan, Sichuan, Tibet
10	<i>Picea likiangensis</i> (Pinaceae)	Yunnan, Sichuan
11	<i>Pinus densata</i> (Pinaceae)	Yunnan, Sichuan, Tibet
12	<i>Pseudotsuga forrestii</i> (Pinaceae)	Yunnan, Sichuan, Tibet
13	<i>Sabina pingii</i> (Cupressaceae)	Yunnan, Sichuan
14	<i>Sbina saltuaria</i> (Cupressaceae)	Yunnan, Sichuan, Tibet etc.
15	<i>Torreya yunnancensis</i> (Taxaceae)	Endemic of the nominated area
16	<i>Tsuga forrestii</i> (Pinaceae)	Yunnan, Sichuan
	Angiospermae	
17	<i>Aeschynanthus lasianthus</i>	Endemic of the nominated area
18	<i>Betula gynoterminalis</i>	Endemic of the nominated area
19	<i>Codolopsis cordifolioides</i>	Endemic of the nominated area
20	<i>Codolopsis gombalana</i>	Endemic of the nominated area
21	<i>Corylopsis glancescens</i>	Endemic of the nominated area
22	<i>Corylus chinensis</i>	Yunnan, Sichuan
23	<i>Corylus wangii</i>	Endemic of the nominated area
24	<i>Davidia involucrata</i> var. <i>vilmoriniana</i>	Endemic of China

	Name of Species	Distribution
25	<i>Euonymus fugongensis</i>	Endemic of the nominated area
26	<i>Euonymus gongshanensis</i>	Endemic of the nominated area
27	<i>Eurya chuekinagensis</i>	Yunnan, Tibet
28	<i>Gentiana asparagoides</i>	Endemic of the nominated area
29	<i>Gentiana forrestii</i>	Endemic of the nominated area
30	<i>Hippophae rhamnoides</i> ssp. <i>yunnanensis</i>	Yunnan, Sichuan, Tibet
31	<i>Impatiens lecomtei</i>	Endemic of the nominated area
32	<i>Impatiens microcentra</i>	Endemic of the nominated area
33	<i>Lilium henricii</i>	Endemic of the nominated area
34	<i>Lysionotus sessilifolius</i>	Endemic of the nominated area
35	<i>Machilus gongshanensis</i>	Endemic of the nominated area
36	<i>Manglietia kungshanensis</i>	Endemic of the nominated area
37	<i>Monocladus macrophyllus</i>	Endemic of the nominated area
38	<i>Mussaenda gongshanensis</i>	Endemic of the nominated area
39	<i>Myricaria laxa</i>	Endemic of the nominated area
40	<i>Pedicularis lamiooides</i>	Endemic of the nominated area
41	<i>Pedicularis yui</i>	Endemic of the nominated area
42	<i>Polgonum unbrosom</i>	Endemic of the nominated area
43	<i>Quercus aquifolioides</i>	Yunna, Sichuan
44	<i>Rhododendron albertsenianum</i>	Endemic of the nominated area
45	<i>Rhododendron bijiangense</i>	Endemic of the nominated area
46	<i>Rhododendron cilipes</i>	Endemic of the nominated area
47	<i>Rhododendron codonanthum</i>	Endemic of the nominated area
48	<i>Rhododendron flaviflorum</i>	Endemic of the nominated area
49	<i>Rhododendron gongshanense</i>	Endemic of the nominated area
50	<i>Rhododendron leptopeplum</i>	Endemic of the nominated area
51	<i>Rhododenron nakotiltum</i>	Endemic of the nominated area

	Name of Species	Distribution
52	<i>Rhododendron protistum</i>	Endemic of the nominated area
53	<i>Rhododendron protistum</i> var. <i>giganteum</i>	Endemic of the nominated area
54	<i>Rhododendron rhombifolium</i>	Endemic of the nominated area
55	<i>Rhododendron rothschildii</i>	Endemic of the nominated area
56	<i>Rhododendron rude</i>	Endemic of the nominated area
57	<i>Rhododendron sinonuttallii</i>	Endemic of the nominated area
58	<i>Saussurea prericidifolia</i>	Endemic of the nominated area
59	<i>Schefflera tenuis</i>	Endemic of the nominated area
60	<i>Tilia chinensis</i>	Endemic of China

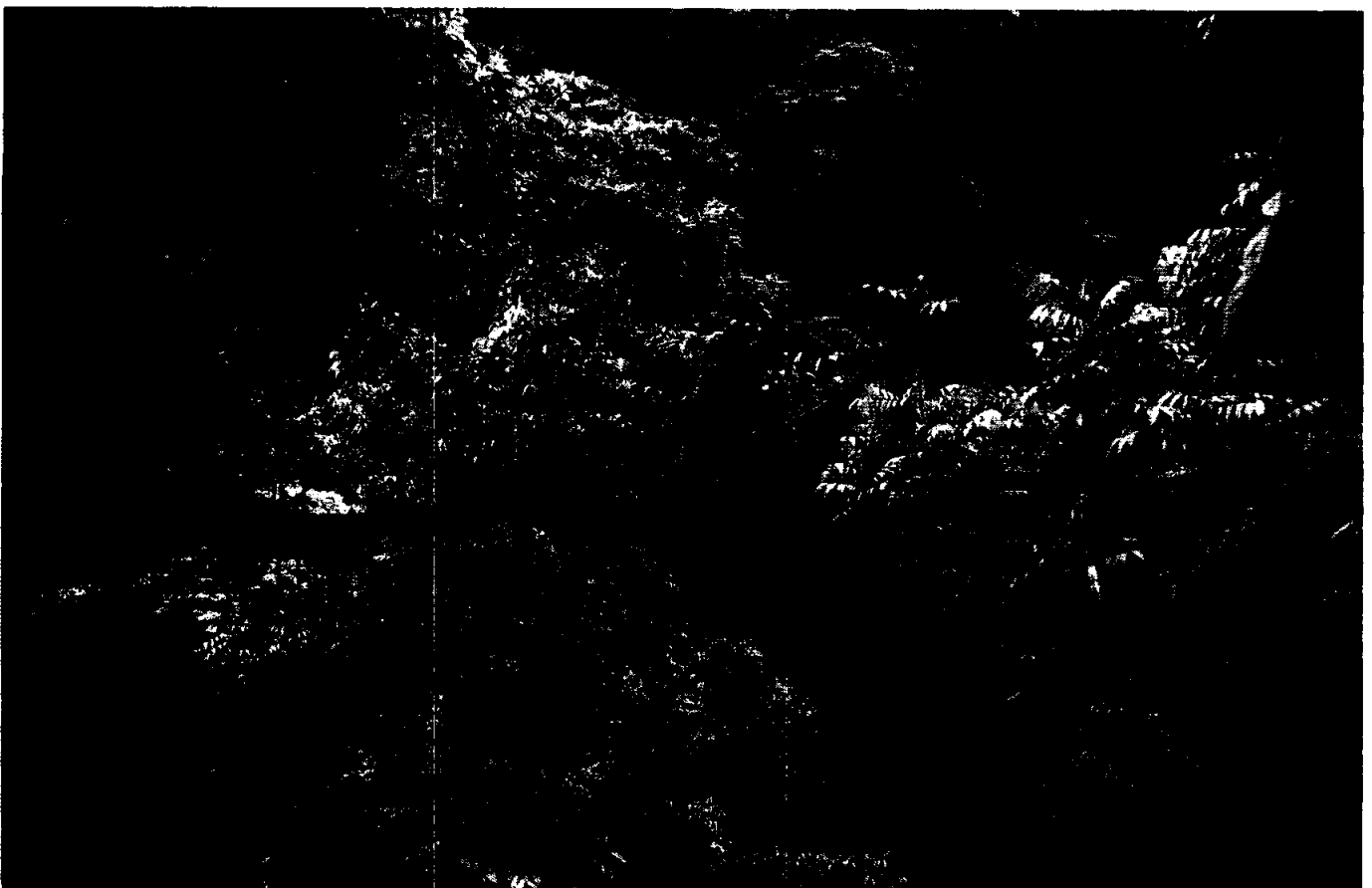


photo-40 *Pterocarya delavayi*



photo-41 *Abies forrestii*

The flora in the nominated area is closely related to that of East Himalaya, and more than 20% of the species are in common. But the plant categories of this region are richer, and the origin of flora in more ancient and endemic taxa are more plentiful than that of the latter. A lot of ancient and relict species, such as *Taiwania flousiana*, *Kingdonia uniflora*, *Nouelia insignis* and others can still be found here now. Along with the rising of Himalaya mountain, some neoendemic species, such as *Musella lasiocarpa*, *Tibetica himalaica* and *Metanemone ranunculoides* have been differentiated. The floral elements, both recent and ancient elements in the same region, could not be compared by the East Himalaya.

3.3.1.2.3 Locality of plant type specimen

The plant diversity of the nominated area has attracted attentions from botanists around the world for a long time. Since 1883 when Delavay, a French Catholic missionary entered this area, a large number of world-famous botanists such as George Forrest of Britain's Edinburgh Royal Botanical Garden, H. Handel-Mazzetti of Austria's Vienna Museum of Natural History, and G. H. Rock, E. E. Maire Ducloux, Bodinier and C. Schneider from America came to this area and collected about 1,500 species of type specimen. Thus made the nominated area the world-famous locality of plant type specimens (Table 6).

Table 6. Representative plants of type specimen collected in the nominated area

	Species	Locality
1	<i>Abelia forrestii</i> (Caprifoliaceae)	Zhongdian
2	<i>Abies georgei</i> (Pinaceae)	Lanping
3	<i>Acer forrestii</i> (Aceraceae)	Lijiang
4	<i>Aconitum forrestii</i> (Ranunculaceae)	Lijiang
5	<i>Adenophora forrestii</i> (Campanulaceae)	Lijiang
6	<i>Ajuga forrestii</i> (Labiatae)	Lijiang
7	<i>Allium forrestii</i> (Alliaceae)	Lijiang
8	<i>Amitostigma forrestii</i> (Orchidaceae)	Deqin
9	<i>Androsace forrestiana</i> (Primulaceae)	Deqin
10	<i>Androsace gagnepainiana</i> (Primulaceae)	Gongshan
11	<i>Arenaria forrestii</i> (Caryophyllaceae)	Lijiang
12	<i>Angelica onosepala</i> (Umbelliferae)	Gongshan
13	<i>Cardiocrinum giganteum</i> var. <i>yunnanense</i> (Liliaceae)	Gongshan

	Species	Locality
14	<i>Chrysosplenium forrestii</i> (Saxifragaceae)	Deqin
15	<i>Craibiodendron forrestii</i> (Ericaceae)	Lushui
16	<i>Cremanthodium forrestii</i> (Compositae)	Gongshan
17	<i>Cymbidium goeringii</i> (Orchidaceae)	Weixi
18	<i>Delphinium chrysotrichum</i> var. <i>tsarongense</i> (Ranunculaceae)	Deqin
19	<i>Dracocephalum forrestii</i> (Labiatae)	Zhongdian
20	<i>Epilobium squamosum</i> (Onagraceae)	Lushui
21	<i>Galium salwinense</i> (Rubiaceae)	Gongshan
22	<i>Gaultheria hypochlora</i> (Ericaceae)	Weixi
23	<i>Gentiana grata</i> (Gentianaceae)	Gongshan
24	<i>Gentiana handeliana</i> (Gentianaceae)	Deqin
25	<i>Geranium kariense</i> (Geraniaceae)	Weixi
26	<i>Habenaria alpina</i> (Orchidaceae)	Biluoexueshan
27	<i>Hemerocalis forrestii</i> (Liliaceae)	Lijiang
28	<i>Ilex rockii</i> (Aquifoliaceae)	Gongshan
29	<i>Impatiens chimiliensis</i> (Balsaminaceae)	Gongshan
30	<i>Iris subdichotoma</i> (Iridaceae)	Zhongdian
31	<i>Lecanthus petelotii</i> var. <i>yunnanensis</i> (Urticaceae)	Gongshan
32	<i>Leontopodium forrestianum</i> (compositae)	Gongshan
33	<i>Luculia yunnanensis</i> (Rubiaceae)	Fugong
34	<i>Listera bambusetorum</i> (Orchidaceae)	Gongshan
35	<i>Listera yuana</i> (Orchidaceae)	Gongshan
36	<i>Litsea gongshanensis</i> (Lauraceae)	Gongshan
37	<i>Lysionotus forrestii</i> (Gesneriaceae)	Gongshan
38	<i>Meconopsis forrestii</i> (Papaveraceae)	Lijiang
39	<i>Meconopsis georgei</i> (Papaveraceae)	Weixi

	Species	Locality
40	<i>Meconopsis impedita</i> (Papaveraceae)	Weixi
41	<i>Meconopsis smithiana</i> (Papaveraceae)	Gongshan
42	<i>Meliosma thomsonii</i> (Sabiaceae)	Gongshan
43	<i>Oreocharis forrestii</i> (Gesneriaceae)	Lijiang
44	<i>Pedicularis atuntsiensei</i> (Scrophulariaceae)	Deqin
45	<i>Pedicularis kariensis</i> (Scrophulariaceae)	Weixi
46	<i>Pedicularis likiangensis</i> (Scrophulariaceae)	Lijiang
47	<i>Pedicularis tsaii</i> (Scrophulariaceae)	Biluoxueshan
48	<i>Pedicularis yui</i> (Scrophulariaceae)	Gongshan
49	<i>Primula silaensis</i> (Primulaceae)	Gongshan
50	<i>Pseudotsuga forrestii</i> (Pinaceae)	Lijiang
51	<i>Rhamuella forrestii</i> (Rhamnaceae)	Zhongdian
52	<i>Rheum yunnanense</i> (Polygonaceae)	Weixi
53	<i>Rhododendron albertsenianum</i> (Ericaceae)	Weixi
54	<i>Rhododendron alutaceum</i> (Ericaceae)	Weixi
55	<i>Rhododendron bijiangense</i> (Ericaceae)	Lushui
56	<i>Rhododendron calvescens</i> (Ericaceae)	Deqin
57	<i>Rhododendron chaetomallum</i> (Ericaceae)	Deqin
58	<i>Rhododendron citriniflorum</i> (Ericaceae)	Deqin
59	<i>Rhododendron clementinae</i> (Ericaceae)	Zhongdian
60	<i>Rhododendron complexum</i> (Ericaceae)	Zhongdian
61	<i>Rhododendron crinigerum</i> (Ericaceae)	Deqin
62	<i>Rhododendron dasypetalum</i> (Ericaceae)	Lidiping of Weixi
63	<i>Rhododendron erastum</i> (Ericaceae)	Deqin
64	<i>Rhododendron erythrocalyx</i> (Ericaceae)	Baimang Snow Mountain of Deqin
65	<i>Rhododendron esetulosum</i> (Ericaceae)	Zhongdian

	Species	Locality
66	<i>Rhododendron eudoxum</i> (Ericaceae)	Deqin
67	<i>Rhododendron floccigerum</i> (Ericaceae)	Yongzhi of Deqin
68	<i>Rhododendron forrestii</i> (Ericaceae)	Deqin
69	<i>Rhododendron glischrum</i> (Ericaceae)	Weixi
70	<i>Rhododendron gongshanense</i> (Ericaceae)	Gongshan
71	<i>Rhododendron lukiangense</i> (Ericaceae)	Deqin
72	<i>Rhododendron mallotum</i> (Ericaceae)	Lushui
73	<i>Rhododendron martinianum</i> (Ericaceae)	Deqin
74	<i>Rhododendron megeratum</i> (Ericaceae)	Yezhi of Weixi
75	<i>Rhododendron nakotiltum</i> (Ericaceae)	Deqin
76	<i>Rhododendron phaeochrysum</i> (Ericaceae)	Zhongdian
77	<i>Rhododendron praestans</i> (Ericaceae)	Weixi
78	<i>Rhododendron proteoides</i> (Ericaceae)	Deqin
79	<i>Rhododendron protistum</i> (Ericaceae)	Gongshan
80	<i>Rhododendron rude</i> (Ericaceae)	Gongshan
81	<i>Rhododendron russatum</i> (Ericaceae)	Lijiang
82	<i>Rhododendron sanguineum</i> (Ericaceae)	Deqin
83	<i>Rhododendron selense</i> (Ericaceae)	Deqin
84	<i>Rhododendron setiferum</i> (Ericaceae)	Deqin
85	<i>Rhododendron sinonuttallii</i> (Ericaceae)	Gongshan
86	<i>Rhododendron sperabiloides</i> (Ericaceae)	Gongshan
87	<i>Rhododendron tapetiforme</i> (Ericaceae)	Gongshan
88	<i>Rhododendron telmateium</i> (Ericaceae)	Zhongdian
89	<i>Rhododendron wardii</i> (Ericaceae)	Deqin
90	<i>Rubus forrestiana</i> (Rosaceae)	Gongshan
91	<i>Scutellaria forrestii</i> (Labiatae)	Lijiang
92	<i>Sloanea mollis</i> (Elaeocarpaceae)	Gongshan
93	<i>Tsuga forrestii</i> (Pinaceae)	Lijiang



photo-42
Corylopsis glaucescens



photo-44 *Larix speciosa*



photo-43 *Decaisnea fargesii*

3.3.1.2.4 Rare and endangered plants

3.3.1.2.4.1 Species

According to China's List of Rare and Endangered Plants under national Protection, Vol. I (1987), Red Book of China's Rare and Endangered Plants, Vol. I (1992) and List of First Batch of Wild Plants under Yunnan Provincial-level Protection (1989), the nominated area has 33 species of plants under national-level protection and 37 species of plants under Yunnan provincial-level protection. (Table 8 and 9)

Table 8 Plants under national protection found in the nominated area

	Name of plant	Category	Class	Distribution
1	<i>Abies georgei</i>	Threatened	3	Zhongdian, Weixi, Lijiang
2	<i>Aconitum brachypodum</i>	Threatened	3	Zhongdian, Lijiang
3	<i>Alcimandra cathcartii</i>	Threatened	2	Gongshan, Fugong
4	<i>Alsophila spinulosa</i>	Threatened	1	Gongshan
5	<i>Caryota urens</i>	Threatened	2	Gongshan
6	<i>Cephalotaxus lanceolata</i>	Rhreatened	2	Gongshan
7	<i>Circaeaster agrestis</i>	Rare	2	Gongshan, Deqin, Zhongdian, Lijiang
8	<i>Coptis teeta</i>	Threatened	2	Gongshan, Fugong, Lushui
9	<i>Corylus chinensis</i>	Threatened	3	Gongshan, Weixi, Deqin, Zhongdian, Lijiang
10	<i>Davidia involucrata</i> var. <i>vilmoriniana</i>	Rare	2	Gongshan, Weixi
11	<i>Dipentodon sinicus</i>	Rare	2	Gongshan, Lushui, Weixi, Deqin
12	<i>Euptelea pleiospermum</i>	Rare	3	Gongshan, Weixi, Zhongdian, Lijiang
13	<i>Kingdonia uniflora</i>	Rare	2	Deqin
14	<i>Magnolia rostrata</i>	Threatened	3	Gongshan, Fugong, Lushui
15	<i>Manglietia insignis</i>	Threatened	3	Gongshan, Lushui
16	<i>Neocheiropteris palmatopedata</i>	Threatened	3	Lijiang
17	<i>Neopicrorhiza scrophulariiflora</i>	Threatened	3	Gongshan, Weixi, Deqin
18	<i>Nouelia insignis</i>	Rare	2	Zhongdian, Lijiang, Lushui
19	<i>Ottelia acuminata</i>	Threatened	3	Lijiang
20	<i>Paeonia delavayi</i> var. <i>lutea</i>	Threatened	3	Zhongdian, Weixi, Deqin, Lijiang
21	<i>Psammosilene tunicoides</i>	Rare	2	Deqin, Weixi, Zhongdian, Lijiang

	Name of plant	Category	Class	Distribution
22	<i>Pseudotsuga forrestii</i>	Threatened	2	Deqin, Weixi, Zhongdian, Lijiang
23	<i>Rhododendron fictolacteam</i>	Threatened	3	Deqin, Weixi, Lanping, Lijiang
24	<i>Rhododendron sulphureum</i>	Threatened	3	Gongshan
25	<i>Rosa odorata</i>	Rare	3	Lijiang
26	<i>Sinopodophyllum emodi</i>	Rare	3	Zhongdian, Deqin
27	<i>Sorolepidium glaciale</i>	Threatened	2	Zhongdian, Deqin, Lijiang
28	<i>Taiwania flousiana</i>	Rare	1	Gongshan, Fugong, Lushui, Lanping
29	<i>Tetracentra sinense</i>	Rare	2	Gongshan, Fugong, Lushui, Zhongdian, Weixi, Lijiang
30	<i>Torreya yunnanensis</i>	Threatened	3	Gongshan, Lanping, Weixi, Zhongdian, Lijiang
31	<i>Trachycarpus nana</i>	Threatened	2	Gongshan
32	<i>Trillium tschonoskii</i>	Threatened	3	Gongshan, Deqin, Weixi, Lijiang
33	<i>Tsuga forrestii</i>	Threatened	3	Lijiang, Weixi, Gongshan
34	<i>Ginkgo biloba</i>	Rare	2	Tacheng of Weixi



photo-45 *Ginkgo biloba*

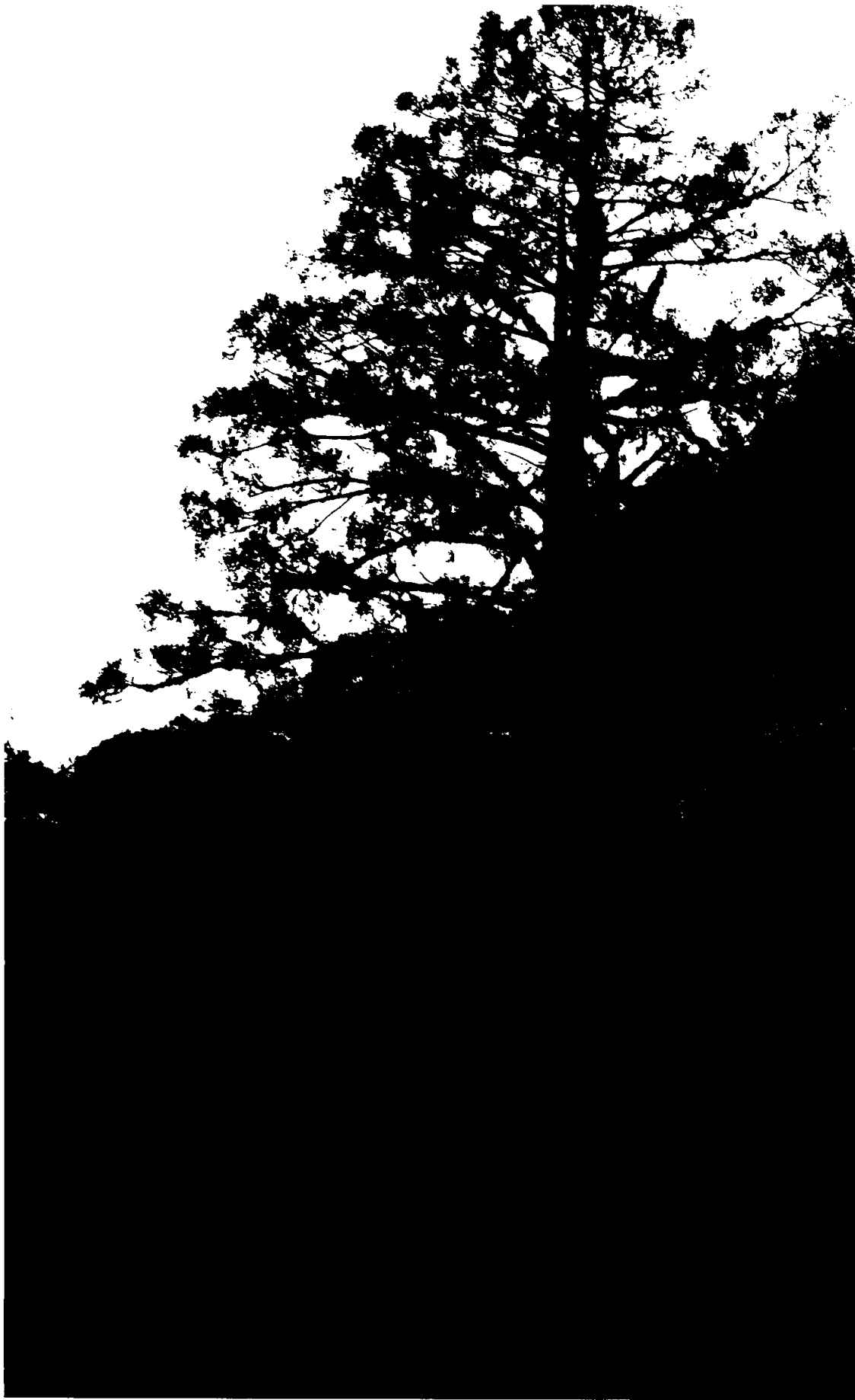


photo-46 *Taiwania flousiana*



photo-47 *Magnolia rostrata*



photo-48 *Nouelia insignis*

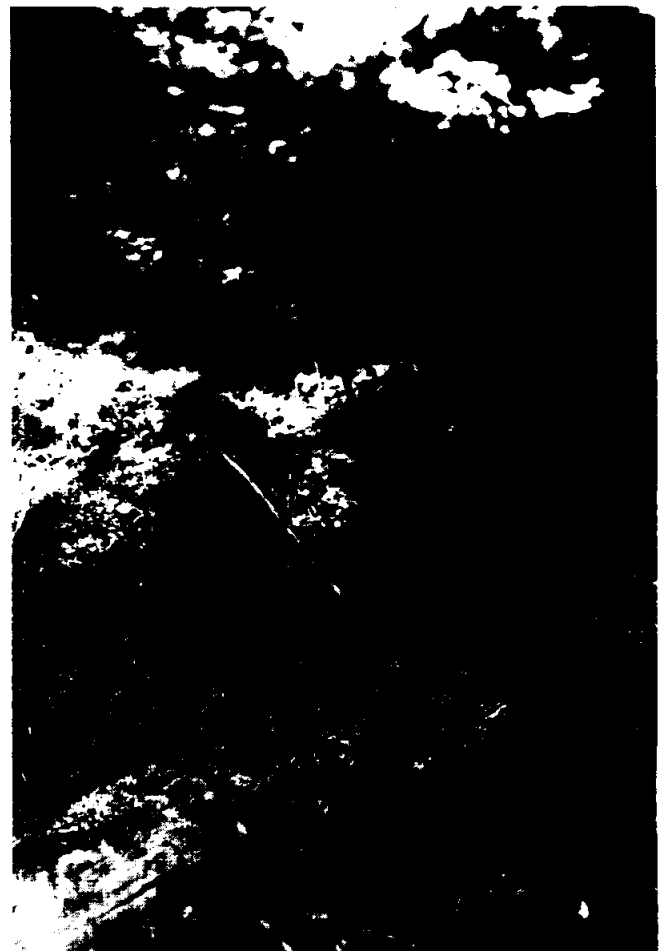


photo-49 *Sinopodophyllum hexandrum*



photo-50 *Davidia involucrate* Var. *Vilmoriana*

Table 9 Plants under Yunnan provincial-level protection found in the nominated area

	Name of plants	Class	Distribution
1	<i>Anisodus acutangulus</i>	3	Deqin, Zhongdian, Lijiang
2	<i>Aristolochia delavayi</i>	2	Zhongdian, Lijiang
3	<i>Aspidopterys henryi</i>	3	Fugong
4	<i>Bernuxia thibetica</i>	3	Zhongdian, Lijiang
5	<i>Chimonoalamus montanus</i>	3	Gongshan, Lushui
6	<i>Cymbidium lianpan</i>	1	Gongshan, Weixi
7	<i>Elaeocarpus boredi-yunnanensis</i>	3	Gongshan, Fugong
8	<i>Eriophyton wallichii</i>	3	Deqin, Lijiang
9	<i>Eriosolena composita</i>	3	Lushui
10	<i>Glycyrrhiza yunnanensis</i>	3	Lijiang

	Name of plants	Class	Distribution
11	<i>Hemsleya lijiangensis</i>	3	zhongdian, Lijiang
12	<i>Huodendron tibeticum</i>	3	Gongshan, Fugong
13	<i>Kadsura interion</i>	2	Gongshan
14	<i>Litsea taronensis</i>	2	Gongshan
15	<i>Magnolia shangpaensis</i>	3	Fugong
16	<i>Mahonia salweensis</i>	3	Gongshan
17	<i>Mandragora caulescens</i> ssp. <i>purpurascens</i>	3	Zhongdian, Weixi
18	<i>Manglietia kungshanensis</i>	3	Gogshan
19	<i>Manglietia yunnanensis</i>	2	Fugong
20	<i>Megacarpaea delavayi</i>	3	Zhongdian, Lijiang
21	<i>Merrillioanax chinensis</i>	2	Gongshan
22	<i>Metanemone ranunculoides</i>	2	Weixi, Zhongdian
23	<i>Millettia pachycarpa</i>	2	Gongshan
24	<i>Neocinnamomum mekongense</i>	3	Weixi
25	<i>Notholirion campanulatum</i>	2	Gongshan
26	<i>Paraquilegia microphylla</i>	3	Gongshan, Deqin, Zhongdian
27	<i>Pinus griffithii</i>	3	Gongshan, Lushui
28	<i>Pterocarya delavayi</i>	3	Gongshan, Weixi, Lijiang
29	<i>Rehderodendron microcarpum</i>	2	Gongshan
30	<i>Saussurea eriocephala</i>	2	Lushui, Deqin, Zhongdian, Lijiang
31	<i>Schizophragma crassum</i>	3	Gongshan
32	<i>S. hsitaoianum</i>	3	Weixi
33	<i>Sloanea rotundifolia</i>	3	Gongshan
34	<i>Symphoricarpos sinensis</i>	3	Lanping
35	<i>Taxus yunnanensis</i>	2	Gongshan, Deqin, Weixi, Zhongdian, Lijiang
36	<i>Triosteum himalayanum</i>	3	Weixi, Zhongdian, Lijiang
37	<i>Ypsilandra yunnanensis</i>	3	Gongshan, Fugong, Deqin

Among the rare and endangered plants under protection, *Alsophila spinulosa*, *Neocheiropteris palmatopedata*, *Pseudotsuga forrestii*, *Taiwania flousiana*, *Ginkgo biloba*, *Taxus yunnanensis*, *Tetracentra sinense*, *Euptelea pleiospermum* and *Davidia involucrata* var. *vilmoriniana* are the relic plants from the Quaternary glaciation. (Table 10)

Table 10 Relic plants found in the nominated area

	Name of plant	Distribution
1	<i>Abies georgei</i>	Zhongdian, Weixi, Lijiang
2	<i>Alsophila spinulosa</i>	Gongshan
3	<i>Cephalotaxus lanceolata</i>	Gongshan
4	<i>Circaeaster agrestis</i>	Gongshan, Deqin, Zhongdian, Lijiang
5	<i>Davidia involucrata</i> var. <i>vilmoriniana</i>	Gongshan, Weixi
6	<i>Dipentodon sinicus</i>	Gongshan, Lushui, Weixi, Deqin
7	<i>Euptelea pleiospermum</i>	Gongshan, Weixi, Xhongdian, Lijiang
8	<i>Kingdonia umiflora</i>	Deqin
9	<i>Magnolia rostrata</i>	Gongshan, Fugong, Lushui
10	<i>Manglietia insignis</i>	Gongshan, Lushui
11	<i>Neocheiropteris palmatopedata</i>	Lijiang
12	<i>Nouelia insignis</i>	Zhongdian, Lijiang, Lushui
13	<i>Paeonia delavayi</i> var. <i>lutea</i>	Zhongdian, Weixi, Deqin, Lijiang
14	<i>Pseudotsuga forrestii</i>	Deqin, Weixi, Zhongdian, Lijiang
15	<i>Taiwania flousiana</i>	Gongshan, Fugong, Lushui, Lanping
16	<i>Taxus yunnanensis</i>	Gongshan, Deqin, Weixi, Zhongdian, Lijiang
17	<i>Tetracentra sinense</i>	Gongshan, Fugong, Lushui, Zhongdian, Weixi, Lijiang
18	<i>Torreya yunnanensis</i>	Gongshan, Lanping, Weixi, Zhongdian, Lijiang
19	<i>Tsuga forrestii</i>	Gongshan, Weixi, Lijiang
20	<i>Ginkgo biloba</i>	Weixi



photo-51 *Taxus yunnanensis*

3.3.1.2.4.2 Eco-geographical distribution

Most of the rare and endangered plants are distributed in the evergreen broadleaved forests, coniferous and broadleaved mixed forests. At the same time, in warm coniferous forests (*Pinus yunnanensis* forests) and other secondary vegetations, the rare and endangered plants are obviously much fewer. (Table 11)

Table 11 Eco-geographical distribution of rare and endangered plants in the nominated area

Type of vegetation	Rare and endangered plant	Habitat and elevation
I. Evergreen broadleaved forests	<i>Alcimandra cathcartii</i>	In forests of altitude 1500-2400m
	<i>Alsophila spinulosa</i>	On edge of forests, 1200-1800m
	<i>Caryota urens</i>	In forests, 1200-1400m
	<i>Cephalotaxus lanceolata</i>	In forests, 1000-1400m
	<i>Dipentodon sinicus</i>	In forests, 1500-2000m
	<i>Euptelea pleiospermum</i>	In forests, 1500-2000m
	<i>Magnolia rostrata</i>	In forests, 2000-2800m
	<i>Manglietia insignis</i>	In forests, 1200-2000m
	<i>Neocheiropteris palmatopedata</i>	Under forest crown, 1800-2500m
	<i>Taiwania flousiana</i>	In forests, 1500-2100m
	<i>Trachycarpus nana</i>	On rocky cliffs at the edge of forests, 1800-2200m
II. Sclerophyllous evergreen broadleaved forests	<i>Paeonia delavayi</i> var. <i>lutea</i>	Under forest crown, 2000-3500m
III. Deciduous broadleaved forests (coniferous and broadleaved mixed stands)	<i>Coptis teeta</i>	Under forest crown, 2500-3000m
	<i>Corylus chinensis</i>	In forests, 2800-3300m
	<i>Circaeaster agrestis</i>	Under forest crown, 3000-4000m
	<i>Davidia involucrata</i> var. <i>vilmoriniana</i>	In forests, 2600-3000m
	<i>Kingdonia uniflora</i>	Under forest crown, 2800-3300m
	<i>Pseudotsuga forrestii</i>	In forests, 2600-3200m
	<i>Sinopodophyllum emodi</i>	Under forest crown, 2800-3500m
	<i>Tetracentra sinense</i>	In forests, 2600-3000m
	<i>Torreya yunnanensis</i>	In forests, 2600-3000m
	<i>Tsuga forrestii</i>	In forests, 2600-3000m

IV. Warm coniferous forests		
V. Temperate coniferous forests	<i>Abies georgei</i>	In forests, 2500-4000m
	<i>Rhododendron fictolacteum</i>	In forests, 3500-4000m
	<i>Rhododendron sulphureum</i>	In forests, 3500-4000m
	<i>Trillium tschonoskii</i>	In forest, 3000-3900m
VI. Scrub savanna	<i>Nouelia insignis</i>	scrub savanna, 1800-2000m
	<i>Rosa odorata</i>	scrub savanna, 1800-2000m
VII. Scrub lands	<i>Paeonia delavayi</i> var. <i>lutea</i>	In sub-alpine scrubland
	<i>Psammosilene tunicoides</i>	In sub-alpine scrubland
VIII. Alpine meadows	<i>Aconitum brachypodum</i>	Alpine meadow
	<i>Neopicrorhiza scrophulariiflora</i>	Alpine meadow
IX. alpine debris flow	<i>Scorolepidium glaciale</i>	In rocky cracks, 4500-5000m
X. Lacustrine hydrophytic vegetation on plateau	<i>Ottelia acuminata</i>	In water, 1800-2500m



photo-52 *Tetracentra sinense*



photo-53 *Caltha palustris*

3.3.1.2.5 Alpine flowers

Various outstanding wild flowers, including Rhododendron, Primula, Gentiana, Meconopsis, Pedicularis, Iris, liliium and orchids concentrate here. for example, the Rhododendron, known as the king of woody flowers, there are 800 species of Rhododendron in the world, China has 470 species, the nominated area has more than 200 species. So, this area may be the center of its origin and the center of its geographical distribution. The

Pimulaceae has 800 species in the whole world, China has 300 species of them and, more than 100 species occur in the nominated area. The flowers of Gentianaceae has about 100 species in this area, constitutes 1/3 of China's total, 1/8 of the total of the world, the nominated area is also the modern geographical distribution center of Pedicularis and Meconopsis (Table 12)

Table 12 Main alpine flowers in the nominated area

	Name of Species	Distribution
1	<i>Rhododendron delavayi</i> (Ericaceae)	Southwestern China, Burma
2	<i>Rhododendron fastigiatum</i> (Ericaceae)	Endemic of Yunnan
3	<i>Rhododendron glischrum</i> (Ericaceae)	Yunnan, Tibet and Northern Burma
4	<i>Rhododendron hippophaeoides</i> (Ericaceae)	Yunnan, Sichuan
5	<i>Rhododendron lacteum</i> (Ericaceae)	Endemic of Yunnan
6	<i>Rhododendron litiense</i> (Ericaceae)	Endemic of the nominated area
7	<i>rhododendron neriiflorum</i> (Ericaceae)	Endemic of Yunnan
8	<i>Rhododendron phaeochrysum</i> (Ericaceae)	Yunnan, Sichuan, Tibet
9	<i>Rhododendron primulaeflorum</i> (Ericaceae)	Yunnan, Sichuan, Tibet
10	<i>Rhododendron roxieanum</i> (Ericaceae)	Yunnan, Sichuan, Tibet
11	<i>Rhododendron rupicola</i> (Ericaceae)	Yunnan, Sichuan, Tibet
12	<i>Rhododendron russatum</i> (Ericaceae)	Endemic of Yunnan
13	<i>Rhododendron sinonuttallii</i> (Ericaceae)	Yunnan, Tibet
14	<i>Rhododendron sulfureum</i> (Ericaceae)	Endemic of Yunnan
15	<i>Rhododendron wardii</i> (Ericaceae)	Yunnan, Sichuan, Tibet
16	<i>Rhododendron uvarlifolium</i> (Ericaceae)	Yunnan, Tibet
17	<i>Rhododendron xanthostephanum</i> (Ericaceae)	Yunnan, Tibet, Northern Burma
18	<i>Androsace delavayi</i> (Primulaceae)	Yunnan, Sichuan
19	<i>Androsace zambalensis</i> (Primulaceae)	Yunnan, Sichuan, Tibet, Qinghai
20	<i>Primula calliantha</i> (Primulaceae)	Yunnan, tibet, Northern Burma
21	<i>Primula chionantha</i> (Primulaceae)	Endemic of the nominated area
22	<i>Primula cernua</i> (Primulaceae)	Yunna, Sichuan
23	<i>Primula deflexa</i> (Primulaceae)	Yunna, Sichuan, Tibet
24	<i>Primula dryadifolia</i> (Primulaceae)	Yunnan, Sichuan, Tibet
25	<i>Primula forrestii</i> (Primulaceae)	Endemic of the nominated area
26	<i>Primula poissonii</i> (Primulaceae)	Yunnan, Sichuan
27	<i>Primula secundiflora</i> (Primulaceae)	Yunnan, Sichuan, Tibet, Gansu, Qinghai
28	<i>Primula sikkimensis</i> (Primulaceae)	Yunnan, Sichuan, Himalaya

	Name of Species	Distribution
29	<i>Gentiana ampla</i> (Gentianaceae)	Yunna, Sichuan
30	<i>Gentiana asterocalyx</i> (Gentianaceae)	Endemic of the nominated area
31	<i>Gentiana delavayi</i> (Gentianaceae)	Yunna, Sichuan
32	<i>Gentiana helophila</i> (Gentianaceae)	Endemic of the nominated area
33	<i>Gentiana szechenyii</i> (Gentianaceae)	Yunnan, Sichuan, Tibet, Qinghai
34	<i>Gentiana wardii</i> (Gentianaceae)	Yunna, Tibet
35	<i>Gentiana yunnanensis</i> (Gentianaceae)	Yunnan, Tibet, Sichuan, Guizhou
36	<i>Pedicularis sigmoidea</i> (Scrophulariaceae)	Endemic of the nominated area
37	<i>Pedicularis superba</i> (Scrophulariaceae)	Yunnan, Sichuan
38	<i>Pedicularis tricolor</i> (Scrophulariaceae)	Endemic of of the nominated area
39	<i>Chionocharis hookeri</i> (Boraginaceae)	Yunnan, Sichuan, Tibet, Sikkim
40	<i>Incarvillea zhongdianensis</i> (Bignoniaceae)	Endemic of of the nominated area
41	<i>Lilium taliense</i> (Liliaceae)	Yunnan, Sichuan
42	<i>Nomocharis pardanthiana</i> (Liliaceae)	Endemic of of the nominated area
43	<i>Notholirion campanulatum</i> (Liliaceae)	Yunnan, Sichuan, Tibet
44	<i>Iris bulleyana</i> (Iridaceae)	Yunnan, Sichuan, Tibet
45	<i>Iris bulleyana</i> (Iridaceae)	Yunnan, Sichuan, Tibet
46	<i>Calanthe tricarinata</i> (Orchidaceae)	Southwestern China etc.
47	<i>Cypripedium flayum</i> (Orchidaceae)	Southwestern China etc.
48	<i>Cypripedium lichiangense</i> (Orchidaceae)	Yunnan, Sichuan, Hubei
49	<i>Cypripedium margritaceum</i> (Orchidaceae)	Yunnan, Sichuan, Hubei
50	<i>Cypripedium tibeticum</i> (Orchidaceae)	Yunnan, Sichuan, Tibet, Himalaya
51	<i>Meconopsis integrifolia</i> (Papaveraceae)	Yunnan, Sichuan, Tibet, Gansu, Qinghai
52	<i>Meconops horridula</i> var. <i>racemosa</i>	Yunnan, Sichuan, Tibet, Gansu, Qinghai
53	<i>Meconopsis forrestii</i> (Papaveraceae)	Endemic of of the nominated area
54	<i>Meconopsis cancifolia</i> (Papaveraceae)	Yunna, Sichuan, Tibet, Gansu, Northern Burma
55	<i>Meconopsi pseudovenusta</i> (Papaveraceae)	Endemic of of the nominated area
56	<i>Corydalis adrienii</i> (Fumacriaceae)	Yunnan, Sichuan, Tibet

	Name of Species	Distribution
57	<i>Corydalis melanochlora</i> (Fumariaceae)	Yunnan, Sichuan
58	<i>Megacarpa delavayi</i> (Cruciferae)	Yunnan, Sichuan, Gansu
59	<i>Solms-Laubachia pulcherrima</i> (Cruciferae)	Endemic of of the nominated area
60	<i>Paeonia delavayi</i> var. <i>lutea</i> (Paeoniaceae)	Yunnan, Sichuan, Tibet
61	<i>Aconitum pulchellum</i> (Ranunculaceae)	Yunnan, Sichuan, Tibet
62	<i>Aquilegia rockii</i> (Ranunculaceae)	Yunnan, Sichuan, Tibet
63	<i>Delphinium thibeticum</i> (Ranunculaceae)	Yunnan, Sichuan
64	<i>Bergenia purpurascens</i> (Saxifragaceae)	Yunnan, Sichuan, Tibet
65	<i>Aster batangensis</i> (Compositae)	Yunnan, Sichuan

photo--54 *Gentiana Sinoornata*





photo-55 *Incarvillea zhongdianensis*



photo-58 *Primula secundiflora*



photo-59 *Prisa*



photo-60 *Megacarpaea delavayi*



photo-61 *Meconopsis integrifolia*



photo-56 *Stelleria chamaejasme*

photo-63 *Iris collettii*



photo-57 *Gentiana atunsiensis*



photo-62 *Arenaria euodonta*



3.3.1.2.6 Medicinal plants (Table 13)

Table 13 Common medicinal plants in the nominated area

	Name of Species	Efficacy
1	<i>Aconitum brachypodum</i> (Raunculaceae)	Reduce inflammation, relieve pain, expel wind and revove dampness
2	<i>Aconitum carmichaeli</i> (Raunculaceae)	expel wind and coldness, revove dampnes and anesthesia
3	<i>Adenophora tetraphylla</i> (Campanulaceae)	Reduce fever, nourish yin, nourish lungs and arrest cough
4	<i>Anisodus acutangulus</i> (Solanaceae)	Anesthesia to relieve pain, expel wind and remove dampness
5	<i>Astragalus yunnanensis</i> (Labiatae)	Invigorate qi and strengthen the body
6	<i>Aucklandia lappa</i> (Asteraceae)	Arrest pain by activating qi, warm the middle-jiao and regulate stomach
7	<i>Bergenia purpurascens</i> (Saxifragaceae)	Clear away heat and toxic materials, arrest bleeding and regulate menstruation
8	<i>Campylotropis hirtella</i> (Papilionaceae)	Regulate menstruation, promote blood flow, relieve pain
9	<i>Cardiocrinum giganteum</i> (Liliaceae)	Remove heat from lungs to arrest cough, remove toxic materials
10	<i>Carthamus tinctorius</i> (Sateraceae)	Promote blood flow and restore menstrual flow
11	<i>Cimicifuga foetida</i> (Raunculaceae)	Promote eruption, detoxicate and elevate
12	<i>Coptis teetoides</i> (Raunculaceae)	Clear away pathogenic heat and dampness, purge intense heat and detoxiate
13	<i>Cordyceps sinensis</i> (Clavicipitaceae)	Nourish lungs and kidneys
14	<i>Dendrobium nobile</i> (Orchidaceae)	Nourish the stomach-yin, clear away heat and promote salivation
15	<i>Diphylleia sinensis</i> (Berberiaceae)	Promote blood circulation to remove blood statis, remove toxic substances and promote subsidence of swelling
16	<i>Ephedra likiangensis</i> (Ephedraceae)	Induce diaphoresis, relieve asthma and promote diuresis
17	<i>Fritillaria cirrhosa</i> (Liliaceae)	Clear away heat, nourish lungs, arrest cough and reduce sputum
18	<i>Gentiana crassicaulis</i> (Gentianaceae)	Expel wind, remove dampness and reduce fever
19	<i>Gentiana regescens</i> (Gentianaceae)	Purge liver-fire, remove intense heat from gallbladder channel
20	<i>Helwingia himalaica</i> (Cornaceae)	Promote blood circulation to remove blood stasis, clear away heat and remove toxic substance
21	<i>Heracleum scabridum</i> (Umbelliferae)	Expel wind remove dampness, drain puss and regenerate tissue
22	<i>Incarvillea delavayi</i> (Bignoniaceae)	Strengthen body, invigorate qi and enrich blood
23	<i>Lamiophlomis rotata</i> (Labiatae)	Promote blood flow and vital energy circulation, expel wind and relieve pain
24	<i>Ligusticum wallichii</i> (Umbeliferae)	Promote blood flow and vital energy circulation, expel wind and relieve pain

	Name of Species	Efficacy
25	<i>Meconopsis integrifolia</i> (Papaveraceae)	Remove heat from lungs, and dampness and promote diuresis
26	<i>Notopterygiu incisium</i> (Umbelliferae)	Induce diaphoresis to dispel wind, remove dampness to relieve pain
27	<i>Orthosiphon wulfenioides</i> (Labiatae)	Promote diuresis, relieve pain, knit bone and regenerate tissue
28	<i>Paeonia delavayi</i> var. <i>lutea</i> (Paeoniaceae)	Remove heat from blood, promote blood flow and remove blood stasis
29	<i>Panax major</i> (Araliaceae)	Remove blood stasis, promote tissue regeneration, relieve pain and arrest bleeding
30	<i>Paris polyphylla</i> (Liliaceae)	remove heat from blood and toxic materials, detumescence and relieve pain
31	<i>Picrorhiza scrophulariiflora</i> (Scrophulariaceae)	Remove heat and dampness
32	<i>Polygonum multiflorum</i> (Polygonaceae)	Nourish liver and kidneys, replenish vital essence and blood and tranquilize mind
33	<i>Polygonum paleaceum</i> (Polygonaceae)	Promote blood circulation and remove blood stasis, relieve pain and arrest bleeding
34	<i>Psammosilene tunicoides</i> (Caryophyllaceae)	Remove wind and promote blood flow, remove blood stasis and relieve pain
35	<i>Rheum officinale</i> (Polygonaceae)	Purge away heat, curb indigestion and remove blood stasis
36	<i>Rhodiola saera</i> (Crassulaceae)	Remove heat from lungs to arrest cough, curb bleeding and whites
37	<i>Rodgersia sambucifolia</i> (Saxifragaceae)	Remove heat and cool blood, regulate menstruation and relieve pain
38	<i>Salvia miltiorrhiza</i> (Labiatae)	Remove blood stasis, regenerate tissue, clear away heart-fire and relieve restlessness
39	<i>Sambucus adnata</i> (caprifoliaceae)	Promote blood flow and remove blood stasis, remove dampness and promote urination
40	<i>Sanguisorba officinalis</i> (Rosaceae)	Cool blood, curb bleeding and stop diarrhea
41	<i>Saussurea eriocephala</i> (Asteraceae)	Nourish kidneys and strengthen yang, regulate menstruation and relieve pain
42	<i>Saussurea romuleifolia</i> (Asteraceae)	Remove dampness, activate luo, remove toxic materials and curb indigestion
43	<i>Scopolia carniolicoides</i> (Solanaceae)	Anesthesia to relieve pain, remove wind and dampness
44	<i>Scutellaria baicalensis</i> (Labiatae)	Remove heat and dampness, stop bleeding and nourish fetus
45	<i>Sinopodophyllum emodi</i> (Berberidaceae)	Relieve cough and pain, promote blood flow and remove toxic materials
46	<i>Thamnolia vermicularis</i>	Remove heat and tranquilize mind
47	<i>Triosteum himalayanum</i> (Caprifoliaceae)	Promote urination, detumescence, promote blood flow and regulate menstruation
48	<i>Tussilago farfara</i> (Asteraceae)	Nourish lungs, reduce sputum and arrest cough
49	<i>Vitex negundo</i> (Verbenaceae)	Remove heat, arrest cough, reduce sputum and induce diaphoresis

3.3.1.2.7 Main forest tree species (Table 14)

Table 14 Main forest tree species

	Name of Species	Forest type
1	<i>Abies delavayi</i> (Pinaceae)	<i>Abies delavayi</i> forest
2	<i>Abies ernestii</i> (Pinaceae)	<i>Picea likiangensis</i> forest
3	<i>Abies ferreana</i> (Pinaceae)	<i>Abies delavayi</i> forest
4	<i>Abies forrestii</i> (Pinaceae)	<i>Abies delavayi</i> forest
5	<i>Abies georgei</i> (Pinaceae)	<i>Abies delavayi</i> forest
6	<i>Abies nukiangensis</i> (Pinaceae)	<i>Abies nukiangensis</i> forest
7	<i>Alcimandra cathcartii</i> (Magnoliaceae)	Evergreen broad-leaved forests
8	<i>Alnus nepalensis</i> (Betulaceae)	<i>Alnus</i> forest
9	<i>Betula albo-sinensis</i> (Betulaceae)	<i>Betula albo-sinensis</i> forest
10	<i>Castanopsis delavayi</i> (Fagaceae)	Evergreen broad-leaved forests
11	<i>Catalpa fargesii</i> (Bignoniaceae)	Evergreen broad-leaved forests
12	<i>Cinnamomum glanduliferum</i> (Lauraceae)	Evergreen broad-leaved forests
13	<i>Corylus chinensis</i> (Corylaceae)	Needle-leaved and broad-leaved mixed forests
14	<i>Cupressus duclouxiana</i> (cupressaceae)	<i>Cupressus duclouxiana</i> forest
15	<i>Cyclobalanopsis glauca</i> (Fagaceae)	Evergreen broad-leaved forests
16	<i>Elaeocarpus boreali-yunnanensis</i> (Elaeocarpaceae)	Evergreen broad-leaved forests
17	<i>Euptelea pleiosperma</i> (Eupteleaceae)	Evergreen broad-leaved forests
18	<i>Exbucklandia populnea</i> (Hamamelidaceae)	Evergreen broad-leaved forests
19	<i>Larix potaninii</i> var. <i>macrocarpa</i> (Pinaceae)	<i>Larix potaninii</i> var. <i>macrocarpa</i> forest
20	<i>Larix speciosa</i> (Pinaceae)	Chinese Larch forest
21	<i>Lithocarpus deabatus</i> (Fagaceae)	Evergreen broad-leaved forests
22	<i>Machilus longipedicellata</i> (Lauraceae)	Evergreen broad-leaved forests
23	<i>Machilus yunnanensis</i> (Lauraceae)	Evergreen broad-leaved forests
24	<i>Magnolia campbelii</i> (Magnoliaceae)	Evergreen broad-leaved forests
25	<i>Manglietia insignis</i> (Magnoliaceae)	Evergreen broad-leaved forests

	Name of Species	Forest type
26	<i>Parakmeria nitida</i> (Magnoliaceae)	Evergreen broad-leaved forests
27	<i>Picea complanata</i> (Pinaceae)	<i>Picea likiangensis</i> forest
28	<i>Picea likiangensis</i> (Pinaceae)	<i>Picea likiangensis</i> forest
29	<i>Pinus armandi</i> (Pinaceae)	<i>Pinus armandi</i> forest
30	<i>Pinus densata</i> (Pinaceae)	<i>Pinus densata</i> forest
31	<i>Pinus griffithii</i> (Pinaceae)	<i>Pinus griffithii</i> forest
32	<i>Pinus yunnanensis</i> (Pinaceae)	<i>Pinus yunnanensis</i> forest
33	<i>Populus duclouxiana</i> (Salicaceae)	<i>Populus duclouxiana</i> forest
34	<i>Populus yunnanensis</i> (Salicaceae)	Needle-leaved and broad-leaved mixed forests
35	<i>Pseudotsuga forrestii</i> (Pinaceae)	<i>Pseudotsuga forrest</i> forest
36	<i>Pterocarya delavayi</i> (Juglandaceae)	Evergreen broad-leaved forests
37	<i>Quercus aquifolioides</i> (Fagaceae)	<i>Quercus aquifolioides</i> forest
38	<i>Quercus longispica</i> (Fagaceae)	<i>Quercus aquifolioides</i> forest
39	<i>Quercus pannosa</i> (Fagaceae)	<i>Quercus aquifolioides</i> forest
40	<i>Quercus pseudosemecarpifolia</i> (Fagaceae)	<i>Quercus aquifolioides</i> forest
41	<i>Quercus senescens</i> (Fagaceae)	<i>Quercus aquifolioides</i> forest
42	<i>Sabina pingii</i> (Cupressaceae)	<i>Larix potaninii</i> var. <i>macrocarpa</i> forest
43	<i>Sabina saltuaria</i> (Cupressaceae)	<i>Larix potaninii</i> var. <i>macrocarpa</i> forest
44	<i>Sloanea sterculiacea</i> (Elaeocarpaceae)	Evergreen broad-leaved forests
45	<i>Taiwania flousiana</i> (Taxodiaceae)	<i>Taiwania flousiana</i> forest
46	<i>Tetracentron sinense</i> (Tetracentraceae)	Needle-leaved and broad-leaved mixed forests
47	<i>Tilia chinensis</i> (Tiliaceae)	Needle-leaved and broad-leaved mixed forests
48	<i>Torreya yunnanensis</i> (Taxaceae)	Needle-leaved and broad-leaved mixed forests
49	<i>Tsuga forrestii</i> (Pinaceae)	<i>Tsuga forrestii</i> forest
50	<i>Tsuga dumosa</i> (Pinaceae)	<i>Tsuga dumosa</i> forest

3.3.2 Animal diversity

3.3.2.1 Introduction

In addition to the alpine habitat which is characterized by high altitude, low temperature, strong ultraviolet, low oxygen and drastic variation of humidity and temperature of the Qinghai-Tibet Plateau, there are also dry-hot river valleys as well as subtropical and temperate warm and moist habitats of medium and lower mountains. Whether from river valleys to mountain tops or from Dulong River in the west to the Jinsha River in the east, various animal groups ranging from southern subtropical, subtropical, temperate, even frigid of high mountains, can be seen. At the same time, the fauna is also complicated: there are not only palaeartic species, but also oriental species, as well as local endemic species. The mosaic, interruption and replacement of relic elements of various geological periods and elements of contemporary age; mixture of complex differentiated groups and monotypes as well as oligotypes, and high ratio of endemism of all these contribute to the numerous rare, endangered and relic species, in the nominated area, and make the nominated area the most critical region of animal diversity in China, even in the northern hemisphere.

According to the statistical norm of IUCN and WCMC on richness of biodiversity, following description will be focused on vertebrates (mammals, birds, reptiles, amphibians and fishes). As for insect take papilionids, a precious and rare butterfly, as example.

3.3.2.2 Species diversity

3.3.2.2.1 Species diversity and its position in the world

China is one of the countries in the world with richest animal diversity. It has recorded 609 species of mammals, ranking first in the world; 1,260 species of birds, ranking seventh in the world and second in Asia; 403 species of reptiles, ranking sixth in the world and third in Asia; 278 species of amphibians, ranking fifth in the world and first in Asia; 129 species of papilionids, ranking first in the world. Yunnan Province covers only 4% of the country's territory, but has more than half of the total number of

various animal categories of China, and even 63.65% of its bird species. The nominated area covers 4.3% of the province's territory and only 0.17% of the country's territory, but it has the records of 174 species of mammals, 417 species of birds, 59 species of reptiles, 36 species of amphibians, 76 species of fishes and 31 species of papilionid insects. Except amphibians and papilionid insects, the number of species of other categories, all reach more than half of that in the Hengduan Mountain region (those of birds and mammals even making up 70% to 80%), half of Yunnan's and 25-33% of the country's total. This is very unique not only in China, but also in northern hemisphere and even in the world. (Table 15)

3.3.2.2.2 Fauna

The biogeographical regionalization of the nominated area is still a problem not yet resolved. The recent research tends to believe that the conclusion designating the area as Southwestern region of the Indian Realm or Indo-Malayan Realm (Zheng Zuoxin et al. 1959; Zhang Rongzu 1998) can not illustrate the characteristics of this region. It should be defined as a new realm, parallel with Palaeartic Realm and Oriental Realm.

3.3.2.2.2.1 The complexity of fauna

The composition of fauna is extremely complicated. It involves 10 animal distribution types and 21 distribution sub-types: (1) Northern temperate zone type; (2) Old continent temperate zone type; (3) Qinghai-tibet Plateau-Central Asia type; (4) Tropical Africa, tropical Asia to continental temperate type; (5) Tropical Asia to Temperate Asia type; (6) Tropical Asia type; (7) East Asia type; (8) Himalya-Hengduan Mountain type; (9) Hengduan Mountain type; (10) Endemic type of this region. Of these 10 distribution types, Hengduan Mountain type, Himalya-Hengduan Mountain type and endemic type are mostly abundant, making up 65% of the total species. The elements of Hengduan Mountain type, particularly, dominate (42%), which indicates that this area is the representative and core region of the Hengduan Mountain fauna.



photo-64 *Rhinopithecus bieti*

Table 15 An analysis of animal richness in nominated area

	Mammals		Birds		Reptiles		Amphibians		Fishes		Papilionids-Panassiinae	
	Species	%*	Species	%*	Species	%*	Species	%*	Species	%*	Species	%*
Nominated area	173		417		59		36		76		31	
Hengduan Mountain	221	78.28	590	70.68	117	50.42	81	44.44	137	55.47	79	39.24
Yunnan	300	57.67	802	52.00	152	38.82	112	32.14	382	19.70	85	36.47
Sichuan	222	77.92	625	60.60	85	69.41	91	39.67	241	31.54		
Tibet	126	137.30	473	88.16	58	101.72	39	92.31				
China	609	25.07	1260	33.10	403	14.64	278	12.95	1010	7.52	129	24.31
Burma	300	57.67	967	43.12	241	24.28	75	48.00			68	45.59
India	350	50.28	1200	37.75	453	13.24	182	19.78			77	40.30
Indonesia	515	33.59	1519	27.45	600	9.83	270	13.33			121	25.62

*The percentage of the number of species in the nominated area to the total number of the related area



photo-65 *Crossoptilus crossoptilus*

3.3.2.2.2 The mingling and marginal nature of fauna
The fauna of this region is characterized by transition from eastern to western animals, and assemblage of both northern and southern animals. It is the distribution limits of quite a few animals, therefore, it is of special scientific value. For instance, many mammals in Himalaya and Indian subcontinent (especially Himalayan species), including *Nectopgale elegans*, *Hipposideros fulvus*, *Macaca mulatta*, *Ailurus fulgens*, *Eupetaurus cinereus*, *Dremomys lokriah* and *Niviventereha*, spread from

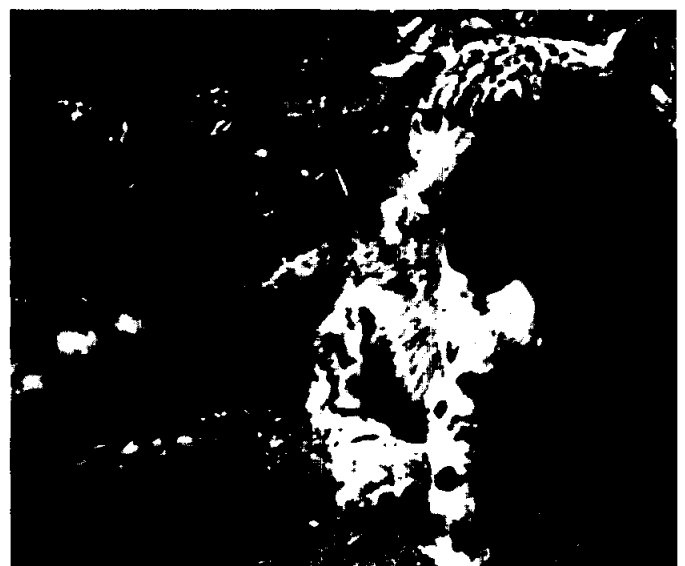


photo-66 *Uncia uncia*

Himalaya to this area, and then to Hengduan mountain, Zhongnan peninsula and South China. The area lies at the eastern boundary for *Dremomys lokriah*, *Nivivente reha*, *Eupetaurus cinereus* and *Pitymys irene* etc. The area is the southern boundary for some northern species such as *Canis lupus*, Qinghai-Tibet species such as *Vulpes ferrilata*, *Uncia uncia* and *Marmota himalayana*, which distribute in northwestern Yunnan and northernmost Burma. For many endemic species of Hengduan Mountain region and China East-Asian type, such as *Neotetracus sinensis*, *Uropsilus gracilis*, *Sorex hedordiae*, *Sorex cylindricauda*, *Blarinella quadraticauda*, *Soriculus sacratu*, *Scaptonyx fuscicaudus*, *Nyctereutes procyonoides*, *Eleaphodus cephalophus*, *Moschus berezovskii*, *Sciurotamias forresti*, *Tamiops swinhoei*, *Eothenomys miletus*, *Eothenomys eleusis*, *Apodemus chevrieri*, *Niviventer andersoni*, *Niviventer excelsior*, *Rattus yunnanensis*, *Lupus comus*, etc.

Many tropical species of Southeast Asia, such as *Tupaia belangeri*, *Arctomys collaris*, *Callosciurus*

erythraeus, *Petaurista yunnanensis*, *P. sybilla*, *Rhizomys pruinosus*, *Leopoldamys edwardsi* and *Rattus nitidus* etc. extend their ranges northward to this area or later on to Himalayan region. Among them, the *Pipistrellus circumdayus*, inhabiting in Indonesia, spreads from southern Burma to this area and developed into a special geographical subspecies of *Pipistrellus circumdayus drungicus*. In a word, this area has become an assembling place and corridor for the animals from southern, eastern, western and northern parts of south Asia.

3.3.2.2.3 Altitude distribution and complexity and diversity of altitudinal spectrums belts

From low-altitude river vallies to high-altitude mountain tops there are following altitudinal belts: I. South Asia monsoon evergreen broadleaved forests; II. Humid monsoon evergreen broadleaved forests; III. Middle mountain humid evergreen broadleaved forests; IV. Sub-alpine dark coniferous forests; V. Alpine shrublands and meadows, VI. Alpine debris flow belts.

photo-67 *Ailurus fulgens*



The number of animal species composition vary in different altitudinal belts. Most of the species may live in more than one belt. The species of tropical and southern subtropical zones are mostly abundant in belt I. With the rising of altitude, the number of species decreases drastically. The endemic species of Himalaya-Hengduan Mountain, Hengduan Mountain and East Asia are mainly concentrated in belts II and III. The number decreases both above or below them. The Qinghai-Tibet Plateau species and Palaearctic Realm pan spreading or wide spreading species are mainly distributed in alpine zone. With the lowering of altitude, their number of species drastically decreases. An important characteristic of the altitudinal animal distribution is that the change of the number of species from low-altitude river valleys to mountain tops has the shape of a parabola. The numbers at the two ends are less than that in the middle. The core belts are belts II, III and IV of the middle mountains. The number of species of each belt all exceed 60% of the total species number.

Another characteristic of the altitudinal distribution is that the same altitudinal belt of different mountains between two rivers are different in faunal composition. From west to east, the altitude of the same type of belt rises gradually, and the composition of fauna gradually transfers towards that of typical Hengduan Mountain area. For example, in the Gongshan area at the northern section of Gaoligong Mountain, which is located at the westernmost part, the altitudes of belts II and III are generally at 2,000 to 2,700m above sea levels. Many Himalayan elements. But in Deqin and Zhongdian areas in the eastern part of the same latitude, the belts of this type rise to 3,000 - 3,800m, and there generally occur more endemic elements of Hengduan Mountain area. Because these large rivers and mountains, formed in different geological periods, are compressed in a very narrow area, resulted in such comparable but different altitudinal distribution phenomena which is very rare in the world.

3.3.2.3 Shelters for Primitive and Relic Animals

On the one hand, primitive and relic animals, such as following mammals: *Ailurus fulgens*, *Taipidae*, the most primitive *Urospilus soricipes* of *Erinaceidae*, *Scaptomyx*

fuscicaudus, *Neotetracus sinensis* and primitive group of *Dipodidae*, *Rodentia* of *Zapus setchuanus*, have been preserved completely in the middle altitude of mountain areas. On the other hand, many animals gradually developed and adapted to the alpine, severe cold climate and rushing waters as specialized ones. They include *Bodorcas taxicolor*, *Uncia uncia*, *Rhinopithecus bieti*, *Uncia uncia*, *Nectogale elegans*, *Nectogale elegans* of mammals, living in high mountain areas; *Zophophorus sclateri*, *Crossoptilon crossoptilon*, *Ithaginis cruentus*, *Tetraophasis obscurus* of birds; *Batrachuperus* spp, *Oreolalax* spp, *Scutigera* spp. of amphibians; *Sisoridae*, *Schizothoracinae*, *Triplophysa* spp. of fishes and *Parnassiinae* of insects. the primitive and specialized, the relict and newly formed elements coexist in the same area. So the nominated area is characterized by plentiful endemic types, primitive types, as well as monotypes and oligotypes.

3.3.2.4 Center of origin and differentiation of animals of Asian continent

Influenced by special topographic and climatic factors in the nominated area, the fauna differentiate drastically among rivers, mountains, on western and eastern slopes, as well as in its north part and south part of the same mountain, not only different in species composition, but also polymorphic within the same category or in their relatives. Differentiation, substitution, discontinuity, parallel evolution and convergent evolution are obvious among different species and subspecies. This drastic differentiation among various categories may correspond to what occurs in several latitudes horizontally or thousand meters vertically in eastern China. It is the center of differentiation and origin of many animal groups such as *Timaliinae* of birds, *Ailuridae*, *Urospilinae*, *Neotetracus*, *Soriculus*, *Eothenomys* of mammals, *Oreolalaxinae* of amphibians, *Schizothoracinae* of fishes and *Parnassiinae* of insects in the Asian Continent.

3.3.2.5 Treasure house of rare and endangered as well as endemic animal species

3.3.2.5.1 Rare and Endangered species

Within the nominated area, there are 80 species listed in the Red Book of Chinese Animals (mammals, birds,

amphibians, reptiles and fishes), among them 20 are endangered. There are 57 species listed in the Red Lists of Animals of IUCN (1990). Among them 6 are endangered; 77 species have been listed in nationally protected wildlife of China. Among them, 16 species are class I, 61 species are class II. There are 79 species listed in the Appendix of Convention of International Trade on Endangered Species (SIITES), published in 1997, 20 % of which are listed in Appendix I, 45 of which are listed in Appendix II and 13 of which are listed in Appendix III. All the above-mentioned species total 139, accounting for 23.28% of the areas total species number. This percentage of rare and endangered species reaches approximately one third, is larger than other areas in China. So it may be the place with most abundant and concentrated rare and endangered animals in China. The most precious of them are *Rhinopithecus bieti*, *Trachypithecus pilthecus*, *Uncia*

unica, *Ailurus fulgens*, *Budorcas taxicolor*, *Naemorhaedus baireri*, *Muntiacus gongshamensis*, *Moschus fuscus*, *Ursus arctos pruinosus*, *Grus nigricollis*, *Lophophorus sclateri*, *Tetrastes sewerzowi*, *Ithaginis cruentus* and *Crossoptilon crossoptilon*, etc. The high mountain endemic Parnassiinae is especially famous (Table 16).

Most of the endangered animals are distributed in Gaoligong Mountains in the west as well as the alpine areas as Yunling Mountains system between Lancang River and Jinsha River. The number of existing *Rhinopithecus bieti*, *Lophophorus sclateri*, *Muntiacus gongshanensis* and *Moschus fuscus* make up more than 80% of the endangered animals of this area, and the estimated number of *Ailurus fulgens*, *Naemorhedus baileyi*, *Ithaginis cruentus* and *Crossoptilon crossoptilon* account for about 30-40%.

photo-68 *Macaca mulatta*



Table 16 Rare and endangered animals of the nominated area

Serial No.	Name of species	Red Book of China's animals	Red List of IUCN	Class of China's national protection	CITES Appendix (1997)
	Mammals				
M-1	<i>Cynopterus sphinx</i>	I			
M-2	<i>Sphaerias blanford</i>	V			
M-3	<i>Rhinilophus luctus</i>	V			
M-4	<i>La io</i>	I	LR/nt		
M-5	<i>Tyloncteris pachypus</i>	R			
M-7	<i>Macaca arctoides</i>	V	V	II	II
M-8	<i>Macaca assamensis</i>	V	V	I	II
M-9	<i>Macaca mulatta</i>	V	LR/nt	II	II
M-10	<i>Rhinopithecus bieti</i>	E	E	I	I
M-11	<i>Trachypithecus pileatus</i>	E	V	I	I
M-12	<i>Manis pentadactyla</i>	V		II	II
M-13	<i>Canis lupus</i>	V			II
M-14	<i>Cuon alpinus</i>	V	V	II	II
M-15	<i>Vulpes vulpes montana</i>				III
M-16	<i>Ursus arctos</i>	E		II	I
M-17	<i>Selenarctos thibetanus</i>	V	V	II	I
M-18	<i>Ailurus fulgens</i>	V	E	II	I
M-19	<i>Martes flavigula</i>				III
M-20	<i>Martes foina</i>	V		II	III
M-21	<i>Mustela kathiah</i>				III
M-22	<i>Mustela sibirica</i>				III
M-23	<i>Lutra lutra</i>	V		II	I
M-24	<i>Lutra perspicillata</i>	E	V	II	II
M-25	<i>Prionodon pardicolor</i>	E		II	I
M-26	<i>Vierra zibetha</i>	V		II	III
M-27	<i>Viverricula indica</i>			II	III
M-28	<i>Herpestes urva</i>				III
M-29	<i>Catopuma temmincki</i>	V	LR/nt	II	I
M-30	<i>Pripnalarus bengalensis</i>	V			II
M-31	<i>Lynx lynx</i>	V		II	II
M-32	<i>Pardofelis marmorata</i>	E			II

Serial No.	Name of species	Red Book of China's animals	Red List of IUCN	Class of China's national protection	CITES Appendix (1997)
M-33	<i>Neofrlis nebulosa</i>	E	V	II	I
M-34	<i>Panthera pardus</i>	E	E	I	I
M-35	<i>Uncia uncia</i>	E	E	I	I
M-36	<i>Panthera tigris</i>	Ex	E	I	I
M-37	<i>Moschus chrysogaster</i>	E	LR/nt	II	II
M-38	<i>Moschus berezovskii</i>	E	LR/nt	II	II
M-39	<i>Moschus fuscus</i>	V	LR/nt	II	II
M-40	<i>Cervus unicolor</i>	V		II	
M-41	<i>Muntiacus gongshanensis</i>	E	D		
M-42	<i>Budorcas taxicolor</i>	E	E	I	II
M-43	<i>Naemorhedus sumatraensis</i>	V	V	II	I
M-44	<i>Naemorhedus baileyi</i>	R	V	I	I
M-45	<i>Naemorhedus caudatus</i>	V	V	II	I
M-46	<i>Pseudois nayaur</i>	V	LR/nt	II	
M-47	<i>Ratufa indica</i>			II	
M-48	<i>marmota himalayana</i>				III
	Birds				
B-1	<i>Ciconia nigra</i>	E		I	II
B-2	<i>Cygnus cygnus</i>	V		II	
B-3	<i>Anas crecca</i>				III
B-4	<i>Anas penelope</i>				III
B-5	<i>Anas querquedula</i>				III
B-6	<i>Aythya nyroca</i>		V		III
B-7	<i>Pernis ptilorhynchus</i>	V		II	II
B-8	<i>Milvus korschun</i>			II	II
B-9	<i>Accipiter gentilis</i>			II	II
B-10	<i>Accipiter trivirgatus</i>	R		II	II
B-11	<i>Accipiter nisus</i>			II	II
B-12	<i>Accipiter virgatus</i>			II	II
B-13	<i>Buteo buteo</i>			II	II
B-14	<i>Spizaetus nipalensis</i>			II	II
B-15	<i>Aquila chrysaetos</i>	V		I	II

Serial No.	Name of species	Red Book of China's animals	Red List of IUCN	Class of China's national protection	CITES Appendix (1997)
B-16	<i>Aquila rapax</i>	V		II	II
B-17	<i>Gyps himalayensis</i>	R		II	II
B-18	<i>Falco subbuteo</i>			II	II
B-19	<i>Falco columbarius</i>			II	II
B-20	<i>Falco tinnunculus</i>			II	II
B-21	<i>Tetrastes sewerzowi</i>	E	LR	I	
B-22	<i>Lerwa lerwa</i>	R			
B-23	<i>Tetraogallus tibetanus</i>			II	I
B-24	<i>Tetraophasis szechenyii</i>		LR		
B-25	<i>Ithaginis cruentus</i>	V		II	II
B-26	<i>Tragopan satyra</i>	R	LR	I	II
B-27	<i>Tragopan blythi</i>	R	V	I	I
B-28	<i>Tragopan temminckii</i>	V	LR	II	
B-29	<i>Lophophorus sclateri</i>	R	V	I	I
B-30	<i>Crossoptilon crossoptilon</i>	V	V	II	I
B-31	<i>Lophura leucomelana</i>	R		II	
B-32	<i>Lophura nycthemera</i>			II	
B-33	<i>Pucrasia macrolopha</i>			II	
B-34	<i>Chrysolophus amherstiae</i>	V	LR	II	
B-35	<i>Grus grus</i>			II	
B-36	<i>Grus nigricollis</i>	V	V	I	I
B-37	<i>Grus antigone</i>	R	LR	I	II
B-38	<i>Rallus striatus</i>	R			
B-39	<i>Porzana bicolor</i>	R		II	
B-40	<i>Vanellus cinereus</i>		LR		
B-41	<i>Charadrius placidus</i>		LR		
B-42	<i>Treron shenura</i>			II	
B-43	<i>Psittacula derbiana</i>	V	LR	II	II
B-44	<i>Psittacula himalayana</i>			II	II
B-45	<i>Centropus toulou</i>	V		II	
B-46	<i>Otus scops</i>			II	II
B-47	<i>Bubo bubo</i>	R		II	II

Serial No.	Name of species	Red Book of China's animals	Red List of IUCN	Class of China's national protection	CITES Appendix (1997)
B-48	<i>Glaucidium brodiei</i>			II	II
B-49	<i>Glaucidium cuculoides</i>			II	II
B-50	<i>Strix aluco</i>			II	II
B-51	<i>Harpactes erythrocephalus</i>	V			
B-52	<i>Harpactes wardi</i>		V		
B-53	<i>Dryocopus javensis</i>	R		II	
B-54	<i>Bombycilla japonica</i>		LR		
B-55	<i>Sturnus sericeus</i>		LR		
B-56	<i>Acridotheres albocinctus</i>		LR		
B-57	<i>Brachypteryx hyperythra</i>		V		
B-58	<i>Luscinia pectardens</i>		LR		
B-59	<i>Tarsiger hyperythrus</i>		LR		
B-60	<i>Cochoa purpurea</i>		LR		
B-61	<i>Turdus dissimilis</i>		LR		
B-62	<i>Turdus mupinensis</i>		LR		
B-63	<i>Spehenocichla humei</i>		LR		
B-64	<i>Rimator malacoptilus</i>		LR		
B-65	<i>Moupinia poecilotis</i>		LR		
B-66	<i>Garrulax bielti</i>		V		
B-67	<i>Garrulax milnei</i>		LR		
B-68	<i>Leiothrix argenteauris</i>				II
B-69	<i>Leiothrix lutea</i>				II
B-70	<i>Pteruthius rufiventer</i>		LR		
B-71	<i>Alcippe cinerea</i>		LR		
B-72	<i>Alcippe ruficapilla</i>		LR		
B-73	<i>Paradorxornis ruficeps</i>		LR		
B-74	<i>Niltava davidi</i>		LR		
B-75	<i>Sitta magna</i>		V		
B-76	<i>Sitta yunnanensis</i>		V		
	Amphibia				
A-1	<i>Tyototriton shanjing</i>	Ic		II	
A-2	<i>Tyototriton verrucosus</i>	E		II	

Serial No.	Name of species	Red Book of China's animals	Red List of IUCN	Class of China's national protection	CITES Appendix (1997)
A-3	<i>Rana yunnanensis</i>	V			
	Reptilia				
R-1	<i>Ophissaurus gracilis</i>	E			
R-2	<i>Elaphe mandarina</i>	V			
R-3	<i>Elaphe porphyracea</i>	V			
R-4	<i>Elaphe taeniura</i>	V			
R-5	<i>Ptyas mucosus</i>	E			II
R-6	<i>Zaocys nigromarginatus</i>	Ic			
R-7	<i>Naja kaouthia</i>	V			II
R-8	<i>Ophiophagus hannah</i>	E			II
R-9	<i>Azemiops feae</i>	E			
R-10	<i>Gloydus strauchi</i>	Ic			
	Fish				
F-1	<i>Epelzeorhynchus bicornis</i>	E			
F-2	<i>Placochilus cryptonemus</i>	R			
F-3	<i>Diptychus kaznakovi</i>	V			
F-4	<i>Gagata dolichoneme</i>	R			
	Papilionids				
P-1	<i>Bhutanitis lidderdalii</i>			II	II
P-2	<i>Bhutanitis mansfieldi</i>			II	II
P-3	<i>Sinonitis thadina</i>			II	II



photo-70
Psittacula derbiana

photo-71
Grus nigricollis



photo-69
Tragopan satyra





photo-72
Bubo bubo



photo-73
Chrysolophus
amherstiae



photo-74 *Eplaphe taeniura*

3.3.2.5.2 Endemic animals

The endemic animal categories mentioned in this report include endemics of China, endemics of South China, endemics of Hengduan Mountain Region, endemics of Hengduan-Himalaya and endemics of Qinghai-Tibet Plateau. In terms of animal taxa. There are endemic families, endemic sub-families, endemic genera and endemic species.

As regard to higher taxa of family and subfamily, the endemic families and subfamilies distributed in Qinghai-Tibet Plateau-Hengduan Mountain region and which can

be found in nominated area may be enumerated Ailuridae, Moschidae, Hylominae and Uropsilinae of mammals and Schisothorinae of fishes etc.. These higher taxa are mostly primitive and Oligotypic categories. Only the Schisothorinae is the representative higher taxa specialized on the plateau. They play an important role in defining the 200 geographical regionalization of higher ranks.

There are 49 endemic genera, including 27 of mammals, 7 of birds, 3 of amphibians and 12 of fishes (See Table 17).

Table 17 List of endemic species in the nominated area

Endemic species	Regions	Endemic of China	Endemic of South China	Endemic of Hengduan Mountain	Endemic of Himalaya	Endemic of Hengduan Mountain-Himalaya	Endemic of Qinghai-Tibet Plateau	Endemic of TRFA
Mammals								
M-1.	<i>Neotetracus</i>			●				
M-2.	<i>Uropsilus</i>			●		●		
M-3.	<i>Euroscaptor</i>							
M-4.	<i>Scaptonyx</i>			●				
M-5.	<i>Soriculus</i>					●		
M-6.	<i>Chodsigoa</i>			●				
M-7.	<i>Blarinella</i>			●				

Species \ Regions	Endemic in China	Endemic in South China	Endemic in Hengduan Mountain	Endemic in Himalaya	Endemic in Hengduan Mountain-Himalaya	Endemic in Qinghai-Tibet	Endemic to nominated area
M—8. <i>Anourosorex</i>		●					
M—9. <i>Nectogale</i>					●		
M—10. <i>Sphaerias</i>				●			
M—11. <i>Ia</i>		●					
M—12. <i>Rhinopithecus</i>			●				
M—13. <i>Nyctereutes</i>	●						
M—14. <i>Ailurus</i>				●			
M—15. <i>Prionodon</i>				●			
M—16. <i>Uncia</i>					●		
M—17. <i>Eleaphodus</i>				●			
M—18. <i>Budorcas</i>							
M—19. <i>Pseudois</i>				●			
M—20. <i>Trogopterus</i>			●				
M—21. <i>Tamiops</i>		●					
M—22. <i>Eupetaurus</i>				●			
M—23. <i>Dremomys</i>		●					
M—24. <i>Sciurotamias</i>			●				
M—25. <i>Eozapus</i>			●				
M—26. <i>Eothenomys</i>		●					
M—27. <i>Vernaya</i>							●
Birds							
B—1. <i>etrastes</i>							●
B—2. <i>Lerwa</i>					●		
B—3. <i>Tetraogallus</i>						●	
B—4. <i>Tetraophasis</i>							●
B—5. <i>Arborophila</i>		●		●			
B—6. <i>bambusicola</i>		●					
B—7. <i>Tragopan</i>		●		●			
B—8. <i>thaginis</i>				●			
B—9. <i>Lophophorus</i>				●			
B—10. <i>Hodgsonius</i>				●			
B—11. <i>Grandala</i>				●			
B—12. <i>Moupinia</i>							●
Amoibia							
A—1. <i>Oreolalax</i>			●				
A—2. <i>Torrentophryne</i>							●
A—3. <i>Nanorana</i>			●				

Endemic species	Regions	Endemic in China	Endemic of South China	Endemic to Hengduan Moutain	Endemic in Himalaya	Endemic in Hengduan Mountain-Himalaya	Endemic of Qinghai-Tibet Plateau	Endemic to nominated area
Fish								
F — 1.	<i>Placocheilus</i>			●				
F — 2.	<i>Ptychobarbus</i>			●				
F — 3.	<i>Pseudecheneis</i>			●				
F — 4.	<i>Pareuchiloglanis</i>					●		
F — 5.	<i>Euchiloglanis</i>			●				
F — 6.	<i>Pseudexostoma</i>			●				
F — 7.	<i>Exostoma</i>			●				
F — 8.	<i>Triplophysa</i>						●	
F — 9.	<i>Yunnanilus</i>			●				
F — 10.	<i>Schizothorax</i>						●	
F — 11.	<i>Gymnocypris</i>						●	
F — 12.	<i>Herzensteinia</i>			●				

photo-75 *Tyotriton shanjing*



The endemic species amount to 291, constitute 36.93% of the total (788 species) in the area. Among them, the percentages of mammals, amphibians, reptiles and freshwater fishes approach to or exceed half of each total respectively, while the endemics of birds and papilionids make up for about one third of their total. Among the 291 endemic species, 21 are the endemic

merely to the nominated area; 27 are endemic to alpine belt of the Qinghai-Tibet Plateau; 675 are endemic to Hengduan Mountain. This demonstrates that this is the typical area characterizing the fauna of Hengduan Mountain (See Table 18, Table 19)

Table 18 Comparative analysis of endemic animal species distributed in the nominated area

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
	Mammals							
M—1	<i>Neotetracus sinensis</i>				◆			
M—2	<i>Uropsilus gracilis</i>				◆			
M—3	<i>Uropsilus investigator</i>							◆
M—4	<i>Scaptonyx fuscicaudus</i>				◆			
M—5	<i>Euroscaptor longirostris</i>				◆			
M—6	<i>Sorex bedfordiae</i>				◆			
M—7	<i>Soerex cylindricauda</i>				◆			
M—8	<i>Sorex excelsus</i>				◆			
M—9	<i>Soriculus nigrescens</i>					◆		
M—10	<i>Soriculus sacratu</i>				◆			
M—11	<i>Soriculus caudatus</i>					◆		
M—12	<i>Soriculus leucops</i>					◆		
M—13	<i>Soriculus macurus</i>					◆		
M—14	<i>Chodsigoa parca</i>				◆			
M—15	<i>Chodsigoa hypsibus</i>				◆			
M—16	<i>Blarinella wardi</i>							◆
M—17	<i>Anourosorex squmipes</i>		◆					
M—18	<i>Nectogale elegans</i>					◆		
M—19	<i>Crocidura vorax</i>				◆			
M—20	<i>Crocidura rapax</i>		◆					
M—21	<i>Chimmarogale styani</i>	◆						

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
M-22	<i>Rhinolophus osgoodi</i>							◆
M-23	<i>Rhinolophus thomasi</i>		◆					
M-24	<i>Rhinolophus rouxii</i>		◆					
M-25	<i>Ia io</i>		◆					
M-26	<i>Rhinopithecus bieti</i>							◆
M-27	<i>Vulpes ferrilata</i>						◆	
M-28	<i>Ailurus fulgens</i>					◆		
M-29	<i>Uncia uncia</i>						◆	
M-30	<i>Moschus berezovskii</i>	◆						
M-31	<i>Moschus chrysogaster</i>					◆		
M-32	<i>Moschus fuscus</i>							◆
M-33	<i>Muntiacus gongshanensis</i>							◆
M-34	<i>Muntiacus putaoensis</i>							
M-35	<i>Eleaphodus cephalophus</i>		◆					
M-36	<i>Budorcas taxicolor</i>					◆		
M-37	<i>Naemorhedus baileyi</i>							◆
M-38	<i>Pseudois nayaur</i>					◆		
M-39	<i>Callosciurus quinquestriatus</i>							◆
M-40	<i>Tamias swinhoi</i>	◆						
M-41	<i>Dremomys pernyi</i>		◆					
M-42	<i>Sciurotamias forresti</i>					◆		
M-43	<i>Marmota himalayana</i>					◆		
M-44	<i>Troglodytes xanthipes</i>				◆			
M-45	<i>Petaurista alboniger</i>		◆					
M-46	<i>Eupetaurus cinereus</i>			◆		◆		
M-47	<i>Rhizomys wardi</i>							◆
M-48	<i>Rhizomys sinensis</i>		◆					
M-49	<i>Rhizomys pruinosus</i>		◆					
M-50	<i>Hystrix yunnanensis</i>							◆
M-51	<i>Eozapus setchuanus</i>				◆			
M-52	<i>Sicista concolor</i>				◆		◆	
M-53	<i>Vernaya fulva</i>							◆
M-54	<i>Apodemus orestes</i>				◆			
M-55	<i>Apodemus chevrieri</i>				◆			

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
M-56	<i>Apodemus latronum</i>				◆			
M-57	<i>Rattus yunnanensis</i>		◆					
M-58	<i>Niviventer confucianus</i>	◆						
M-59	<i>Niviventer andersoni</i>				◆			
M-60	<i>Niviventer excelsior</i>				◆			
M-61	<i>Niviventer brahma</i>							◆
M-62	<i>Niviventer eha</i>			◆				
M-63	<i>Mus caroli</i>		◆					
M-64	<i>Eothenomys melanogaster</i>		◆					
M-65	<i>Eothenomys cachinus</i>							◆
M-66	<i>Eothenomys miletus</i>				◆			
M-67	<i>Eothenomys eleusis</i>		◆					
M-68	<i>Eothenomys custos</i>				◆			
M-69	<i>Eothenomys wardi</i>							◆
M-70	<i>Eothenomys fidelis</i>							◆
M-71	<i>Pityene irene</i>				◆			
M-72	<i>Volemys clarkei</i>							◆
M-73	<i>Ochotona forresti</i>							◆
M-74	<i>Ochotona thibetana</i>				◆		◆	
M-75	<i>Ochotona macrotis</i>				◆		◆	
M-76	<i>Ochotona gaoligongensis</i>							◆
M-77	<i>Ochotona roylei</i>					◆		
M-78	<i>Ochotona gloveri</i>				◆			
M-79	<i>Ochotona erythrotis</i>						◆	
M-80	<i>Lepus oiostolus</i>						◆	
M-81	<i>Lepus comus</i>		◆					
	Birds							
B-1	<i>Tetrastes sewerzowi</i>	◆						
B-2	<i>Tetraophasis obscurus</i>				◆			
B-3	<i>Arborophila torqueola</i>							
B-4	<i>Ithaginis cruentus</i>				◆			
B-5	<i>Lophophorus sclateri</i>							◆
B-6	<i>Grossoptilon crossoptilon</i>						◆	
B-7	<i>Chrysolophus amherstiae</i>		◆					

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
B—8	<i>Grus nigricollis</i>						◆	
B—9	<i>Psittacula derbiana</i>				◆			
B—10	<i>Luscinia pectardens</i>	◆						
B—11	<i>Turdus kessleri</i>	◆						
B—12	<i>Turdus mupinensis</i>				◆			
B—13	<i>Moupinia poecilotis</i>				◆			
B—14	<i>Garrulax lunulatus</i>				◆			
B—15	<i>Garrulax canorus</i>	◆						
B—16	<i>Garrulax elliotii</i>	◆						
B—17	<i>Alcippe striaticollis</i>				◆			
B—18	<i>Alcippe ruficapilla</i>	◆						
B—19	<i>Yuhina diademata</i>	◆						
B—20	<i>Paradoxornis webbianus</i>	◆						
B—21	<i>Paradoxornis fulvifrons</i>	◆						
B—22	<i>Sitta yunnanensis</i>				◆			
Amphibia								
A—1	<i>Batrachuperus pinchonii</i>				◆			
A—2	<i>Tylototriton shanjing</i>				◆			
A—3	<i>Bombina maxima</i>		◆					
A—4	<i>Oreolalax rugosus</i>				◆			
A—5	<i>Oreolalax xiangchengensis</i>				◆			
A—6	<i>Scutiger glandulatus</i>				◆			
A—7	<i>Scutige gongshanensis</i>				◆			
A—8	<i>Scutige mammatus</i>				◆			
A—9	<i>Torrentophryne aspinia</i>							
A—10	<i>Torrentophryne tuberospinia</i>							
A—11	<i>Bufo andrewsi</i>		◆					
A—12	<i>Bufo cyphosus</i>				◆			
A—13	<i>Bufo himalayanus</i>					◆		
A—14	<i>Bufo tibetanus</i>				◆			
A—15	<i>Hyla annectans</i>		◆					
A—16	<i>Rana arnoldi</i>				◆			
A—17	<i>Rana chaochiaoensis</i>		◆					
A—18	<i>Rana feai</i>				◆			
A—19	<i>Rana grahami</i>				◆			

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
A—20	<i>Rana liui</i>		◆					
A—21	<i>Rana pleuraden</i>				◆			
A—22	<i>Rana shuchinae</i>				◆			
A—23	<i>Nanorana pleskei</i>				◆			
A—24	<i>Nanoran ventripunctata</i>				◆			
A—25	<i>Amolops jinjiangensis</i>				◆			
A—26	<i>Amolops viridimaculatus</i>				◆			
A—27	<i>Rhacophorus gongshanensis</i>							◆
	Reptilia							
R—1	<i>Calotes jerdoni</i>					◆		
R—2	<i>Calotes kakiensis</i>				◆			
R—3	<i>Calotes kingdonwardi</i>	◆						
R—4	<i>Calotes mystaceus</i>				◆			
R—5	<i>Japalura flaviceps</i>				◆			
R—6	<i>Japalura splendida</i>				◆			
R—7	<i>Japalura varcoae</i>	◆						
R—8	<i>Japalura yunnanensis</i>				◆			
R—9	<i>Scincella monticola</i>					◆		
R—10	<i>Pareas monticola</i>							
R—11	<i>Amphiesma johannis</i>		◆					
R—12	<i>Amphiesma octolineata</i>					◆		
R—13	<i>Dinodon septentrionalis</i>							
R—14	<i>Elaphe carinata deqinensis</i>				◆			
R—15	<i>Atretium yunnanensis</i>							
R—16	<i>Macropisthodon rudis</i>					◆		
R—17	<i>Oligodon albocinctus</i>					◆		
R—18	<i>Oligodon bellus</i>							
R—19	<i>Pseudoxenodon m. sinensis</i>					◆		
R—20	<i>Rhabdophis himalayanus</i>				◆			
R—21	<i>Rhabdophis leonardi</i>					◆		
R—22	<i>Rhabdophis nuchalis</i>							◆
R—23	<i>Naja naja</i>	◆						
R—24	<i>Gloydus monticola</i>				◆			
R—25	<i>Gloydus strauchi</i>							◆
R—26	<i>Ovophis monticola</i>				◆			

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
R—27	<i>Trimeresurus xiangchengensis</i>					◆		
	Fish							
F—1	<i>Tor hemispinus</i>				◆			
F—2	<i>Epalzeorhynchus bicorni</i>				◆			
F—3	<i>Placocheilus cryptonemus</i>				◆			
F—4	<i>Schizothorax nukiangensis</i>							◆
F—5	<i>Schizothorax myzostomus</i>				◆			
F—6	<i>Schizothorax dulongensis</i>							◆
F—7	<i>Schizothorax wangchiachi</i>				◆			
F—8	<i>Schizothorax dolichonema</i>				◆			
F—9	<i>Schizothorax parva</i>				◆			
F—10	<i>Schizothorax lantsangensis</i>							◆
F—11	<i>Schizothorax gongshanensis</i>							◆
F—12	<i>Schizothorax yunnanensis</i>				◆			
F—13	<i>Ptychobarbus chungtienensis</i>							◆
F—14	<i>Triplophysa venusta</i>				◆			
F—15	<i>Triplophysa stenura</i>				◆			
F—16	<i>Triplophysa brevicauda</i>				◆			
F—17	<i>Triplophysa leptosoma</i>				◆			
F—18	<i>Hemimyzon tchangi</i>				◆			
F—19	<i>Hemimyzon nujiangensis</i>				◆			
F—20	<i>Glyptothorax zainaensis</i>				◆			
F—21	<i>Glyptothorax deqinensis</i>				◆			
F—22	<i>Pseudecheneis sulcatus</i>				◆			
F—23	<i>Pseudecheneis immaculatus</i>				◆			
F—24	<i>Pareuchiloglanis feae</i>				◆			
F—25	<i>Pareuchiloglanis kamengensis</i>				◆			
F—26	<i>Pareuchiloglanis gongshanensis</i>							◆
F—27	<i>Pareuchiloglanis anteanalis</i>				◆			
F—28	<i>Pareuchiloglanis gracilicaudatus</i>				◆			
F—29	<i>Pareuchiloglanis myzostoma</i>				◆			
F—30	<i>Pareuchiloglanis sinensis</i>				◆			
F—31	<i>Pseudexostoma yunnanensis</i>				◆			
F—32	<i>Oreoglanis macropterus</i>				◆			
F—33	<i>Exostoma labiatum</i>				◆			

Serial No.	Species	China	South China	Himalaya	Hengduan Mountain	Himalaya to Hengduan Mountain	Qinghai - Tibet Plateau	TRFA
F—34	<i>Gagata cenia</i>				◆			
F—35	<i>Glaridoglanis andersonii</i>				◆			
	Papilionids-Parnassiinae							
I—1	<i>Parnassius acco</i>					◆	◆	
I—2	<i>Parnassius cephalus</i>				◆		◆	
I—3	<i>Parnassius imperator</i>				◆		◆	
I—4	<i>Parnassius orleans</i>				◆		◆	
I—5	<i>Parnassius simo</i>				◆		◆	
I—6	<i>Parnassius beileyi</i>				◆		◆	
I—7	<i>Bhutanitis mansfieldi</i>				◆		◆	
I—8	<i>Sinonitis thadina</i>				◆		◆	

photo-76 *Nae morhedus baileyi*





photo-77 Muntiacus gongshanensis

Table 19 The proportion of endemic species in the nominated area

Categories	Number of species in TRFA	Number of endemic species	%
Mammals	173	81	46.82
birds	417	22	5.27
Reptilians	59	27	45.76
Amphibians	36	25	69.44
Fishes	76	35	46.05
Papilionids-Parnassiinae	27	8	29.62
Total	788	200	25.38

The dominant categories in the nominated area are Crocidurinae, small Rodentia and Ochotona of mammals; Phasianidae and Timaliinae of birds; Oreolalax spp. of amphibians, Sisoridae, Schizothoracinae and Triplophysa spp. of fishes, and Parnassius of insects. All these categories express acute species or categories differentiation in this area as well as nearby regions.

3.3.3 Diversity of Ecosystem Types

3.3.3.1 Introduction

The nominated area possesses seven climatic zones which are correspondent to southern subtropic zone, middle subtropical zone, northern subtropical zone, warm temperate zone, temperate zone, cold-temperate zone and cold (frigid) zone of the northern hemisphere. So rich and varied vegetation types have developed. There are dense primitive forests, and also desert-like, microphyllous shrublands of dry and warm valleys. There are savanna-like grass thickets with sparse trees and shrubs of dry and hot river valleys, and also vast alpine meadows. Diverse vegetation types provide splendid habitats for various animals and plant species, therefore, complicated ecosystem types exist.

3.3.3.2 Vegetation types and distribution

According to records of “Vegetation of China” and “Vegetation of Yunnan”, this area has 10 vegetation types and 23 vegetation sub-types (Table 20), and more than 90 formations. It may be the place with most plentiful vegetation types in the world.

Table 20 Vegetation types of the nominated area

Vegetation types	Vegetation sub-types
I. Evergreen broadleaved forests	1. Monsoon evergreen broadleaved forests 2. Humid evergreen broadleaved forests 3. Semi-humid evergreen broadleaved forests 4. Middle mountain humid evergreen broadleaved forests
II. Sclerophyllous evergreen broadleaved forests	5. Cold-temperate mountainous sclerophyllous evergreen oak forests 6. Dry-warm river valley sclerophyllous evergreen oak forests
III. Deciduous broadleaved forests	7. Deciduous oak forests 8. Anus forests
IV. Warm coniferous forests	9. Warm-temperate coniferous forests
V. Temperate coniferous forests	10. Warm-hot coniferous forests 11. Temperate coniferous and broadleaved mixed forests (<i>Tsuga</i> forest)
VI. Savanna shrublands	12. Temperate-cool coniferous forests 13. Cold-temperate coniferous forests 14. Dry-hot savanna like grass clumps with sparse trees and shrubs
VII. Shrublands	15. Dry-warm river valley microphyllous shrublands
VIII. Meadows	16. Cold-temperate shrublands 17. Sub-alpine meadows
IX. Alpine debris flow sparse vegetaion	18. Alpine meadows 19. Alpine debris flow sparse vegetaion
X. Alpine-lake lacustrine vegetation	20. Emergent aquatic plant communities 21. Floating-leavies plant communities 22. Submerged plant communities

Monsoon evergreen broadleaved forests are distributed below 1,500 metres on the west slope of Gaoligong Mountain (Dulong River). The tree layer is composed of species from Lauraceae, Hamamelidaceae, Guttiferae and Magnoliaceae, including such species as *Cinnamomum bejolghota*, *Phoebe macrocarpa*, *Exbucklandia populnea*, *Garcinia esculenta*, *Artocarpus gongshanensis*, *Ficus cyrtophylla*, *F. esquiroliana* and *Reevesia pubescens* etc.. The shrub layer and herb layer have more tropical elements.

Humid evergreen broadleaved forests are located below 2,000m on both east and west slopes of Gaoligong Mountain and west slope of Biluo Snow Mountain. It is humid and rainy and the dry and rainy seasons are not



photo-78 Humid Evergreen Broadleaved Forests

obvious. The main edificators are composed of *Cyclobalanopsis lamellosa* and *Lithocarpus elegans* of Fagaceae, *Machilus viridis* of Lauraceae, *Exbucklandia populnea* of Hamamelidaceae and *Manglietia insignis* of



photo-79 Middle Mountain Humid Evergreen Broadleaved Forests

Magnoliaceae. The forest floor ferns and mosses contain abundant subtropical elements.

Semi-humid evergreen broadleaved forests are located in the subtropical mountains east of Biluo Snow Mountain, from 1,700 to 2,300m. The main edificators are made up with *Cyclobalanopsis glaucooides*, *Lithocarpus dealbatus*, *Castanopsis delavayi* and *C. orthocantha*, of Fagaceae. Their leaves are leathery; Barks are rough, and trunks are spiral.

The middle mountain humid evergreen broadleaved forests are distributed from 2,000 to 2,600m of Gaoligong Mountain and Biluo Snow Mountain. The main edificators are composed of *Cyclobalanopsis oxyodon* of Fagaceae, *Machilus longipedicellata* of Lauraceae, *Magnolia*

campbellii, *Manglietia insignis* and *Parakmeria nitida* of Magnoliaceae and *Illicium wardii* of Illiciaceae etc.. In the forests are also living *Taiwania flousiana* and *Torreya yunnanensis*. Because the environment is warm and humid, many epiphytes consisted of mosses and ferns can be found.

The cold-temperate mountain sclerophyllous evergreen broadleaved forests are distributed from 2,500 to 3,800m of the riparian environment along the Lancang and Jinsha river valleys. They are mainly seen on the dry sunny slopes or limestone substrate where *Picea* and *Abies* forests cannot grow. Such forests are composed of *Quercus aquifolioides*, *Q. longispica*, *Q. Rehderiana*, *Q. pannosa* and *Q. senescens* of Fagaceae. They are also called moun-



photo-80 Sclerophyllous Evergreen Broadleaved Forests(Zhongdian)

tain sclerophyllous oak forests. Their leaves are leathery, with thorns along the rims of leaves; and fine hairs on the back of leaves, indicating the xerophytic structure. They are the vegetation type of Mediterranean climate with irain and heat occur in different periods. Along the banks of Lancang and Jinsha rivers where irain and heat occur in the same period, there exist sclerophyllous evergreen oak forests, which is the remnant of ancient Mediterranean climate.

The dry-hot river valley sclerophyllous evergreen forests are located along the banks of Jinsha river below 2,600m. It is composed of *Quercus cocciferoides*, *Pistacia weinmannifolia*, *Diopspyros mollifolia*, *Terminalia franchetii*, etc.. Trees are low with bending branches. Owing to the dryness within the forest, there are few epiphytes.

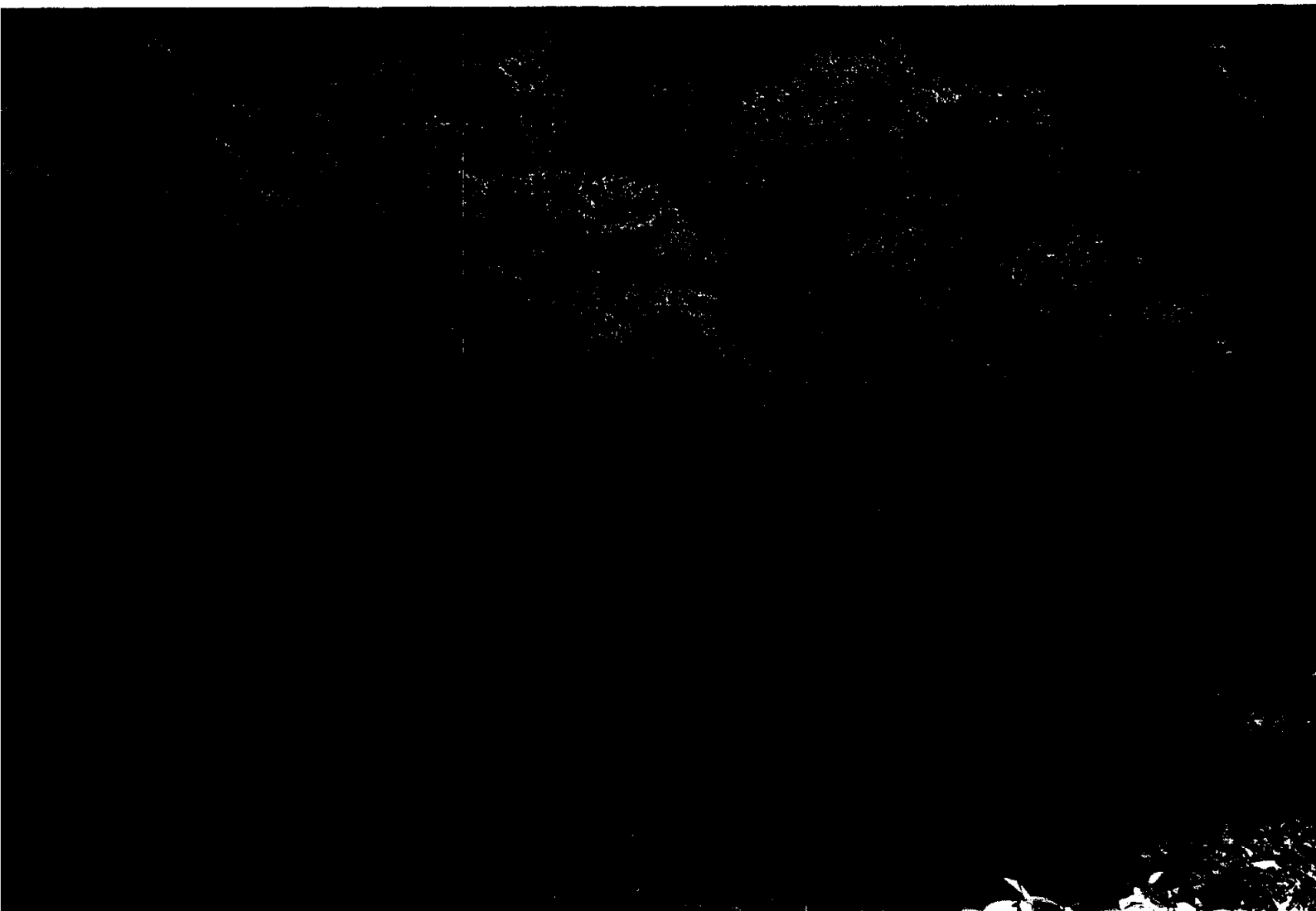
The deciduous oak forests are sparsely distributed in the southern sections of Lancang river and Jinsha river.

They are often mingled with semi-humid evergreen broadleaved forests and *Pinus yunnanensis* forest. The main plant species are *Quercus variabilis*, *Q. acutissima* and *Q. aliena* of Fagaceae. Their leaves fall in winter, so the seasonal aspects is obvious, and they are not distributed as zonal type.

The alnus forests are small patches of pure forests, which are often distributed in the place where middle mountain humid evergreen broadleaved forests were destroyed. The *Dryopteris wallichiana* is the common herb on the forest floor. This vegetaion type is a kind of secondary vegetation and not distributes zonally.

The deciduous broadleaved forests are mainly distributed from 3,000 to 3,500m. It is consisted of *Betula*

photo-81 *Alnus nepalensis* (Gongshan)



platyphylla and *B. utilis* var. *sinensis* of *Betulaceae*, *Populus haoana* of *Salicaceae* and *Acer cappadocicum* var. *sinicum* of *Aceraceae*. With obvious seasonal aspect, these vegetation are tender green in spring, pure green in summer and colourful in autumn.

The tree layer of warm-temperate coniferous forests is mainly composed of *Pinus yunnanensis* and *P. armandi*, etc., and distribute from 1,500 to 2,800m. Generally, they are secondary vegetation after semi-humid evergreen broadleaved forests or middle mountain humid evergreen broadleaved forests have been destroyed. Within the forests the seedlings of *Castanopsis delavayi* and *Cyclobalanopsis glaucoides* can be seen. The shrub layer is mainly composed of *Rhododendron decorum*, *Lyonia ovalifolia* and *Vaccinium fragile*.

The tree layer of warm-hot coniferous forests is mainly composed of *Pinus kesiya* var. *langbianensis*. This kind of vegetation type is merely distributed on low-altitude slopes of Lushui County. It is the northern boundary of warm or hot coniferous forests.

photo-82 Deciduous Broadleaved Forests

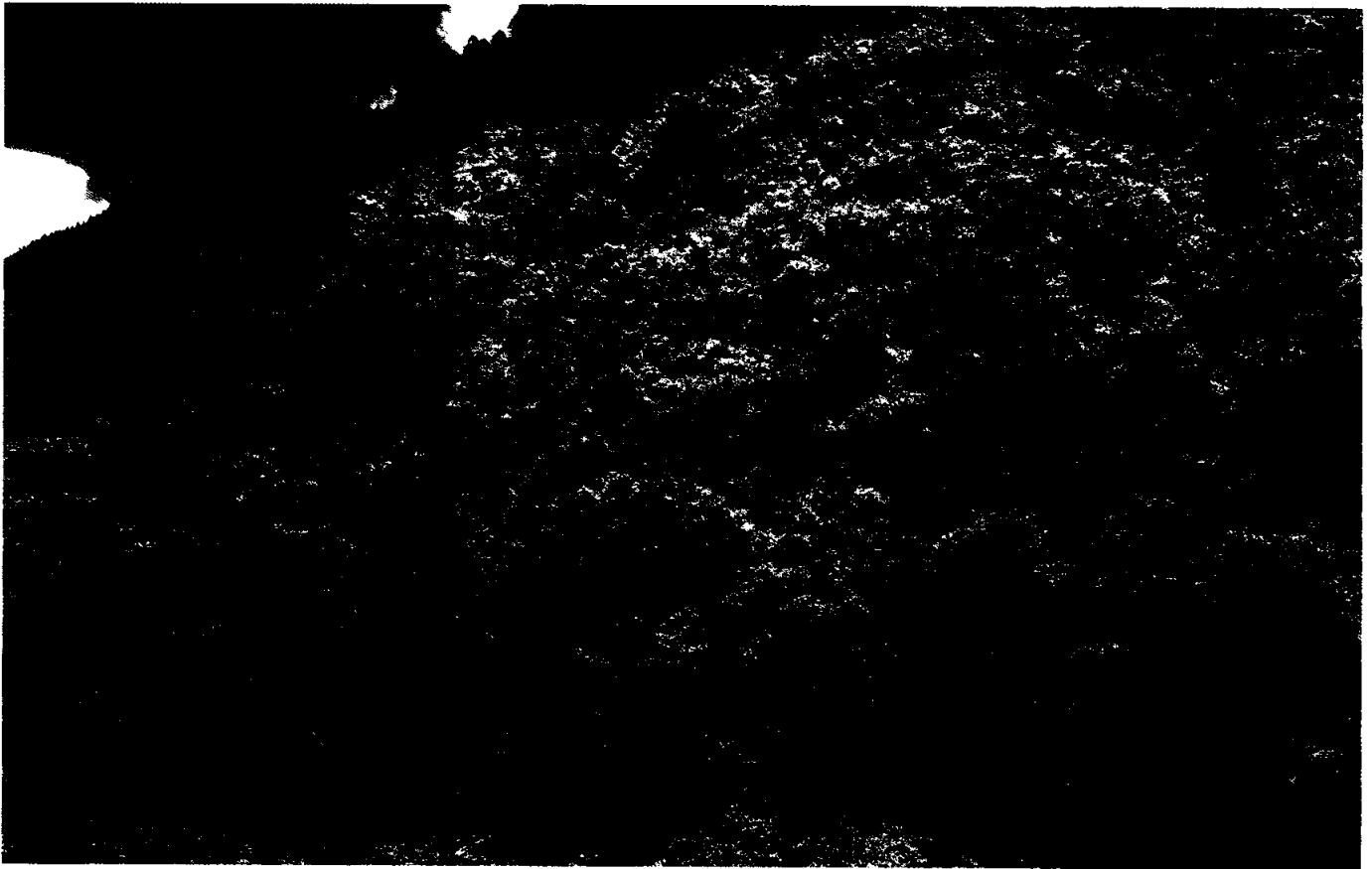
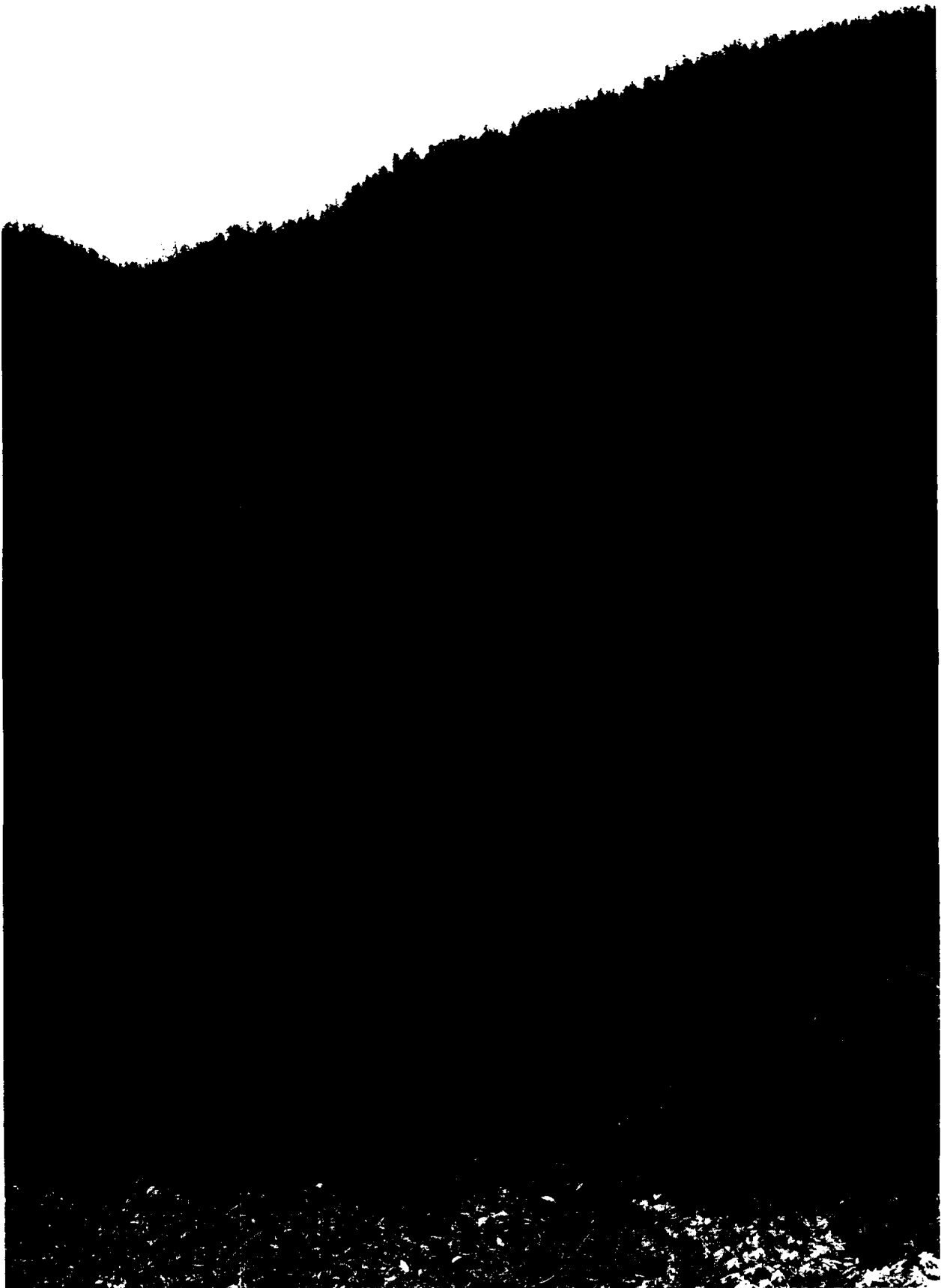


photo-83 Tsuga Forests (Weixi)



The temperate coniferous and broadleaved mixed forests (*Tsuga* forests) are distributed from 2,600 to 3,100m. They mainly belong to the vegetation types above i.e, the middle mountain humid evergreen broadleaved forests. The tree layer is mainly composed of *Tsuga dumosa*, mixed with *Pinus armandii*, *Picea brachytyla* var. *complanata*, *Abies ernestii* var. *salouensis*, *Betula platyphylla* and *B. utilis* var. *sinensis* etc.. The physiognomy is colourful in autumn, so they are known as colourful forest.

The temperate-cool coniferous forests is consisted of *Pinus densata*, *Tsuga dumosa* and *Sabina wallichiana*, etc., and are distributed from 2,800 to 3,500m to the east of Biluo Snow Mountain. Mainly on the dry slopes above *Pinus yunnanensis* forests. Its upper boundary connects with *Picea* forests. In the shrub layer, *Quercus monimotricha*, *Rhododendron yunnanensis*, *Lyonia villosa* etc. are common.

photo-84 Evergreen coniferous Forests
(Zhongdian fir forest)



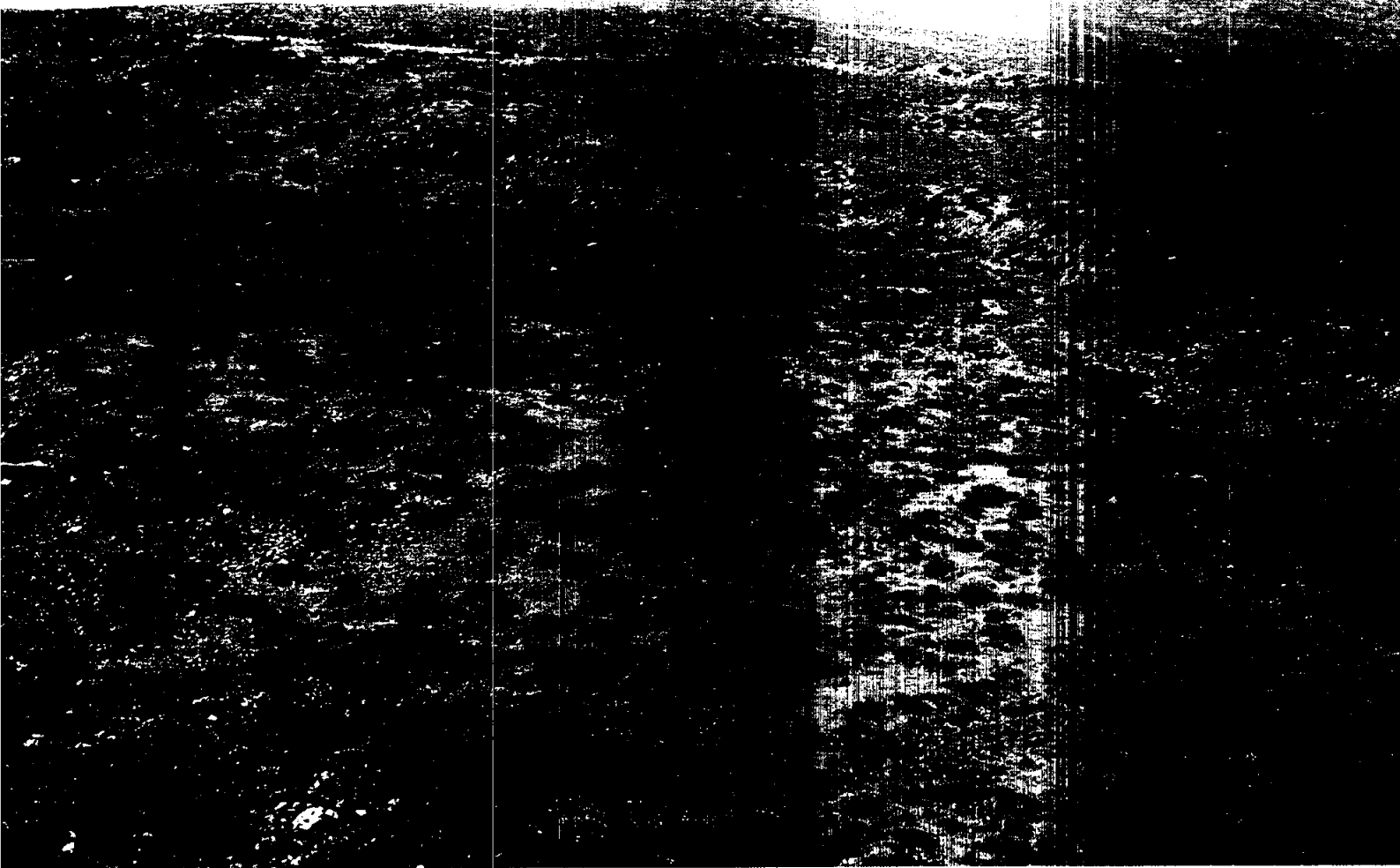


photo-86 Alpine
Shrublands (Deqin)

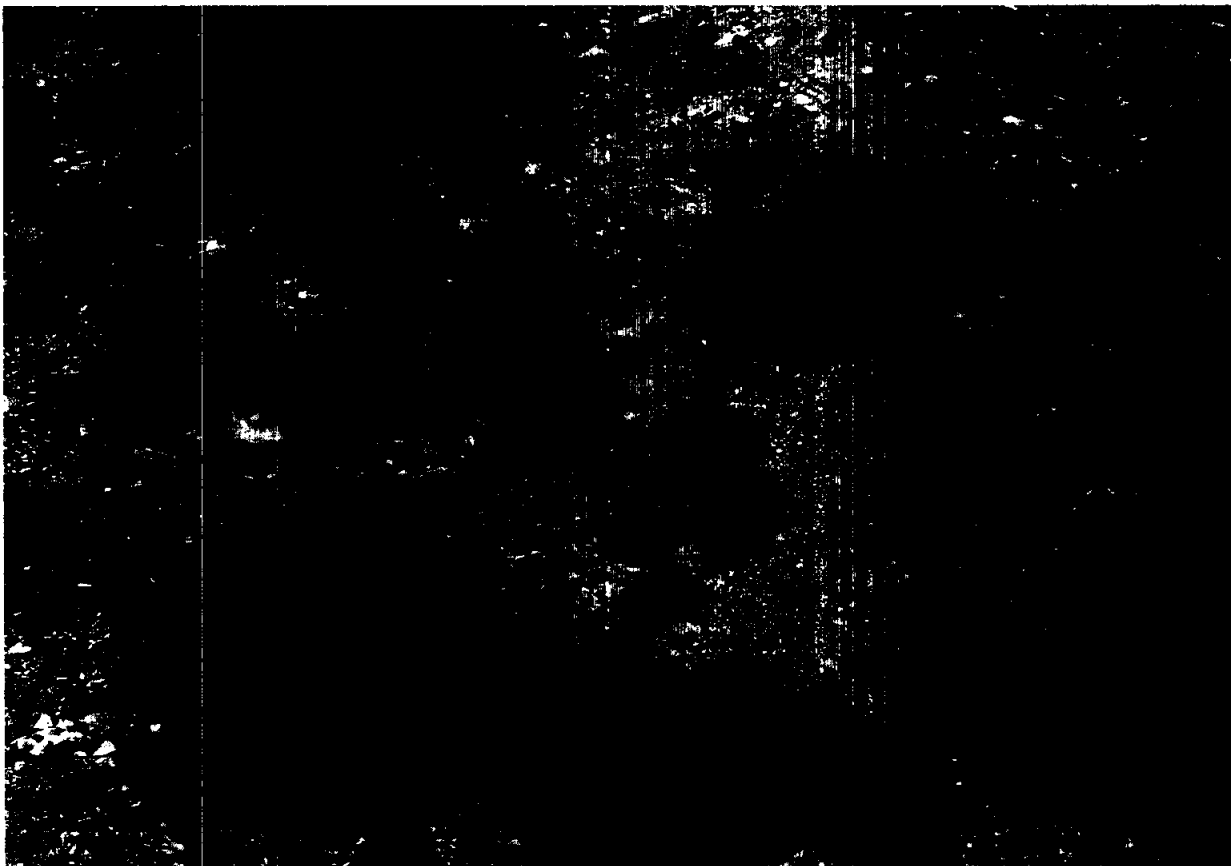


photo-85
Dry-hot river valley
small-leaf shrubs

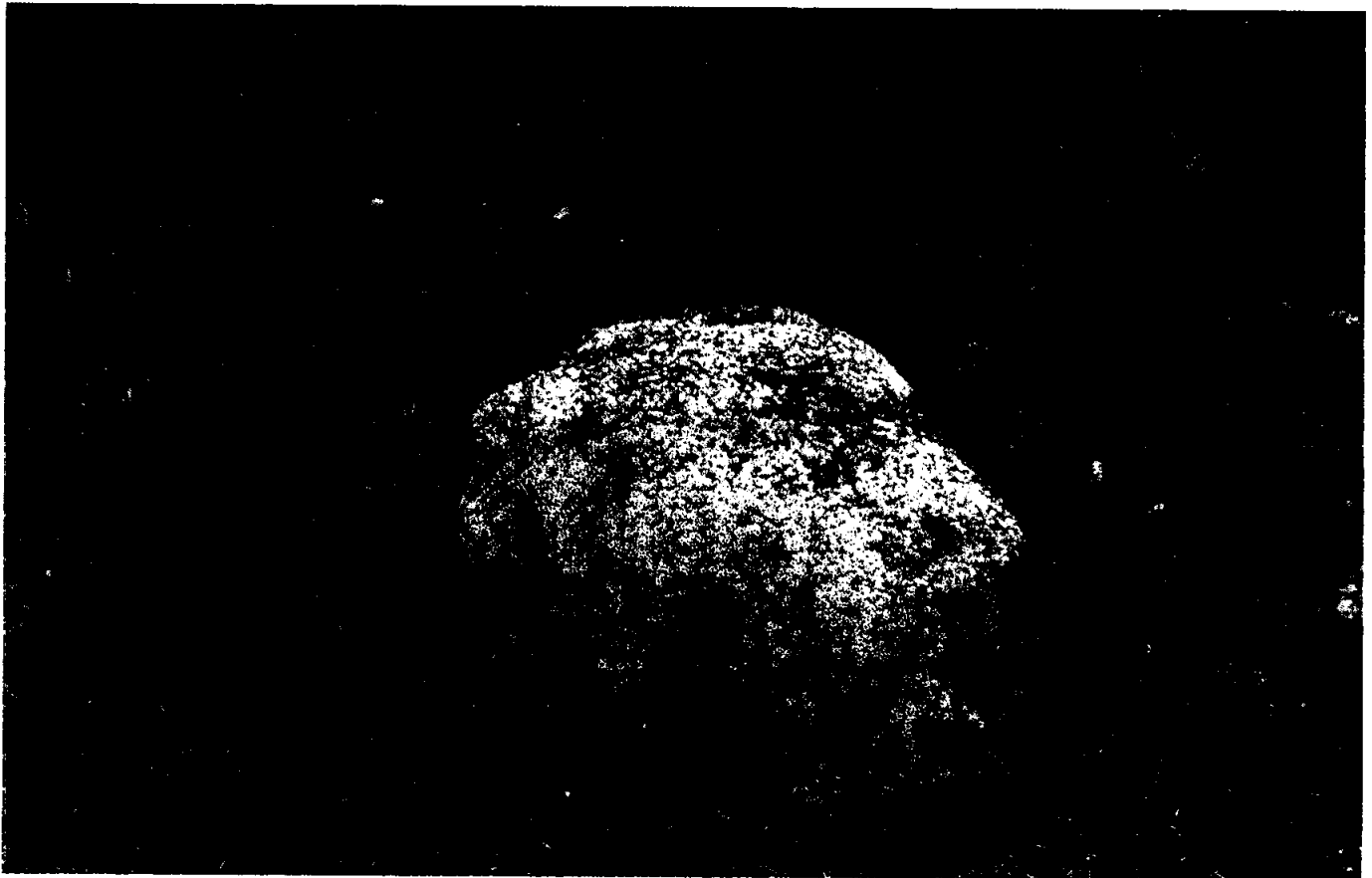


photo-87 *Arenaria polytrichoides*

The cold temperate evergreen coniferous forests include *Picea* forests, *Abies* forests and *Larix* forests.

The *Picea* forests are distributed at 3,100-3,500m. They belong mainly to the vegetation type distributed above temperate coniferous-broadleaved mixed forests. The upper tree layer comprises mainly *Picea likiangensis* and *P. brachytyla* var. *complanata*, mixed with *Quercus aquifolioides*, *Larix potaninii* etc.. The lower tree layer generally consists of *Betula platyphylla*, *B. utilis* var. *sinensis* etc.. The branches are densely covered with *Usnea longissima*.

The *Abies* forests are distributed in the vast area from 3,500 to 4,100m, belonging to the type above *Picea* forests. It is composed of *Abies georgei*, *A. forrestii*, *A. delavayi* and *A. ferreana*, etc.. Its habitat is the most cold and humid one of the cold-temperate evergreen coniferous forests. *Rhododendron* or *Sinarundinaria* dominate.

The *Larix* forests is mainly consisted of *Larix*

potaninii var. *macrocarpa*. Its elevation is about 3,200-3,900m. It is the pioneering community after the *Abies* forests have been destroyed. Amidst the forest, patches of *Sinarundinaria* can be seen.

The savanna-like grass clumps with sparse trees and shrubs of dry-hot valleys is distributed in southern part of Jinsha River valley. The physiognomy of the community looks like savanna. The savanna shrubs mainly include; *Bombax malabaricum*, *Ficus semicordata*, *Phyllanthus emblica*, *Woodfordia feuticosa* and *Pistacia weinmannifolia*, etc.. The grass species are mainly *Heteropogon contortus*, *Cymbopogon distans*, *Themeda hookeri*, etc..

The microphyll shrubs of dry-warm river valleys are distributed in the river valley up yanmen of Lancan river and near Benzilan of Jinsha River. This kind of vegetation has low coverage, and large tracts of land are exposed,

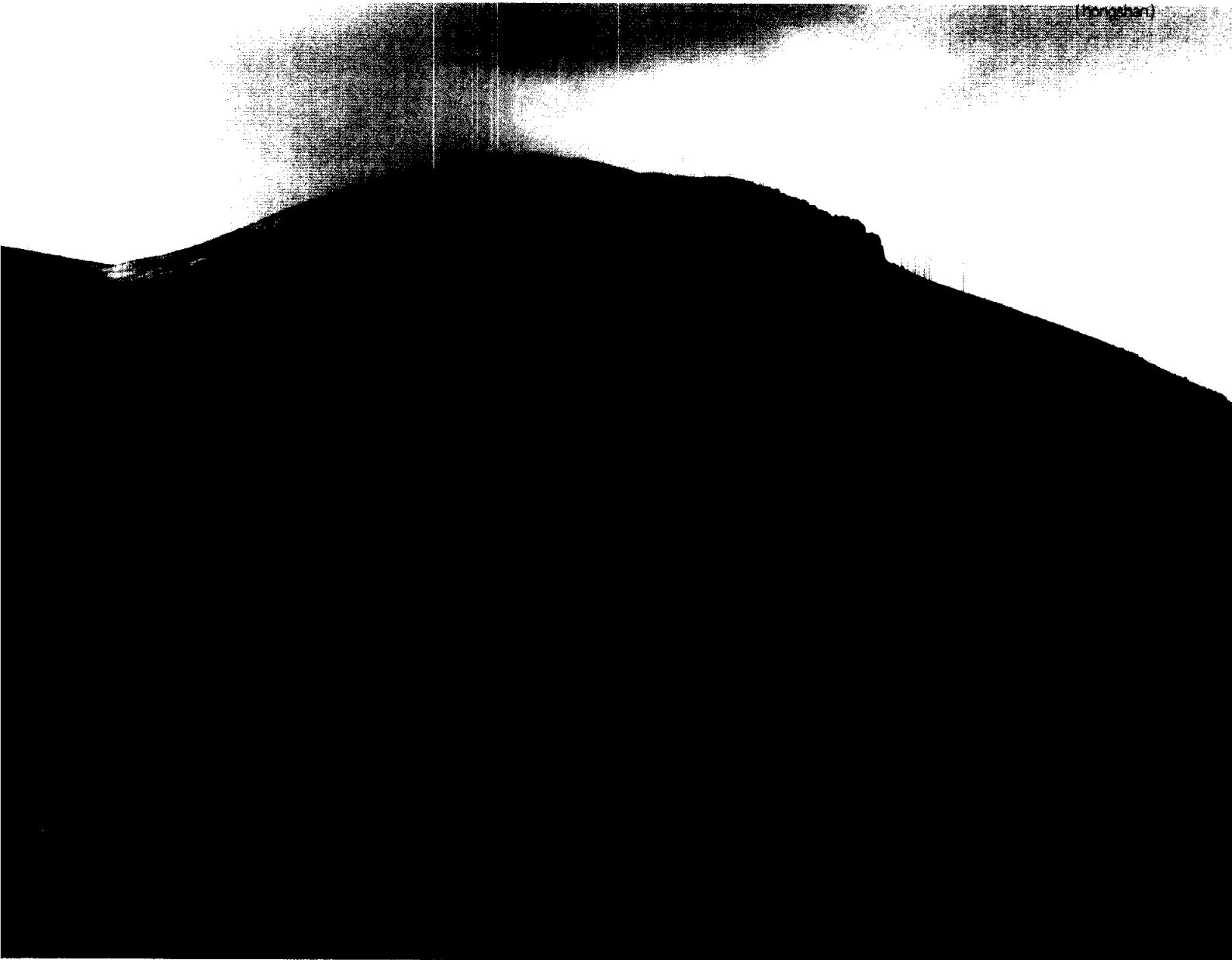
making up desert or semi-desert vegetation landscape. The constituent plants include: *Sophora vicifolia*, *Osteomeles schwerinae*, *Bauhinia faberi* var. *microphylla*, *Sageretia pycnophylla*, *Excoecaria acerifolia*, *Elsholtzia capituligera*, *Pertya bodinieri* var. *berberioids*, *Ceratostigma minus*, *Leptodermis pilosa* var. *microphyla*, *Jasminum humile*, *Indigofera lenticellata*, *Daphne holosericea*, *Artemisia yunnanensis* and *Vitex microphylla*. They are all small shrubs with thorns, small leaves and fine hairs.

The cold-temperate alpine shrublands distribute above tree line and often mingled with alpine meadows. Within

alpine shrubs, the *Rhododendron* shrub is most common. In addition, there are alpine *Quercus* shrubs and alpine *Salix* shrubs. The plant species include *Rhododendron cephalanthum*, *Rh. Adenogynum*, *Rh. traillianum*, *Rh. fastigiatum*, *Salix calyculata*, *S. vaccinioides* and *Quercus monimotricha*, etc.. The vegetation is low, but dense and have flat top, with single dominant.

The subalpine meadows distribute in the clearings after sub-alpine *Picea* forests and *Abies* forests have been destroyed. The altitudinal range is about 3,000-4,000m. The compositional plants may list *Festuca vierhapperi*, *Rumex nepalensis*, *Ligularia vellerea*, *Potentilla fulgens*

photo-88 The Alpine Debris Flow Vegetation (Kongshan)



and *Pimpinella candolleana*, etc..

The alpine meadows distribute above forest tree line. Its altitudinal range lies between 4,000-4,800m. Plant species is diverse, mainly, species of *Rosaceae*, *Ranunculaceae*, *Umbeliferae*, *Polygonaceae*, *Primulaceae*, *Gentianaceae*, *Papilionaceae*, *Compositae*, *Gramineae* *Cyperaceae* etc. Common plants may enumerate *Potentilla dumosa*, *Polygonum sphaerostachyum*, *Gueldenstaedtia yunnanensis*, *Aster oreophilus*, *Poa patens*, *Kobresia tunicata* etc.

The alpine debris flow sparse vegetation is a category of vegetation distributed mostly in the altitudinal belt spectrum. The habitat of this vegetaion type is characterized by a high temperature range. The surface of the ground is covered with more stones than soil, and is unstable. Though the plant species is diverse, yet the vegetation is sparse. The dominant families are *Compositae*, *Labiatae*, *Umbeliferae* and *Papilionaceae*, *Saussurea leucoma*, *S. medusa*, *Eriophyton wallichii*, *Phyllophyton complanatum*, *Lamiophlomis rotata*, *Pleurospermum amabile* and *Astragalus acaulis* etc.

Emergent aquatic plant communities include *Typha*



photo 89
Water plant group
(ZhongDian)

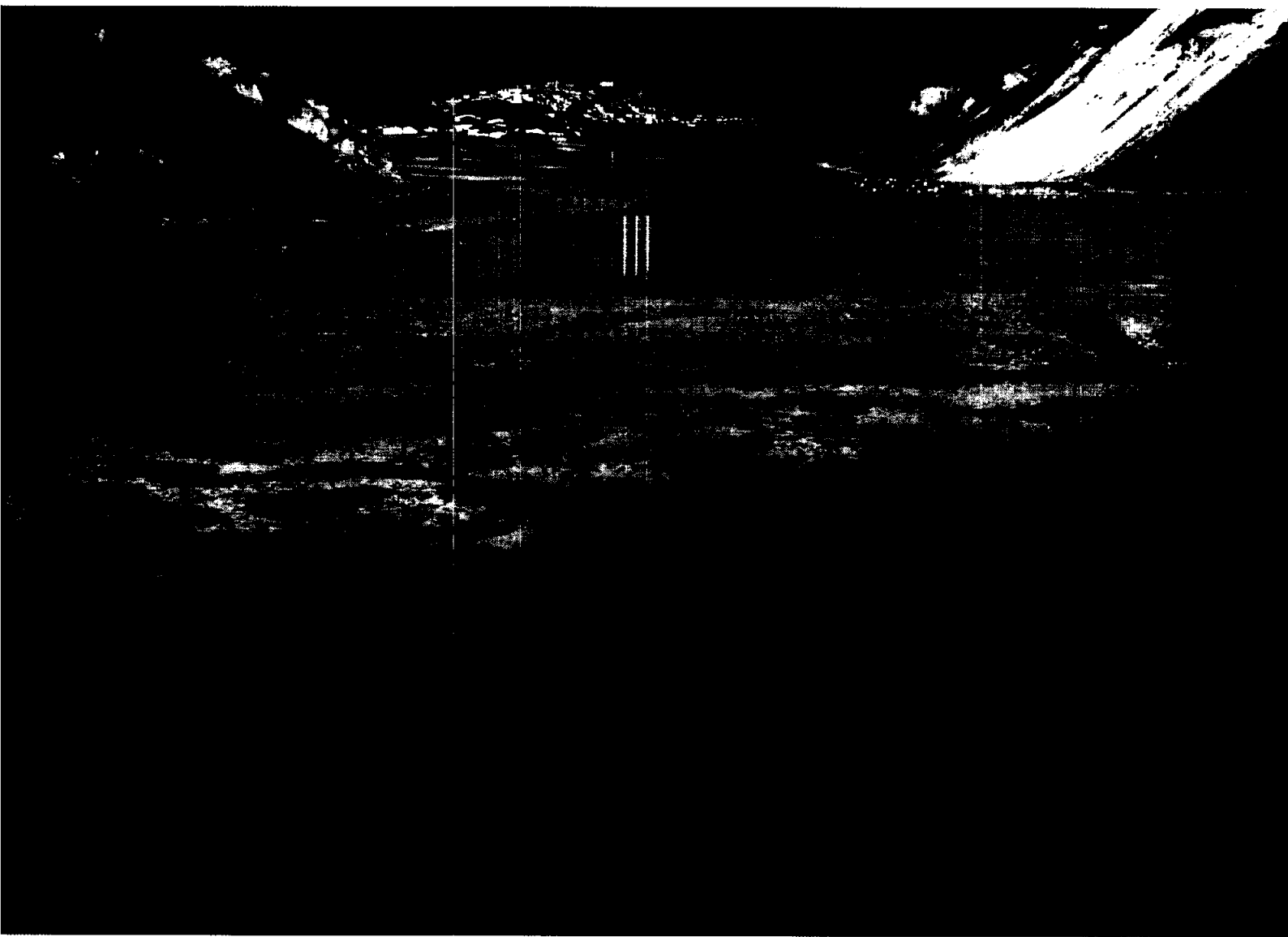


photo-90 Marsh (ZhongDian)

angustifolia, *Sparganium stoloniferum*, *S. simplex*, *S. glomeratum*, *Eleocharis yunnanensis*, *Hippuris vulgaris*, *Scirpus validus*, etc.

Leaf-floating plant communities consist of *Potamogeton lucens*, *Nymphoides peltatum*, *Nymphaea tetragona*, etc..

Submerged plant communities consist of *Ottelia acuminata*, *Myriophyllum spicatum*, *Hydrilla verticillata*, *Batrachium bungeri*, etc..

3.3.3.3 Distribution rule of vegetation

The vegetation distribution pattern in the nominated area is controlled by southeast monsoon (Pacific Ocean monsoon), southwest monsoon (Indian Ocean monsoon), topography, as well as altitudinal climatic belts. The moist

air condition is wetter in the west and dryer in the east, while the temperature condition is warmer in the south and colder in the higher elevation. The vegetation distribution pattern is determined by the combination of water and heat conditions can be seen in Table 21 and Table 22.

Table 21 Horizontal distribution pattern of vegetation in the nominated area

East-west South-north	Nujiang river	Lancang River	Jinsha River
	North	Humid evergreen Broadleaved forests	Dry-warm river valley microphyllous shrubs
South	Monsoon evergreen broadleaved forests	Semi-humid evergreen broadleaved forests	Dry-hot river valley savanna

Table 22 Vertical distribution pattern of vegetation in the nominated area

Mountain Sea Level(m)	Gaoligong Mountain		Biluo Snow Mountain		Yunling Mountain	
	West slope	East slope	West slope	East slope	West slope	East slope
6,500-6,740						
6,000-6,500						
5,500-6,000						Alpine debris-flow
5,000-5,500					Alpine debris flow	Alpine debris flow
4,500-5,000				Alpine meadow	Alpine meadow	Alpine meadow
4,000-4,500	Alpine meadow	Alpine meadow	Alpine meadow	Alpine meadow	Alpine meadow	Alpine meadow
3,500-4,000	Abies forest	Abies forest	Abies forest	Abies forest	Abies forest	Abies forest
3,000-3,500	Picea asperata	Picea asperata	Picea asperata	Picea asperata	Picea asperata	Picea asperata and sclerophyllous evergreen oak forests
2,800-3,000	Tsuga forest	Tsuga forest	Tsuga forest	Pinus densata forest, sclerophyllous evergreen oakery forests	Sclerophyllous evergreen oakery forests Pinus densata forest	sclerophyllous evergreen oak forests Pinus densata forest
2000-2800	Middle mountain humid evergreen broadleaved forests	Middle mountain humid evergreen broadleaved forests	Middle mountain humid evergreen broadleaved forests	Pinus densata forest, pinus yunnanensis forest	Dry-warm river valley microphyllous shrubs	Dry-warm river valley microphyllous shrubs
1500-2000	Humid evergreen broadleaved forests	Humid evergreen broadleaved forests	Humid evergreen broadleaved forests	Pinus yunnanensis		
1000-1500	Monsoon evergreen broadleaved forests	Semi-humid evergreen broadleaved forests Pinus yunnanensis forest				

3.3.3.4 Ecosystem types

There is no unified criterion on the division of ecosystems, yet it is generally accepted that basing on vegetation types or subtypes is one of them. so there are at least 15 types of ecosystems in the nominated area of south subtropical monsoon evergreen broadleaved forest ecosystem.

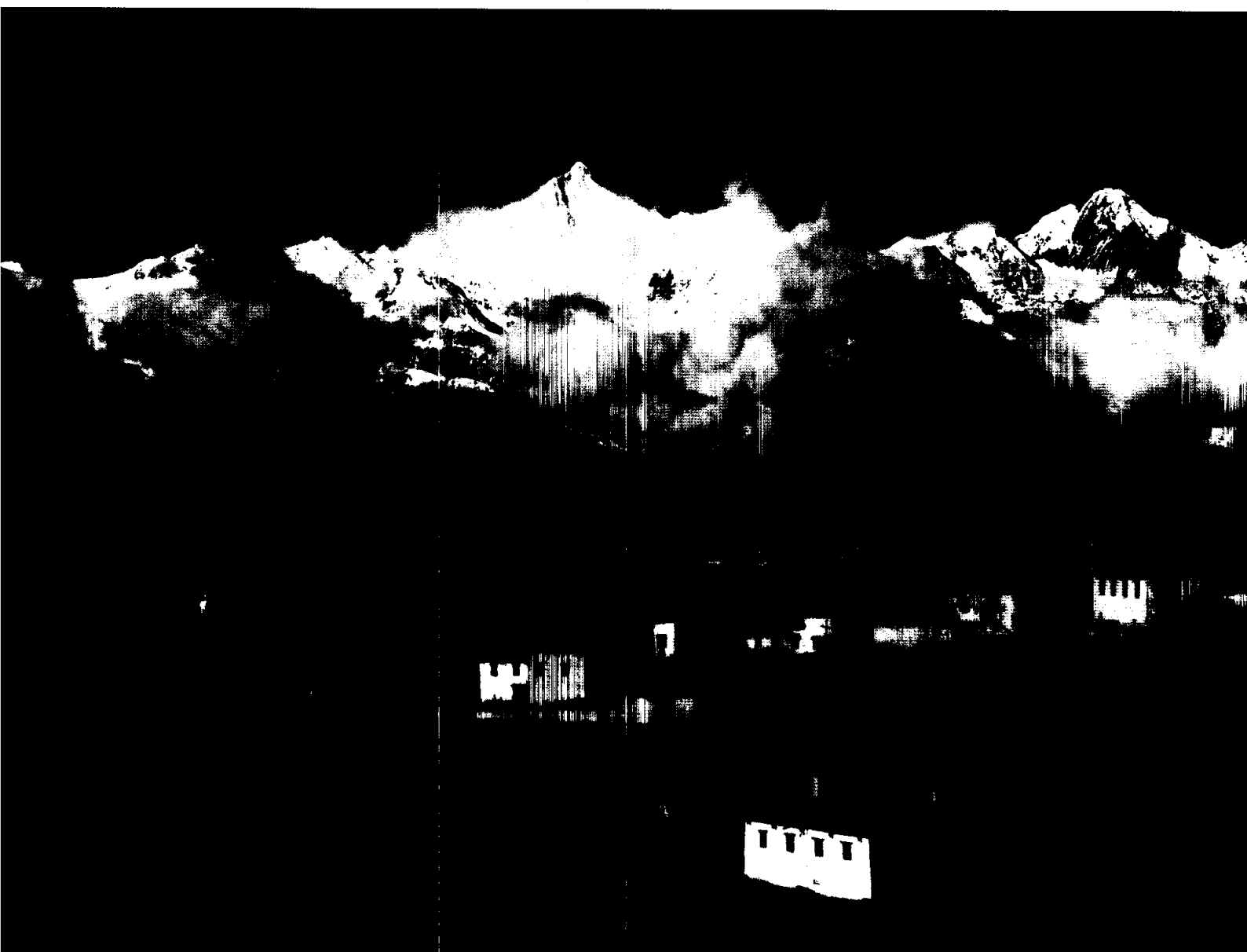
middle subtropical semi-humid evergreen broadleaved forest ecosystem.

middle altitude humid evergreen broadleaved forest ecosystem.

sclerophyllous evergreen oak forest ecosystem.

temperate deciduous broadleaved forest ecosystem.

0-91 Kawagebo Peak, summit of Taizi Snow Mountain
(6,740 metres above sea level)



warm-temperate coniferous forest (*Pinus yunnanensis* forest and *Cupressus duclouxiana* forest) ecosystem.

temperate-cool coniferous forest (*Picea* forest, *Abies* forest, *Larix* forest) ecosystem.

dry-hot savanna (with sparse trees, shrubs and grasses clumps) ecosystem.

ecosystem of microphyllous shrubs (desert) in dry-warm valleys ecosystem.

alpine meadow ecosystem.

alpine shrubs ecosystem.

alpine debris flow ecosystem.

plateau lake ecosystem.

farmland ecosystem, etc.

In a certain sense, these ecosystems are representatives of most ecosystem types of northern hemisphere. Therefore, the nominated area has most of the ecosystem types of northern hemisphere. It should be one of the places with richest ecosystem types in the world. It can also be seen as an epitome of biotic eco-environment of northern hemisphere.

South subtropical monsoon evergreen forest ecosystem is a transitional area from tropical forest ecosystem to subtropical forest ecosystem. Such ecosystem appears in the lower reaches of Dulong River and Nujiang River. The producer species are *Artocarpus gongshanensis*, *Ficus auriculata*, *F. cyrtophylla*, *F. esquiroliana* and *Exbucklandia populnea*, etc.. the consumer species are *Budorcas taxicolor*, *bos frontalis* and *Naemorhedus cranbrooki*, etc..

The middle subtropical semi-humid evergreen broadleaved forest ecosystem appears in the lower reaches of Lancang River and Jinsha river. It is the zonal natural ecosystem type which succeeds into warm-temperate coniferous forest (*Pinus yunnanensis* forest) after being disturbed by mankind. Its producer species are *Castanopsis delavayi*, *C. orthacantha*, *Cyclobalanopsis glaucoides* and *Lithocarpus dealbatus*, etc.. The consumer species are *Sus scrofa* and *Chrysolophus pictus*, etc..

The middle subtropical humid evergreen broadleaved ecosystem of middle altitude occurs on the waist part slopes of Gaoligong Mountain and Biluo Snow Mountain.

The producer species are *Lithocarpus hancei*, *L. pachyphyllus*, *Magnolia campbellii*, *Manglietia hookeri* and *M. insignis*, etc.. The consumer species are *Ailurus fulgens* and *macaca Mulatta* and *Streptopelia chinensis*, etc..

The middle subtropical sclerophyllous evergreen oakery ecosystem appears distributes in the waist part along the river valleys in the upper reaches of Lancang river and Jinsha river. The producer species are *Quercus aquifolioides*, *Q. longispica*, *Quercus pannosa*, *Q. rehderiana* and *Q. senescens*, etc.. The consumer species include *Moschus fuscus* and others.

The temperate deciduous broadleaved forest ecosystem occurs at the altitude of 3,000-3,500m on Gaoligong Mountain, Nushan Mountain (blue Snow Mountain) and Yunling Mountain. The producer species are *Populus*, *Betula*, *Acer* and *Sorbus*, etc.. The consumer species include *Corvus monedula*, etc..

The warm-temperate coniferous forest (*Pinus yunnanensis* forest, *Cupressus duclouxiana* forest) ecosystem appear in the vast areas in lower reaches of Lancang and Jinsha rivers. The main producer species are *Pinus yunnanensis* and *Pinus armandi*, etc.. The consumer species include *Vulpes vulpes* and *Callosciurus erythraeus*, etc..

The warm-cool coniferous forest ecosystem (*Tsuga* forest, *Pinus densata* forest, etc.) appears at the altitude of 2,800 to 3,300m, of Gaoligong Mountain, Nushan (Biluo snow Mountain) and Yunling Mountain. The producer species are *Tsuga durmosa* and *Pinus densata*, etc.. The consumer species are *Carrulus glanlarus* and *Canis cupus*, etc..

The cold-temperate coniferous forest (*Picea* forest, *Abies* forest, *Larix* forest, etc.) ecosystem appears occurs at the altitude 3,300-4,100m in Gaoligong Mountain, Nushan (Biluo Snow Mountain) and Yunling Mountain. The producer species are *Picea likiangensis*, *Abies forrestii* and *Larix potaninii var. macrocarpa*, etc.. The consumer species are *Ursus arctos*, *Panthera uncia* and *Rhinopithecus bieti*, etc..

The dry-hot savanna-like ecosystem appears in river

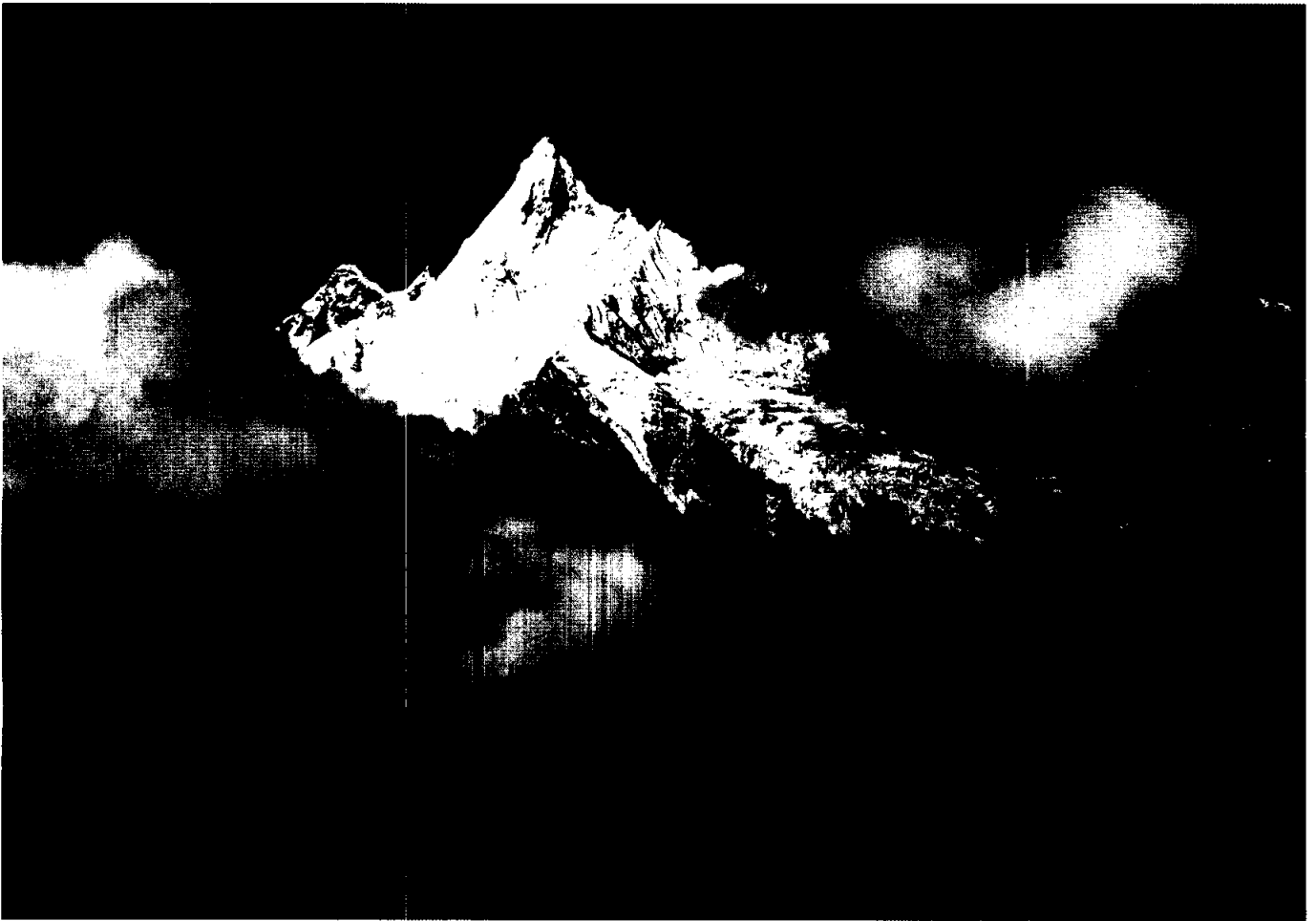


photo-92 Miancimu Peak, second summit of Taizi Snow Mountain

valley areas of the lower reaches of Lancang and Jinsha rivers. The producer species are *Bombax malabarica*, *Phyllanthus emblica* and *Pistacia weinmannifolia*, etc.. The consumers are *Ophiophagus hannah* and *Ophisaurus gracilis*, etc..

The microphyllous shrublands (desert) ecosystem of dry-warm river valleys appears in the river valley areas in upper reaches of Lancang and Jinsha rivers. The producer species are *Sophora viciifolia*, *Osteomeles schwerinae*, *Bauhinia faberi var. microphylla*, *Sageretia pycnophylla* and *Excoecaria acerifolia*, etc.. The consumer species are *Ophiophagus hannah* and *Ophisaurus gracilis*, etc..

The alpine meadow ecosystem appears at the altitude of 3,500-4,500m in Gaoligong, Nushan (biluo Snow Mountain) and Yunling Mountains. The producer species are *Potentilla dumosa*, *Polygonum sphaerostachyum*, *Gueldenstaedtia yunnanensis*, *Aster oreophilus*, *Kobresia tunicata*, etc.. The consumer species are *Poephagus*

gyunniens and *Pseudois nayaur*, etc..

The alpine shrublands ecosystem occurs at the altitude of 4,000-4,500m in Gaoligong, Nushan (Biluo Snow Mountain) and Yunling Mountains. The producer species are *Rhododendron cephalanthum*, *Rh. adenogynum*, *Rh. traillianum*, *Rh. fastifatium*, *Quercus monimotricha*, etc.. The consumer species include mouse, etc..

The alpine debris flow ecosystem type appears at the altitude of 4,500-5,500m in gaolignong, Nushan (Biluo Snow Mountain) and Yunling mountains. The producer species are *Saussurea leucoma*, *S. medusa*, *Eriophyton wallichii*, *Phyllophyton complanatum*, *Lamiphloomis rotata*, *Astrazalus acaulis*, etc.. The consumer species include *Pseudois nayaur*, etc..

The plateau lake ecosystems appears at the altitude of 3,500-4,500m in Nushan (Biluo snow Mountain) and Yunling Mountains. the producer species are *Typha angustifolia*, *Sparganium stoloniferum*, *Hippuris vulgaris*,

Potamogeton lucens, *Nymphoides peltatum*, *Myriophyllum spicatum*, *Batrachium bungeri*, etc.. The consumer species include *Dipptychus chungtienensis*, etc..

The Farmland ecosystem appears in the river valleys of Nujiang, Lancang and Jinsha rivers.

The producer species include *Zea mays*, *Hordeum vulgare var. nudum*, *Juglans regia*, *Castanea mollissima* etc.. The consumer species may list horse, ox, sheep, etc.

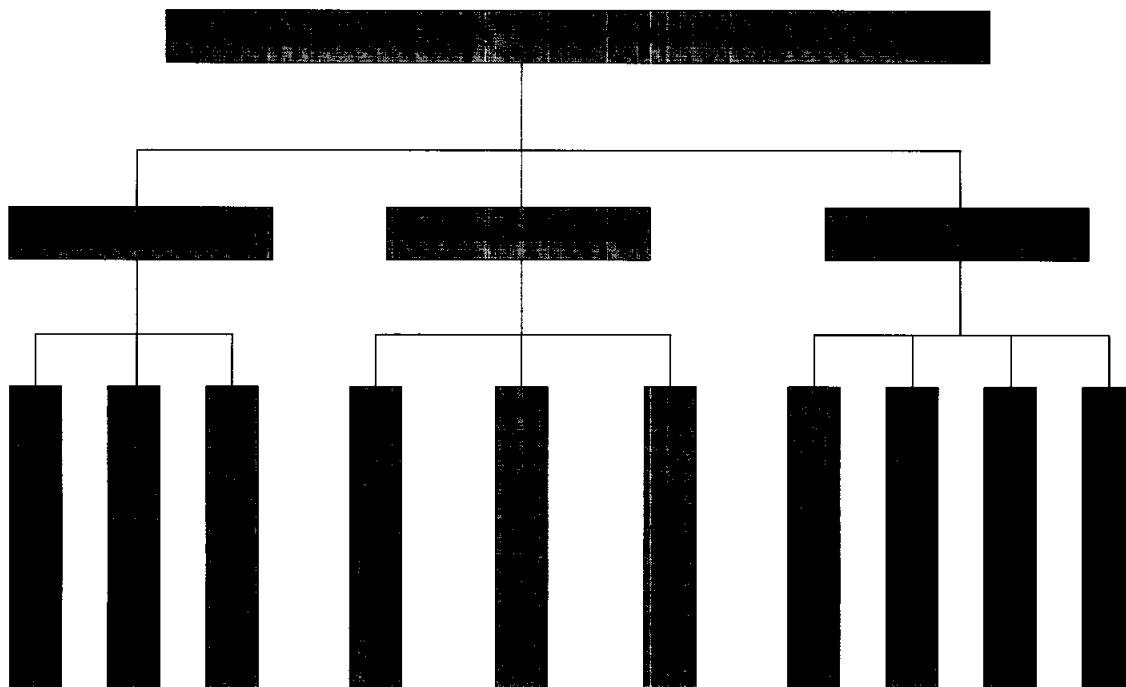
3.4 Diversified scenes

3.4.1 Scenic areas

The outstanding scenic resources in the property area are snow mountain and valleys, alpine lakes, glacier and meadows, Danxia and sinter, rare animals and plants, and waterfalls and brooks as well as colourful ethnic customs.

According to the plan of the "Three Parallel Rivers" scenic area, the area is divided into three zones, 10 key scenic areas and more than 100 scenic spots. Due to traffic limitation, conditions, the survey on scenic resources has been only limited in the key scenic areas. The overall survey is still going on.

Following is a table of the division of scenic areas:



3.4.2 Description of the scenes

3.4.2.1 Snow peaks and glaciers

There are four major mountain ranges in the property area -- Yunling, Nushan, Gaoligong and Dandanglika. Snow peaks are all over the area, making up a marvelous low-altitude scene of snow mountains (snowberg). The most well-known ones are Meili, Biluo, Taizi, Chali, Jiawu, Baimang, Hali, Runzi, Gengzong, Dilong, Yagang and Tianbao snowbergs. At the same time, modern glaciers are extensively developed in the property area. The best-known ones are Mingyongqia, Siqia and Haba snowbergs. (See Table 23)

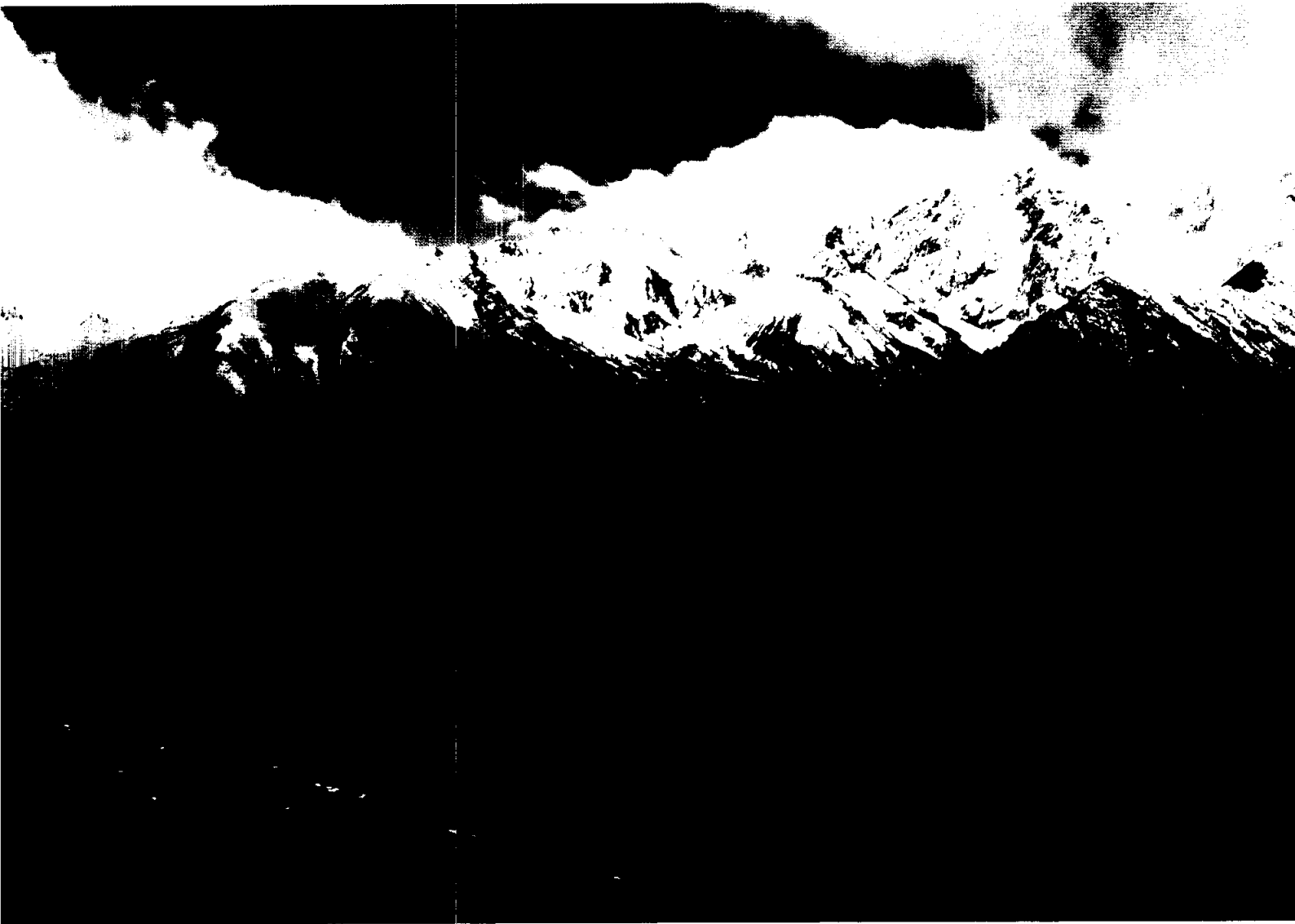


photo-93 Autumn of Baimang Snow Mountain

Table 23 Main snow mountains and glaciers in the nominated area

Serial No.	Name	Location	Characteristics
1	Meili Snowberg	Northwest of Deqin County town, 28°33'-28°41'N and 98°33'-98°47' E	"Meili" means "mountain of medicine" in Tibetan language. Part of Nushan Mountains, it is the boundary mountain to separate Yunnan and Tibet, connecting Adonggeni Mountain in Tibet in the north and Taizi Snow Mountain in the south. Multiple snow peaks stand over the mountain range, all higher than 5,000 metres above sea level. The main peak Shuolazengguimianbu is 5,229.5 metres above sea level. Glacier landforms such as arete, horn peaks, corries and glacial trough are developed. In the upper part of the mountain are mainly <i>Picea asperata</i> and <i>Abies</i> forests and alpine shrubs. The mountain abounds in herbal medicines and rare and precious fowls animals. In the lower part of the mountain is dry-hot river valley which is mainly deserted grass slope. The river runs turbulently through the bottom of the valley flanked by red rocks. The mountain, featuring arid landform below snow mountain forests, is a valuable comprehensive mountainous scenic spot.
2	Taizi Snowberg	West of Deqin County town, 28°12'-28°33'N and 98°30'-98°52' E	Part of Nushan Mountains, it is the highest mountain in Yunnan Province. The peaks are usually higher than 5,000 metres. The highest peak Kawagebo is 6,740 metres, the highest peak in the property area. The beautiful Miancimufeng, the second highest peak of the snowberg, enhances each other's beauty with the main peak. Taizi snowberg is high and steep, and snow peaks stand gracefully. There are more than 10 peaks higher than 6,000 metres. It is the top of the eight holy mountains in Kangba area. Modern glaciers are developed extensively. Rich vegetations are distributed in the well-developed external belts. The scenes are known for its diversified landforms, splendid flowers and green trees, brooks and glaciers, and Tibetan Buddhist culture. Sino-Japanese joint mountain climbing teams failed to climb the main peak three times when 17 people died, making the mountain all the more mysterious.
3	Baimang Snowberg	East of Deqin County town, 27°47'-28°30'N and 98°30'-99°21' E	As a part of Yunling Mountains, it is the watershed of Langcang and Jinsha rivers as well as the latter's tributary. Its peaks are generally above 5,000 metres above sea level. The main peak Lazhaqueni, 5,429 metres above sea level, is snow and glacier capped. Two typical glacial carved valleys appear in the shape of "W," lasting nearly 4,000 metres. In the lower reach of the glacier valley, one can see green meadows and oozing streams. In spring, azaleas are blossoming. In autumn, <i>Larix potaninii</i> forests appear goldenly red. The evergreen coniferous forests strike a marvelous contrast with vast snow.
4	Chali Snowberg	North of Deqin County town, 28°26'-29°03'N and 98°45'-99°00' E	Part of Yunling Mountains, it is the boundary mountain between Yunnan and Tibet and the northernmost range of Yunling. It links Ningjing Mountain in the north and Jiawu Snow Mountain in the south. The main peak, 5,534 metres above sea level, is the watershed of Langcang and Jinsha rivers. It is a destructive mountain which is mainly composed of limestone. The scenes are characterized by odd landforms and vertical distribution of vegetations.
5	Jiawu Snowberg	North of Deqin County town, 28°42'-28°50'N and 98°56'-99°01' E	As a part of Yunling Mountain and the watershed of Lancang and Jinsha rivers, the mountain links Chali Snowberg in the north and Yasai Snowberg in the south. The mountain is high and grandiose. The main peak, 5,220 metres above sea level, is snow capped on the top. The scenes feature glaciers, vertical vegetation belts, large primitive forests on the slopes and alpine meadow.

6	Haba Snowberg	East of Zhongdian County town, 27°10'-27°22'N and 100°02'-100°14' E	As a part of Yunling Mountains, it stands opposite Yulong Snow Mountain, beyond the Jinsha River. The main peak, 5,396 metres above sea level, is the main habitat of <i>Rhinopithecus bieti</i> and other rare animals. Above 4,000 metres above sea level, are snow fields, ice deserts and alpine meadows. The scenes are -- alpine lakes and hanging glaciers -- are specular, open and harmonious. The four kinds of pine trees create a beautiful scene of southern alpine hidden coniferous forest, which is rarely found in areas of the same latitude in the world. The best scenes appear in spring and autumn. Colourful flowers and green trees join to present the scenes of mountain forest park.
7	Mingyongqi a Glacier	Eastern slope of Kawagebo Peak of Taizi Snowberg	From fan-shaped corries, higher than 6,000 metres, the glacier starts along the valley east of Kawagebo Peak, and the glacier tongue ends in the forest at 2,700 metres above sea level, (which is the lowest at the same latitude in the world.) Looking from Taizi Temple, light blue glaciers wind down from the sky and penetrates into the green forest just like a dragon playing amid trees and flowers. It is indeed a fairyland under heaven.
8	Modern glacier of Haba Snowberg	Haba Snowberg	It is a southernmost modern glacier area in China. On its northern slopes and north-west slopes are corries, glaciers, horn peaks, arete standing in parallel. The shining glaciers present a compelling and exotic scene.

photo-94 Mingyongqia Glacier



photo-95 Spring of Haba Snow Mountain



photo-96 Glacier tongue of Mingyongqia (2,700 Metres above sea level)

3.4.2.2 Deep canyons

In the property area, deep canyons stand in contrast with high mountains. The canyons deeper than 3,000 metres are everywhere. The gorges stretch dozens of kilometres within the mountains. The 310km Nujiang gorge, with its oddness, mysteriousness and depth, is 310 kilometres long and known as an "oriental grand canyon." Meili canyon of Lancang River is 4,740 metres deep, which should be the deepest in the world. The narrowest

part of Jinsha River, at Tiger-Leap Gorge, is only 30 metres. The gorge is famous for its turbulent river flanked by stiff cliffs. In addition, the Qizong Shimenguan Gorge on Jinsha River, Badi Yanziyan Gorge and Yingpanjie Gorge on Lancang River, Birong Gorge and Wongshui Gorge on the tributary of "Three Parallel Rivers" all present their particular beauty. (See Table 24)

Table 24 Famous gorges

Serial No.	Name	Location	Characteristics
1	Tiger Leap Gorge	Between Haba Snowberg and Yulong Snowberg	Called "No.1 dangerous gorge on the Yangtze River," the gorge is known for its steepness. Starting from Xialuoyu Village of Hutiaoxia Town in Zhongdian County and ending in Dajuba in Lijiang County, the gorge is 16 kilometres long; altitude difference is 3,700 to 3,900 metres; longitudinal inclination is 13.75 per thousand; and the narrowest part of the bottom is only 30 metres. The precipice on the two banks stand upright. On the top are snow-capped peaks, and at the bottom are deep and tumultuous river. Huge rocks are scattered in the river. As river water is smashed on the rocks and cliffs, one seems to hear the roars of tiger and dragon.
2	Gorge of Meili Snowberg	Between Meilishi and Yanmen Township in Deqin County	The gorge, 100 kilometres long, is known for its depth. It is a deep cutting by Lancang River. With the highest altitude difference is 4,740 metres, it is one of the world's deepest gorges. The section between Kawagebo Peak and Miancimu Peak of Taizi Snowberg is most dangerous. Standing on the highway at 3,300 metres above sea level, one can see that Lancang River is winding southward like a thin silk belt; the snow mountains on the banks stand upright, and glaciers hang down the peaks; and Tibetan villages are dotted amid green forests. This is indeed a scene of harmonious coexistence between man and nature.
3	Nujiang Gorge	In Nujiang prefecture, from Yunnan-Tibet border in the north to Yuejin Bridge in Lushui County	With a total length of 310 kilometres, the gorge is the world's second largest canyon, called "oriental grand canyon." All over the gorge, one can see precipitous cliffs and odd rocks, precious animals and fowls and rare flowers and trees. The magnificent and beautiful natural scenes of the gorge can be best seen in Qingnatong Gorge and upper and lower Shimen Pass from north of Bingzhongluo to Nakaluo in Qingnatong Township.
4	Birong Canyon	At the foot of Xiaoxueshan, Gezan Township in Zhongdian County	Also called "Shangrila Canyon," the gorge is cute and elegant. The gorge is about 10 kilometres long and 20 metres wide. The slopes of the cliffs -- more than 200 metres -- range from 70 to 90 degrees. In the gorge, clear brooks flow alongside various flowers and grasses, mirroring the green forests and blue sky. There are quite a few cliff paintings featuring vivid and candid carving. Walking the gorge, one cannot take all the scenes at one glance and have a feeling of strolling down the winding path to a secluded quite place.

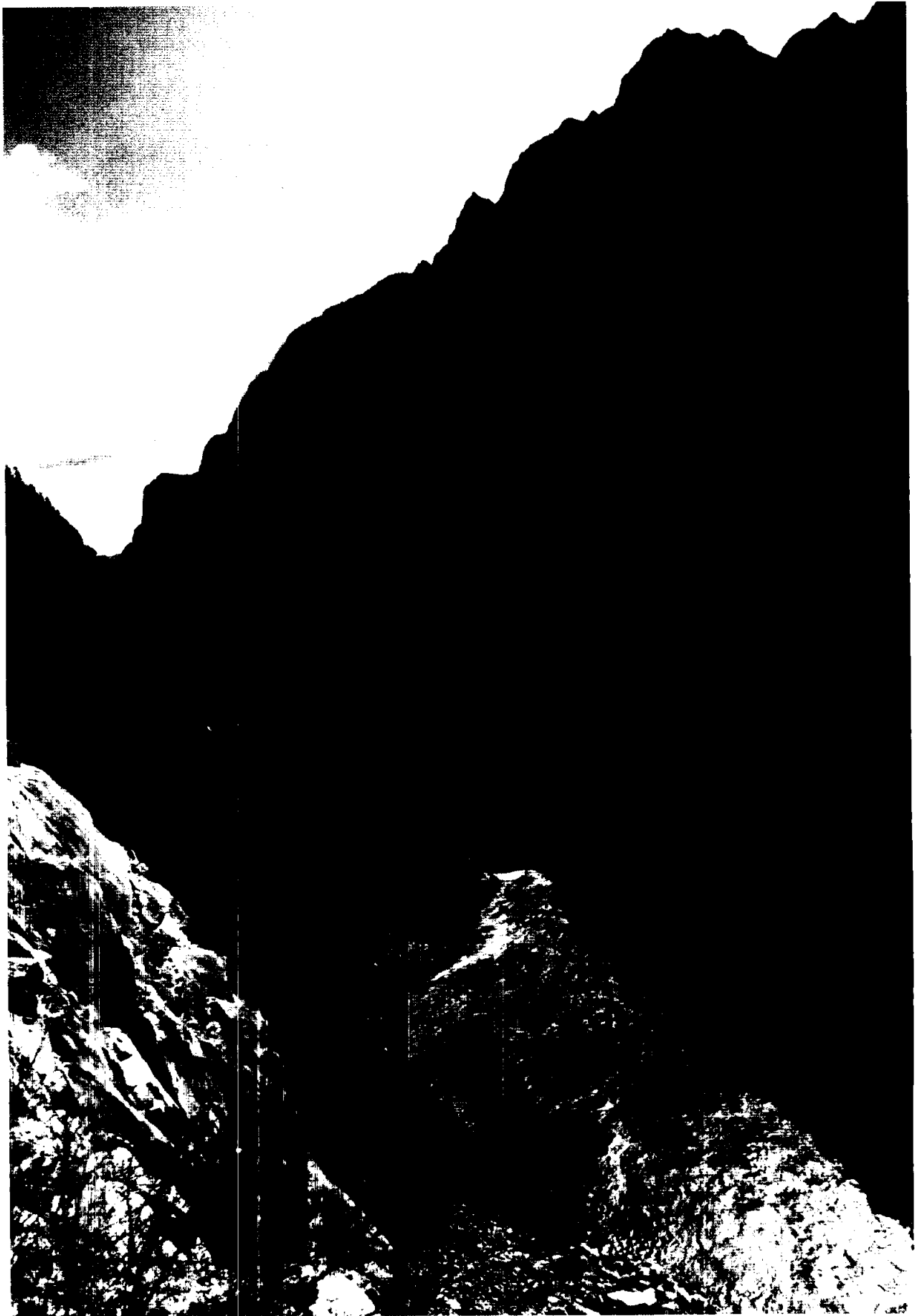


photo-97 Tiger Leap Gorge



photo-98 Nujiang Gorge



photo-99 Gorge of Meili Snow Mountain





photo-100
Birong Canyon

3.4.2.3 Alpine lakes

The many alpine lakes, especially glacial erosion lake, drift-dammed lakes and cirque-cupped lakes, are an important characteristics of the scenes in the property area. Thousands of alpine lakes, due to special geological reasons and other environmental conditions, have come into being and created exquisite landscapes, together with the

surrounding vegetations, topography and blooming azalea. The typical ones are Qianhushan Lakes in Zhongdian, Ninety-nine Dragon Pond in Lijiang's Laojunshan, Bitahai in Zhongdian, Laowoshan Lakes in Lanping, Julong Lake in Weixi, Tingming Lake on Gaoligong Mountain. (See Table 25)

Table 25 Alpine lakes in the nominated area

Serial No.	Name	Location	Characteristics
1	Qianhushan Sanbihai Lakes	On the mountain range west of Xiaozhongdian in Zhongdian County	More than 60 glacial erosion lakes, drift-dammed lakes and corrie-cupped lakes are distributed in an area of nearly 100 square kilometres. The lakes, with varying depth and size, are like a string of gems inserted in the primitive forest. In summer, azaleas are blooming, and green water weeds are flourishing. Everything is calm and harmonious. In golden autumn, the yellow leaves and meadow are full of vitality.
2	Ninety-nine Dragon Pond at Laojunshan	Heyuan in Jiuhe Township in Lijiang County	In a place less than 60 square kilometres in Laojunshan, glacier movement has caused a relatively concentrated group of nearly 100 alpine lakes. The best part of the lakes are the azalea trees and well-preserved alpine vegetation ecosystem around the lakes. In spring, mountain flowers are luxuriantly blooming. The Taoist legend about Laojun who made pills of immortality makes it a mysterious holy land.
3	Bitahai	Northwest of Zhongdian County, 34 kilometres from the county town.	It is the best-known alpine lake in Diqing prefecture. The lake, at 3,538 metres above sea level, is 1.6 square metres large and 40 metres deep. Surrounding the lake are mountains and flourishing woods. Azalea trees alternate with evergreen forests. In the middle of the lake is a 2,670-square-metre island, which is 30 metres above water. Blue lake, green trees and colourful flowers join present a fastidious scene.
4	Hongshan Heihai	East of Gezan Township in Zhongdian County	Also called Langdu Lake, the lake is located on the Hongshan plateau. About 4,150 metres above sea level, it is an irregular-shaped alpine lake with an area of 1 square kilometre. The lakeside mountains are all at 4,600 metres above sea level. Surrounding the lake are alpine shrubs and alpine desert. The scene here is thus unique. On the steep slopes are flow stones. On the gentle slope less than 4,200 metres above sea level are Abies and azalea forests. The lower reach of the lake is deep and huge gorge. It is a place where one can see different mountain views.
5	Tingming Lake	Northeast Pianma in Lushui County	About 3,700 metres above sea level, it is a famous lake on Gaoligong Mountain. Around the lake are Picea asperata, Abies and Taiwania flousiana forests and azalea trees. As the weather often changes, the scenes vary in four seasons. Standing by the lake, you can take all these views. If you shout, you can feel the vibration in the air. It may change instantly from windy, cloudy to rainy weather. So the lake got its name "Tingming Lake," meaning "abiding destiny."

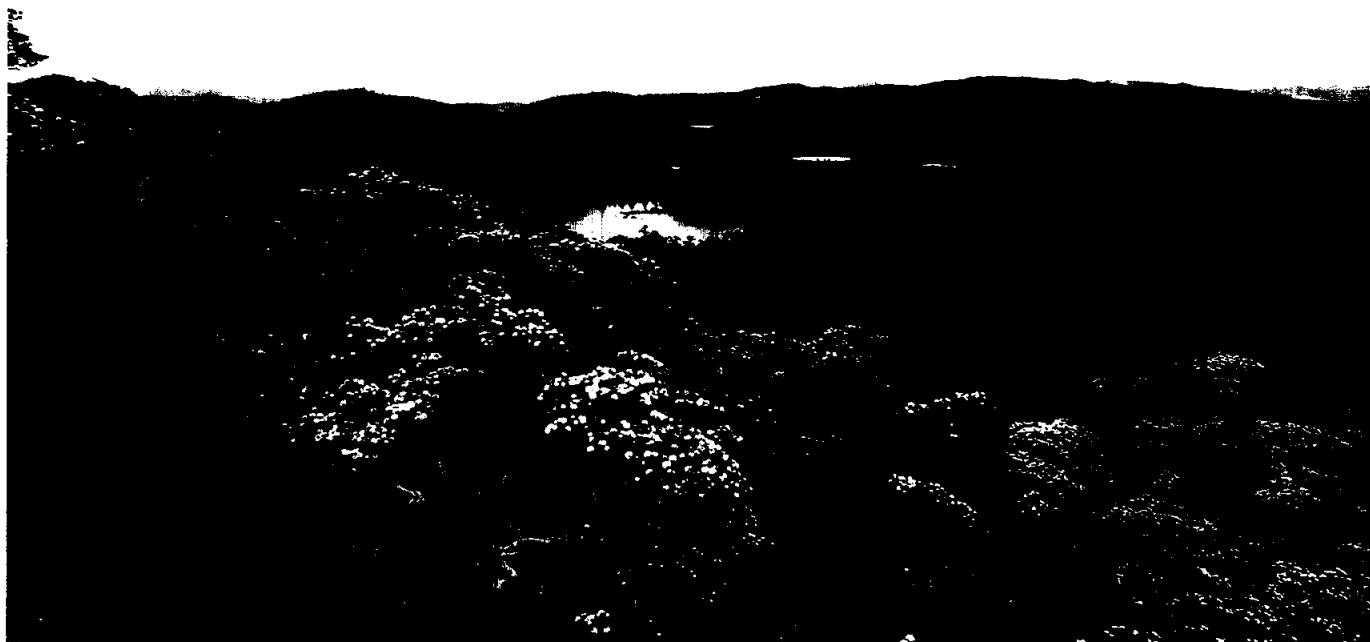


photo-101 Qianhushan lakes in Zhongdian



photo-102 Ninety-nine Dragon pond in Lijiang

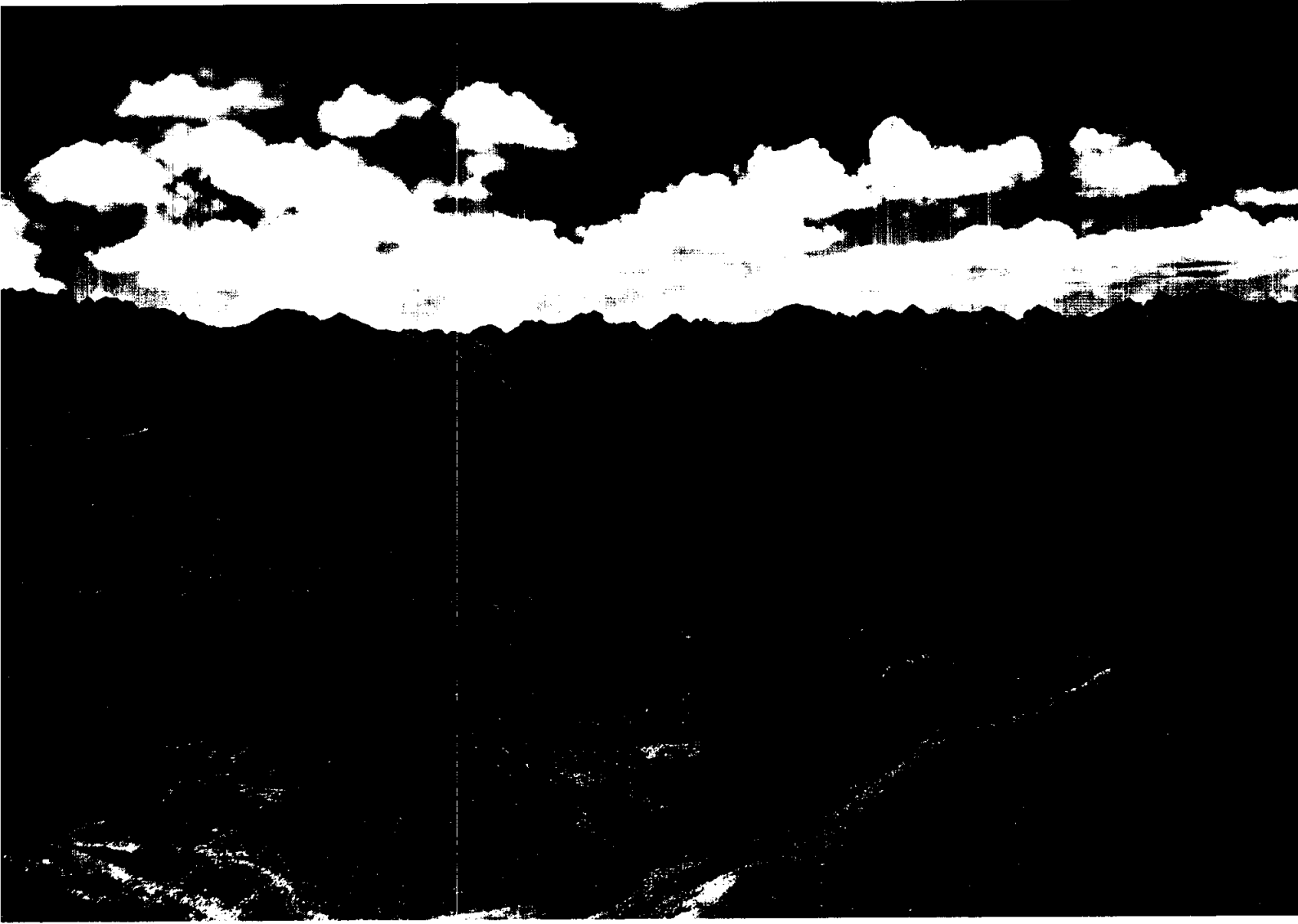


photo-103Hongshan Lake in Zhongdian



photo-104 Nhu black sea in Zhongdian

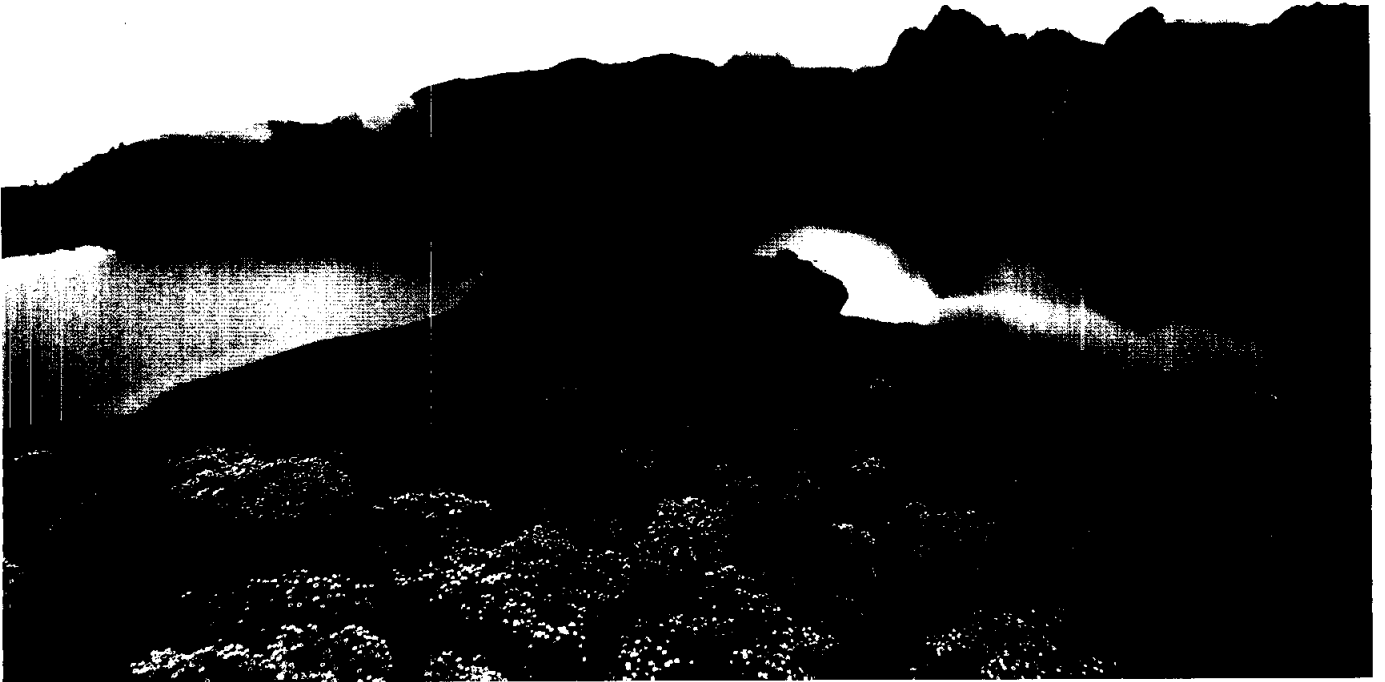


photo-105 Wanhai lake on Haba Snow Mountain

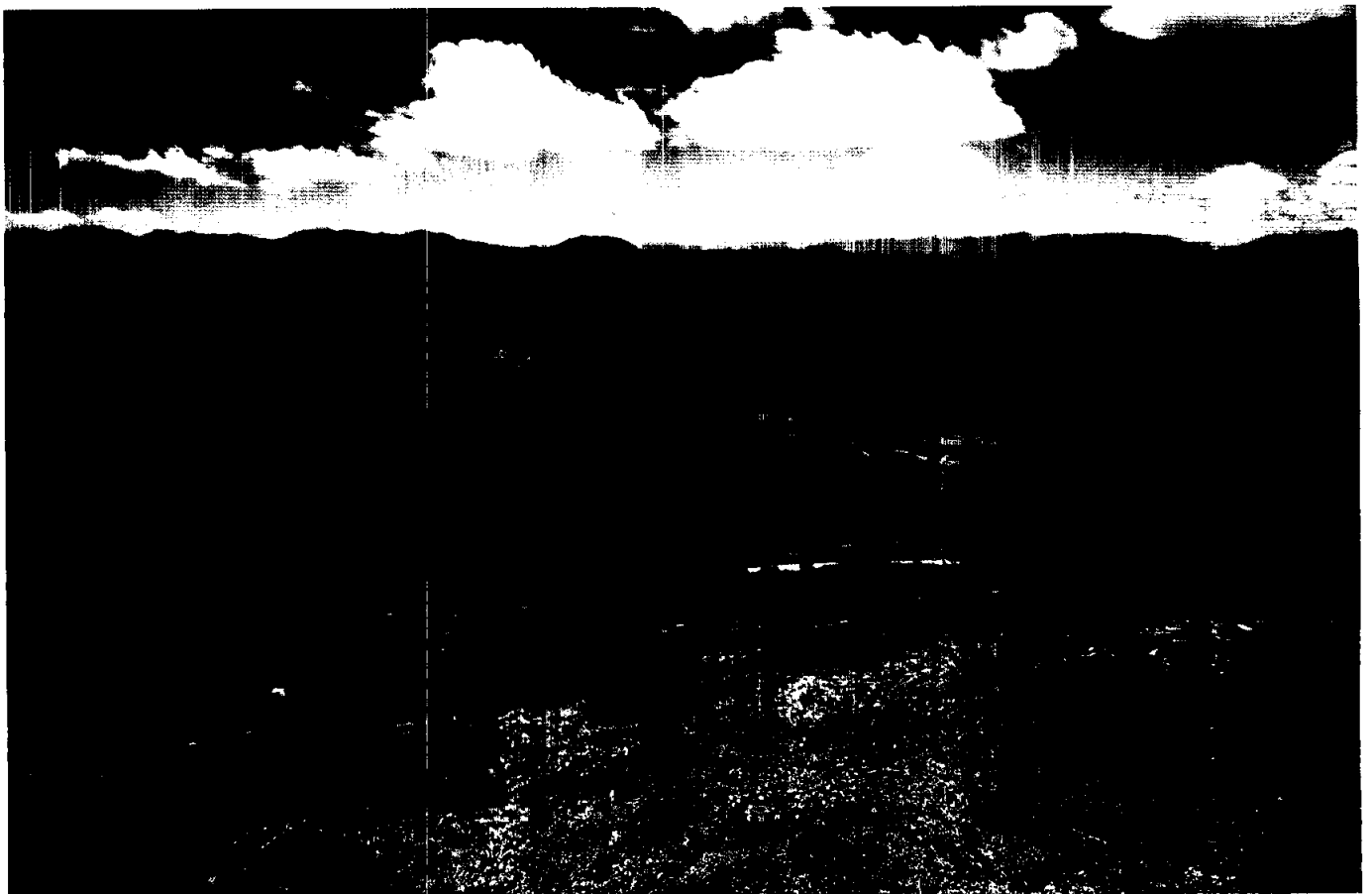


photo-106 Pasture on the top of Hongshan plateau

3.4.2.4 Alpine meadows

Alpine meadows are widely located in the property area. They fall into the categories of seasonal meadows, plateau desert meadow and plateau arid meadow. In spring, flowers bloom; in summer, soft green grass carpets the ground; in autumn, golden colour lights up the mountain; and in winter, snow prevails. The alpine meadows in the property area are of great sightseeing value. The best ones include large and small Zhongdian meadows, Shudu Lake meadow, Napahai seasonal meadow, Niru Nanbao pasture, meadow of Hongshan plateau and Lanping Dayangchang pasture. (See Table 26)



photo-107 Meadow on the top of Zhongdian plateau

Table 26 Alpine meadows in the property area

Serial No.	Name	Location	Characteristics
1	Minor Zhongdian meadow	Xiaozhongdian Dam, south of Zhongdian County town	Located 3,200 metres above sea level, it the largest plateau pasture in the property area. At the end of the pasture are snow-capped peaks. Under the blue sky are herd cows and sheep flocks wondering beside Tibetan houses. It is a scene of a secluded paradise. The grassland is full of <i>Radix euphorbiae lantu</i> , dyeing the meadow with yellow colour in spring and red colour in autumn. It is known as "five-colour meadow."
2	Napahai meadow	7,000 metres west of Zhongdian County	It is a typical seasonal pasture. In wet season, the water covers more than 1,000 hectares while in dry season, the huge lake turns into swamp meadow with oozing brooks. Thousands of seasonal birds, including world-famous endangered dark-neck cranes, spend winter here. One can see a tranquil picture of harmonious coexistence of man with nature.
3	Nanbao pasture	Niru in Zhongdian	Located in the high mountain about 4,300 metres above sea level, the vast meadow is characterized by its complicated topography. The background of the meadow is also varying. On the one side are dense primitive forests and snow mountain. On the other side is impressive flowstone beach. In the middle of the pasture are scattered relics of glacier movements. It presents a miniature of almost all the types of scenes in the property area, thus having great value for further development and protection.
4	Hongshan pasture	Hongshan in Gezan Township in Zhongdian	The pasture is located on the top of Hongshan plateau. The pasture is linked with plateau flowstone beach. Among them are evergreen coniferous belts just like screens, presenting a unique landscape. Rare flowers such as <i>Meconopsis integrifolia</i> and <i>Gentiana regescens</i> contend in beauty and add vigour to the wild plateau.
5	Dayangchang pasture	Luoguoqing in Lanping County	Called "seven-colour pasture," the grassland links Jinsichang in the south and Luoquoqing in the south. Located at 3,600 metres above sea level, it is an alpine forest pasture with the scene of snow mountain. On the flat and vast grassland, the woods and grass are flourishing, reminding people of a pasture on the plain, not amid high mountains.

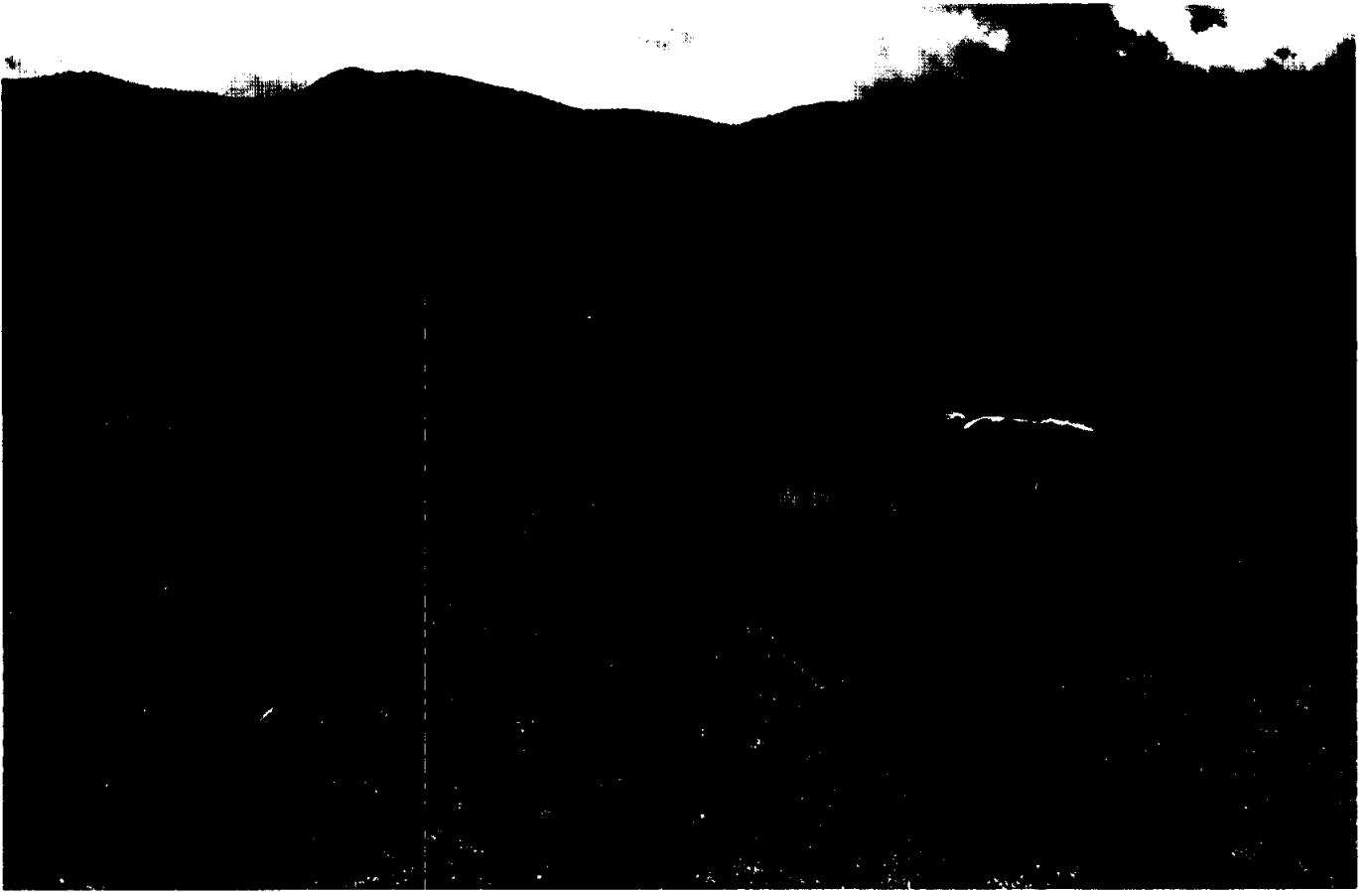


photo-108 The meadow in small-Zhongdian

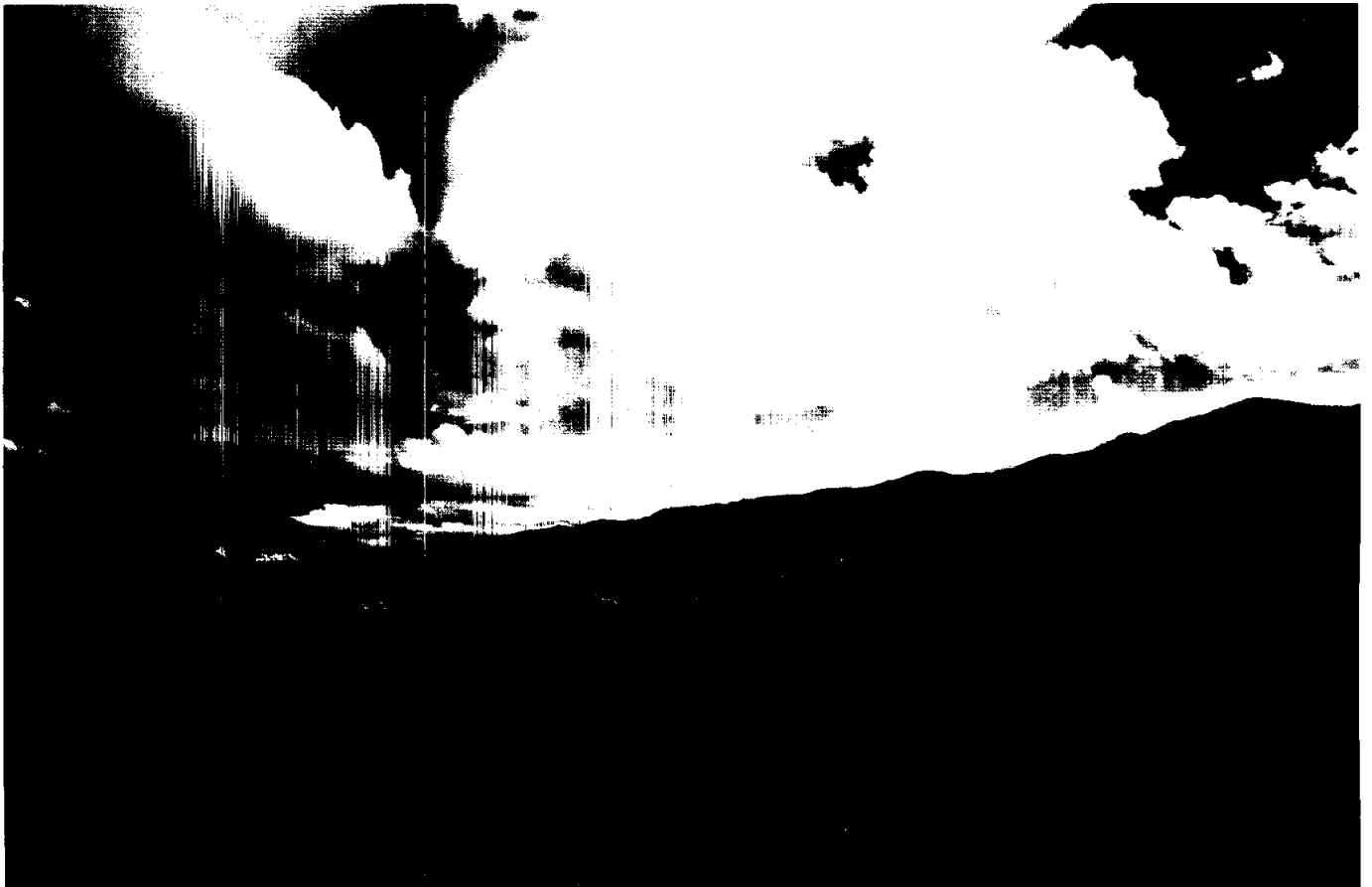
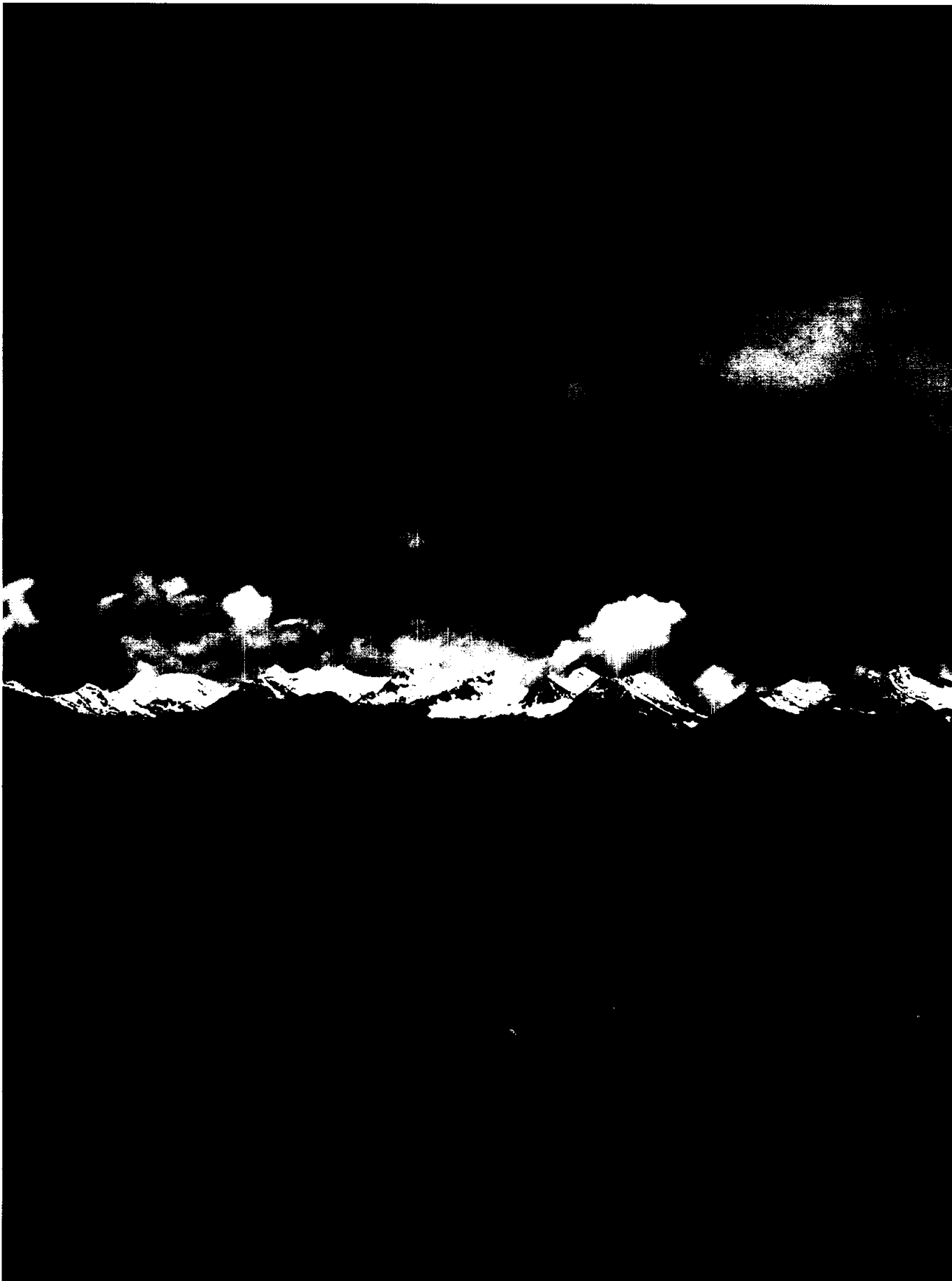


photo-109 Seasonal meadow at Napahai



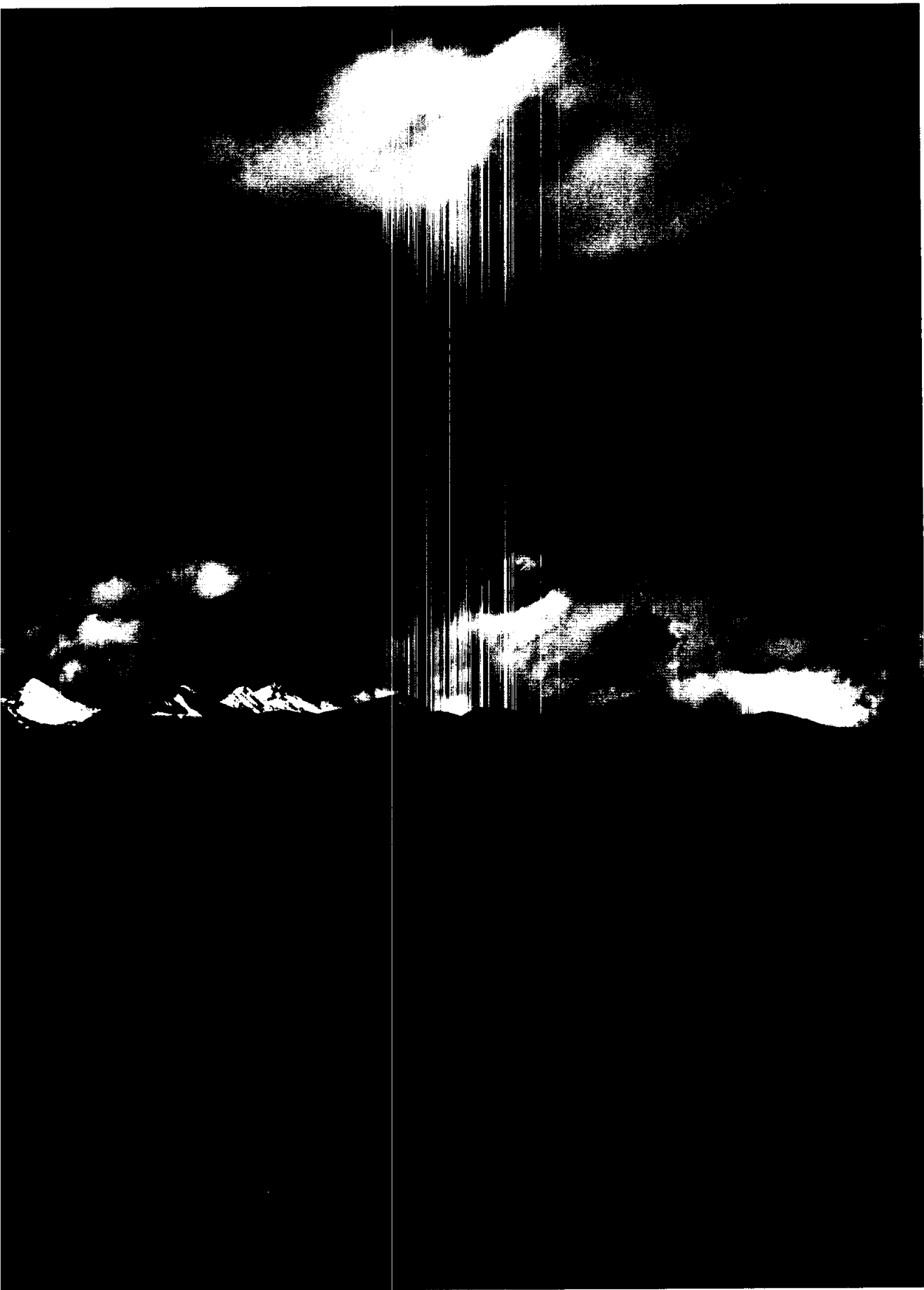


photo-110 Nanbao pasture



photo-111
Qiangui Mount in
Liming, Lijiang

3.4.2.5 Other scenes (See Table 27)

Table 27 Other scenes in the property area

Serial No.	Name	Location	Characteristics
1	Liguang in Liming	Liming Township in Lijiang County	This is the most typical scenic spot of Danxia landform ever discovered in Yunnan. It covers an area of 240 square kilometres. The unique scene features multi-colour cliffs, ranging from ember, dark red, orange, silver grey and dark green. The red sand rocks and silt rocks form cliff cluster. The red cliff, eroded by rains, appears like a painting. The cliffs appear in different shapes, like old fortress, or a mushroom, or a dancing girl or a bird ready to fly. Amid the cliffs are waterfalls flying down the mountain like silver curtains.
2	White Water Terrace	Baidi Village in Sanba, Zhongdian County	It is a 100-metre-high and 300-metre-wide milky white sinter body in the shape of a terrace. It got its name "White Water Terrace" as it is large and as white as jade. It is flat on the top of the terrace. Water flows out of springs and then joins to create a 400-square-metre pond. In the middle of the pond, one can see calcareous tufa winding on the surface of water, just like lotus leaves floating. As the water overflows to the terrace, it looks like a crystal-clear white jade inserted in the green forest, or a heavenly ladder, from the distance. Take a close look, one can see a pastoral scene -- terrace fields and blue ponds.
3	Waterfall on Dishui River	On the Dishui River nearby Dishui Village in Lushui County	This is the waterfall with the highest drop ever discovered in Yunnan. Two 400-metre waterfalls drop down the cliff. The "female" one falls in three steps. In wet season, abundant water fall appears like an unrestrained girl while in dry season, it turns to thin streams like an elegant and shy lady. The "male" waterfall is more than 6 metres wide. It is strong and good-natured like a handsome gentleman. The two waterfalls make up a fascinating pair.
4	The first bend on the Yangtze River	Shigu Township in Lijiang County	The Jinsha River flows turbulently amid gorges and slows down in the flat plain in Shigu. It turns at the angle of 120° towards central China area. The Yangtze River is China's mother river, which nurtures the splendid Chinese civilization. The bend is called "the first bend on the Yangtze River." Here, the river flows quietly and peacefully, reflecting the peaks, villages, forests and bridges river. One cannot help thinking of a South China village.

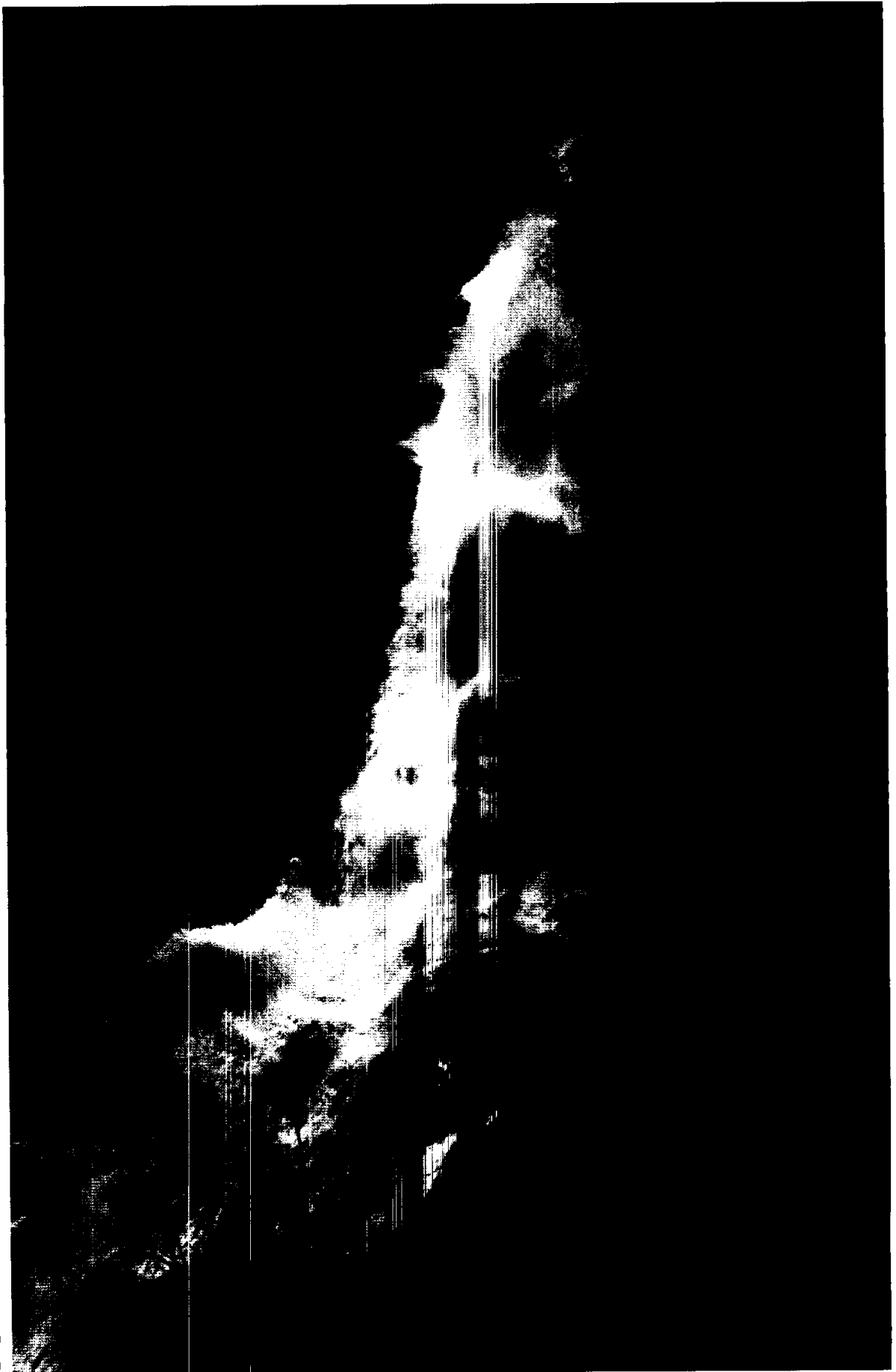


photo-112 Qiqi
Waterfall on
Gongshan
Mountain

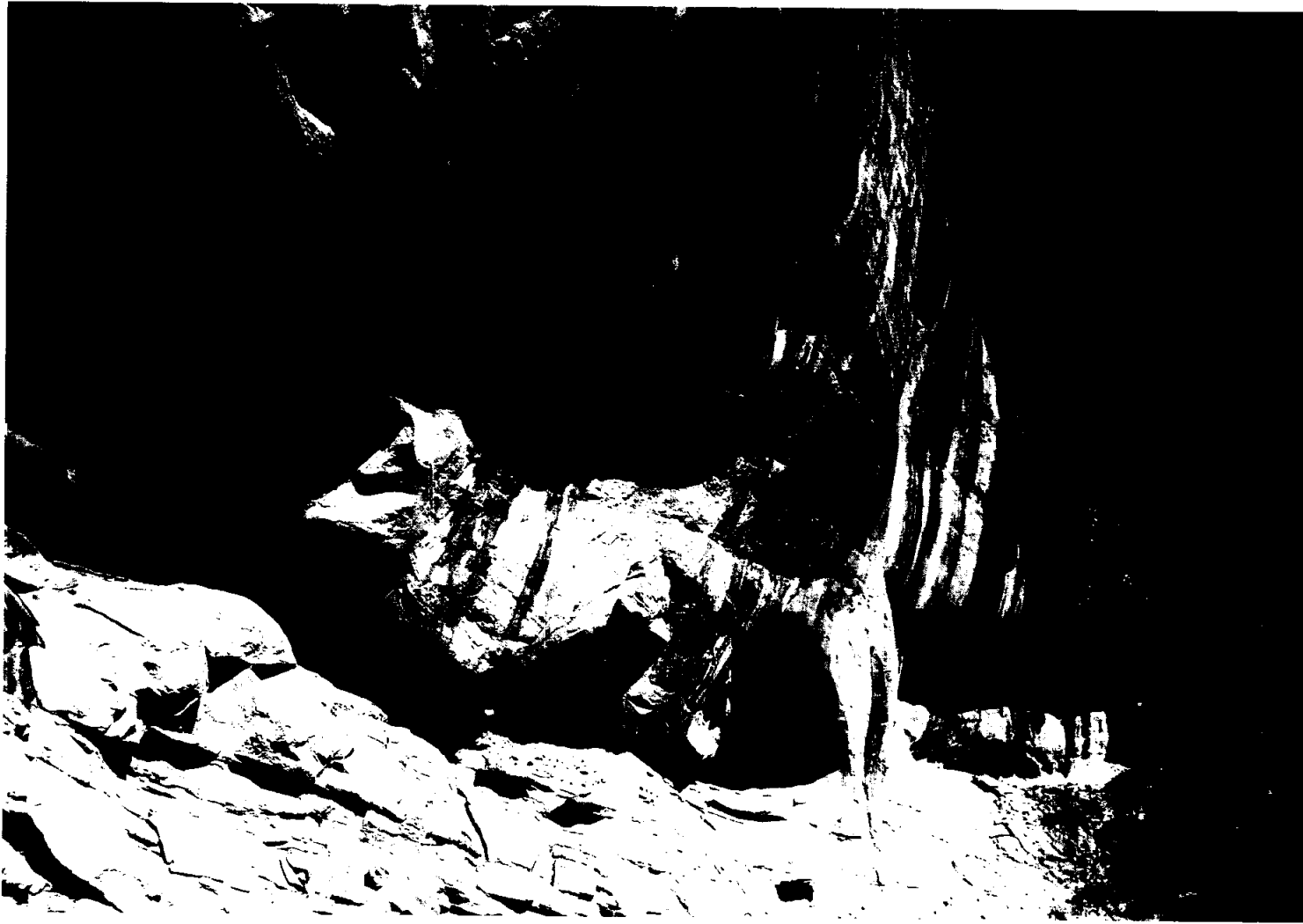


photo-113 Danxia rock in
Liming of Lijiang



photo-114
White-water Terrace
in Zhongdian

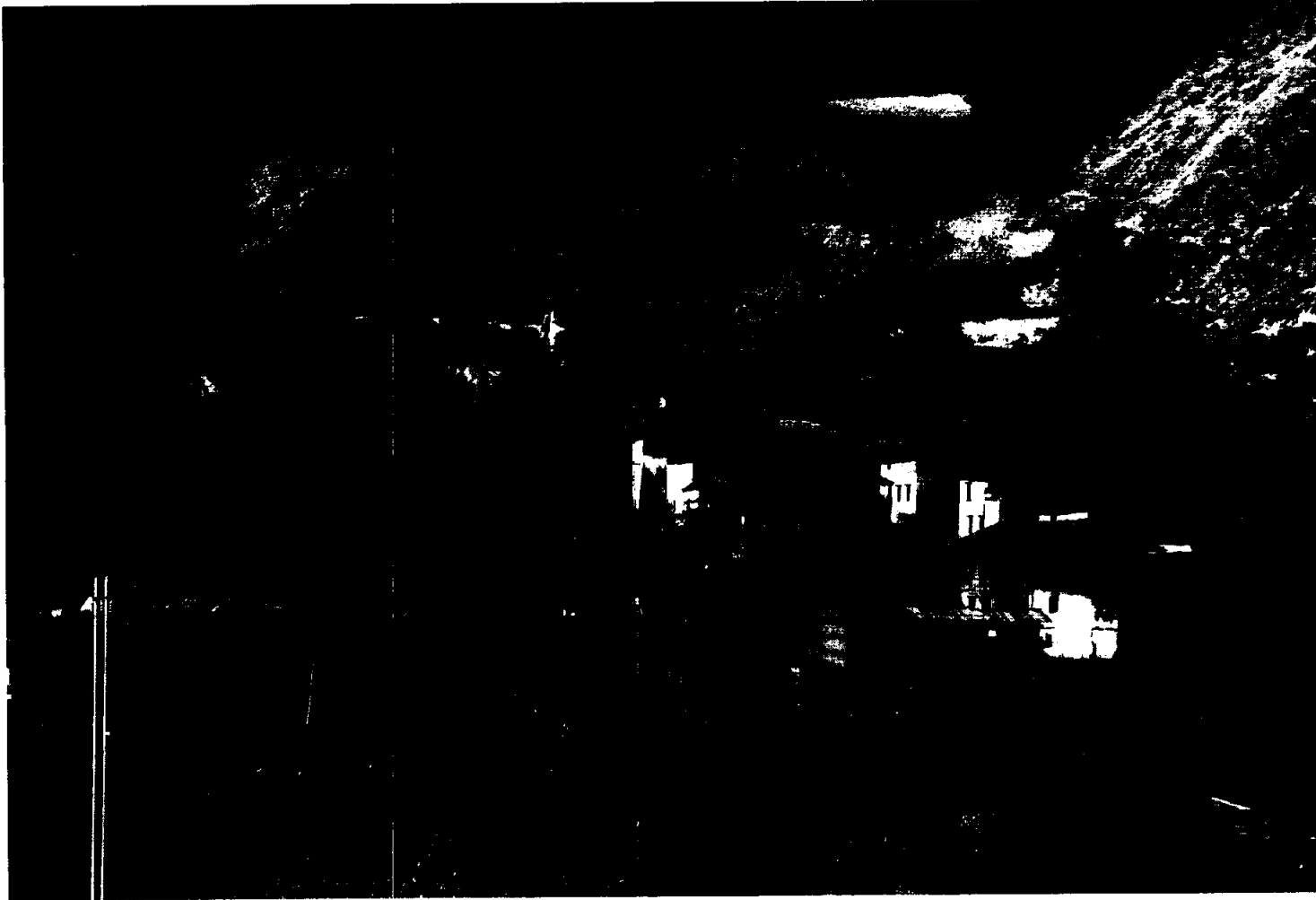


photo-115 A village of Lisu minority in Deqin

Human residence and cultural scenes

The property area is home to 14 Southwest China minorities. Complex natural conditions and unique living habits of ethnic people create special local habitats and national customs.

In the area are living the people of Tibet, Lisu, Naxi, Bai, Pumi, Nu and Dulong minorities. To adapt themselves to the geographical conditions, they develop their own

architectural and residential conditions which can both maintain traditional living habits and suit local environment. The representative ethnic communities are the Tibetan villages in the dry-hot river valley in Yanmen of Deqin County, the best preserved village of Lisu people in Weixi's Tacheng and Nu people's village and township in Binzhongluo of Gongshan on Nujiang River.

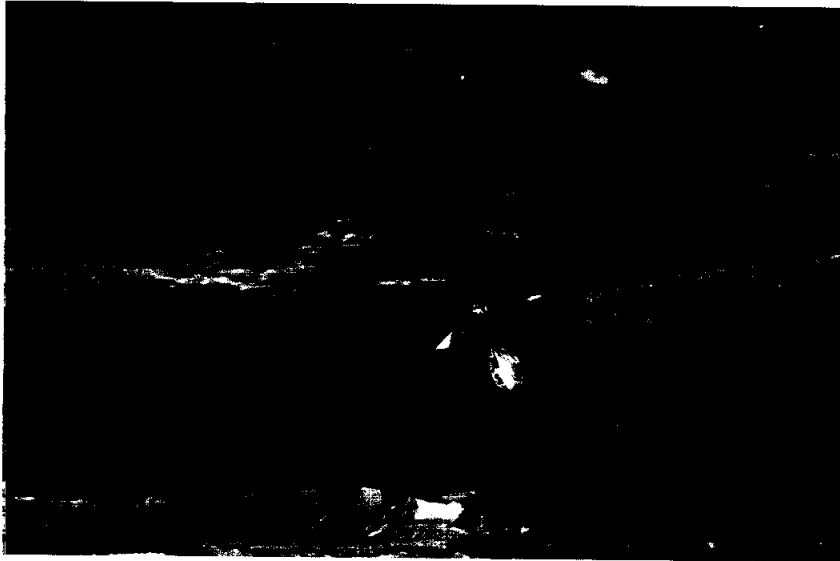


photo-116 A
woman sliding
across Nujiang River

photo-117 A village of Lisu minor-
ity in Weixi

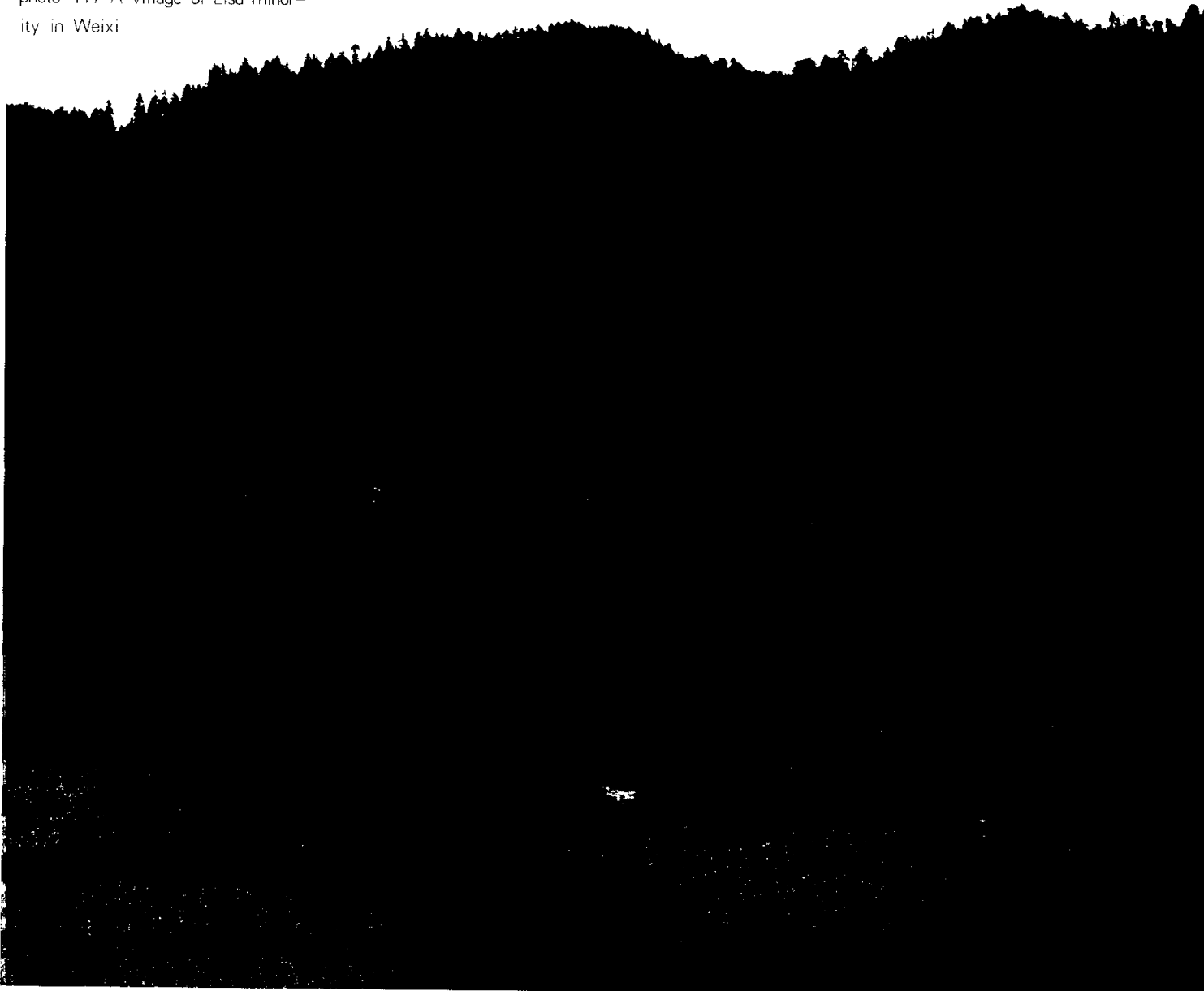


photo-118 A village of Naxi minority

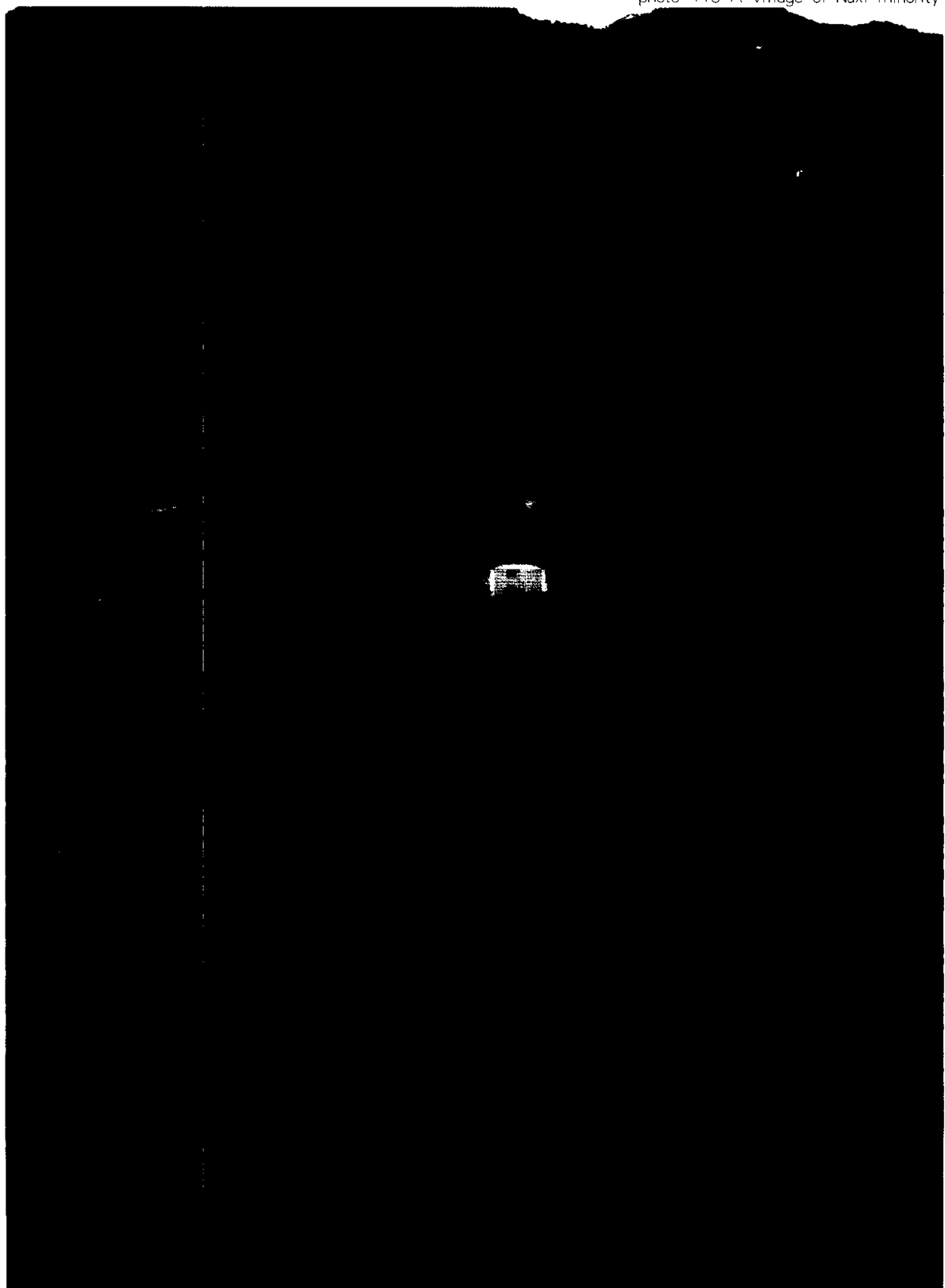




photo-119 A Tibetan village in Yanmen dry-hot river valley in Deqin





photo-120 Inhabitant environment at Dishuiyan
in Fugong

4. Protection and Management

4.1 Ownership

The People's Republic of China

4.2 Legal basis for the protection and management

4.2.1 Laws of the state party

The Constitution of the PRC: Article 9 The state ensures the rational use of natural resources and protects rare animals and plants. Any Occupation or damaging natural resources by any organization or individual by whatever means is prohibited.

Article 26 The State protects and improves the environment in which people live and the ecological environment. It prevents and controls pollution and other public hazards. The State organizes and encourages afforestation and the protection of forests.

Article 17 The people's governments at various levels shall take measures to protect regions representing various types of natural ecological systems, regions with a natural distribution of rare and endangered wild animals and plants, regions where major sources of water are conserved, geological structures of major scientific and cultural value, famous regions where karst caves and fossil deposits are distributed, traces of glaciers, volcanoes and hot springs, traces of human history, and ancient and precious trees. Damage to the above shall be strictly forbidden. Article 19 Measures must be taken to protect the ecological environment while natural resources are being developed or utilized. Article 23 In urban and rural

construction, vegetation, waterbody and the natural landscape shall be protected and attention paid to the construction of gardens, green land and historic sites and scenic spots in the cities in the light of the special features of the local natural environment.

Law of the PRC on the Protection of Wildlife: Article 6 The governments at various levels shall strengthen the administration of wildlife resources and formulate plans and take measures for the protection, development and rational utilization of wildlife resources.

Water Law of the PRC: Article 5 The state shall protect water resources and adopt effective measures to preserve natural flora, plant trees and grow grass, conserve water sources, prevent and control soil erosion and improve ecological environment. Article 20 The competent forestry department under the State Council and the people's governments at provinces, municipalities and autonomous regions shall designate nature reserves and intensify their management in the forest areas of special protection value, such as typical forest areas in different natural regions, forests where rare animals and plants grow and natural tropical rainforests.

4.2.2 Relevant laws and administrative rules (Chart 29)

4.3 protection plan of the property

4.3.1 The overall plan of the property, as the guiding document for the protection, management and proper development of the property, has been examined by China's Ministry of Construction of China and Yunnan provincial people's government in June 2000.

4.3.1.1 The overall plan was compiled in accordance with the laws and regulation of the PRC as well as the "Norms for the Planning of Scenic and Historic Resort Zones" and in light of the current conditions of the property.

4.3.1.2 As the property is vast and complicated in content and structure, the overall plan has been divided into four phases-overall planning of the scenic and cultural resort, overall planning of the scenic areas, detailed planning of the scenic areas and planning of the scenic spots.

The time order of various planning phases have also been set in a detailed way.

4.3.1.3 Following the format of chapters, articles and sections, the overall plan standardizes the resource evaluation, planning structure, protection plan, management plan, regulation of economic development, development, main point of planning in various scenic areas, basic facility control and construction order. It has also determined the principles for management, and the compiling of the plan for the next stage.

4.3.2 The overall plan for the property area and the plans for the scenic spots

4.3.2.1 The 10 scenic areas in the property, as the kernel parts for inscription, are covered by the general protection plan and specific implementing plan in light of the “importance of development, time order, current development situation and the importance of protection.”

4.3.2.2 At present, the scope of property has been outlined. Upon approval by Yunnan provincial

government, the “The Overall Plan for Liming Liguang Scenic Area” and “the Overall Plan for Qianhushan Scenic Area” have been approved and implemented.

4.3.2.3 “The Overall Plan for Hongshan Scenic Area”, “The Overall Plan of Meili Snow Mountain Scenic Area” and “The Overall Plan of Gongshan Scenic Area” are being compiled. They will be completed before February 2, 2002 and will be subject to examination and approval by the provincial government before being implemented.

4.3.3 Other relevant professional plan

4.3.3.1 The protection and development action plan for Northwest Yunnan jointly made by Yunnan provincial government and the Nature Society of the United States passed the assessment organized by the provincial government on June 1, 2001. The plan is being revised and improved.

This action plan concerns the natural and cultural protection and development strategy in northwest Yunnan in an area of more than 6,000,000ha. including

Table 29

Serial No.	Title	Date of promulgation	Promulgator
1	Interim Rules on the Management of Scenic and Cultural Resorts	June 7, 1985	State Council
2	Natural Protection Rules of PRC	October 9, 1994	Ibid
3	Yunnan Provincial Rules on the Management of Scenic and Cultural Resorts	May 27, 1996	Standing Committee of the Standing Committee of the Eighth Yunnan Provincial People's Congress
4	Yunnan Provincial Rules on Environmental Protection	November 25, 1992	Ibid
5	Yunnan Provincial Stipulation on the Management of “Three Parallel Rivers” as a State's Key Scenic Area	December 29, 1999	Yunnan provincial government
6	A Decree of the State Council on Strictly Protecting Rare and Endangered Wild Animals	April 13, 1984	State Council
7	Forest Resource Management Methods of Diqing Tibetan Autonomous Prefecture	October 3, 1995	Diqing prefectural government
8	Interim Award and Punishment Methods on Forest Fire Prevention of Diqing Tibetan Autonomous Prefecture	January 1, 1995	Ibid
9	Implementing Rules of Diqing Tibetan Autonomous Prefecture on Forest Felling and Renewing	September 1, 1982	Ibid

10	Management Rules of White Water Terrace Resort	August 21, 1999	Tourism Management Committee of Sanba Township
11	Haba Snow Mountain Nature Reserve Development and Planning Report		Management bureau of Haba snow mountain nature reserve
12	Responsibility Contract of Deqin County on Forest Fire Prevention		Deqin county government
13	Responsibility Contract of Deqin County Government on Environmental Protection	1998-2000	Ibid
14	Management Methods on Wild Fungus and Medicinal Herbs	March 17, 1996	Yunling township government
15	Implementing Rules of Lanping Forestry Bureau on the Execution of "Autonomous Rules of Lanping County"	February 15, 1992	Lanping county people's congress
16	Decision on Substantially Intensifying Environmental Protection	March 18, 1998	Deqin County's Party committee and government
17	Views on Intensifying Forest Resource Management	February 23, 1998	Lanping county government
18	Emergent Notice on Intensifying the Protection of Rare Plant Resources	January 5, 1994	Ibid
19	Action Plan on the Protection and Development of Northwest Yunnan	October 1999 to June 2000	Yunnan provincial government and America's Nature Protection Society
20	Village Rules of Shitou Township	April 29, 1992	Third people's congress of Shitou Township
21	Four Villages' Rules of Shitou Township	July 3, 1995	Village committee
22	Rules of Jinpu Village, Jiuhe Township	July 1, 1996	Village committee
23	Rules of Heyuan Village	July 20, 1996	Village committee
24	Management Contract of Tiger Leap Gorge Township on Forest Fire Prevention	Government of township government	
25	Rules of Yanmen Township	April 10, 1994	Township government
26	Rules of Hongpo Village	June 1, 1995	Village committee
27	Rules of Chalitong Village	June 4, 1995	Village committee
28	Rules of Qinong Village	June 8, 1995	Village committee
29	Rules of Sinian Village, Yunling Township	June 23, 1995	Village committee
30	Suggestions on the Treatment of Ecological Environment at Lanping Section of Langcang River Area	August 26, 1999	Lanping County Environment Protection Bureau

all the buffer areas of the property. On the basis of an analysis of the resources, the plan places much emphasis on a research on the construction of nature reserves and national parks, protection of biodiversity and traditional culture and sustainable economic development. This plan is of guiding significance to the persistent protection and sustainable development in the property area.

4.3.3.2 Plan of nature reserves

In the core area of the property are two state-level nature reserves and seven province-level nature reserves. These reserves are the key areas that boast of biodiversity, eco-system diversity and rare relic species protection in the property region. According to the provisions of the Chinese laws and regulations, the overall plans for nature reserves play an irreplaceable role as an important basis

for the protection of property.

4.3.3.3 Tourism development plan of Yunnan Province

The provincial tourism development plan organized by International Tourism Organization offers guidance to the rational development and tourist control in the property area.

Improve the living and production conditions in the property area and create a good protection mechanism for property protection by way of development.

4.4 Management

4.4.1 Management institutions and directors (Table 30)

4.4.1.1 State management institutions and directors

Table 30

Serial No.	Name	Legal basis	Responsibility	Address	directors	Note
1	Ministry of Construction of PRC	(1) Interim Rules on the Management of Scenic and Cultural Resorts (2) Authorized Structure-Size-Fuction Programme of the State Council	Responsible for co-ordination and instruction over planning, protecting, building and managing the scenic and cultural resorts	9 Sanlihe Lu, Beijing, China	Wang Guangtao	State competent department
2	Environmental Protection Administration of PRC	(1) Environmental Protection Law of PRC (2) Authorized Structure-Size-Fuction Programme of the State Council	Responsible for the approving and co-ordination work over the state nature reserves in the scenic resorts	115 Nanxiaojie Xizhimennei, Beijing, China	Xie Zhenhua	State's assistant management department
3	Forestry Administration of PRC	(1) Forestry Law of PRC (2) Rules of PRC on Nature Reserve Management (3) Authorized Structure-Size-Fuction Programme of the State Council	Responsible for the management of biodiversity in scenic resorts and nature reserves in its competent sector	Chaoyang District, Beijing China	Wang Zhibao	Ibid
4	Land and Resources Ministry of PRC	Authorized Structure-Size-Fuction programme of the State Council	Responsible for prospecting, protecting and rationally developing geological and mineral resources in the scenic resorts	Yingguanyuan, Beijing, China	Tian Fengshan	Ibid
5	Ministry of Water Resources	(1) Water Law of PRC (3) Authorized Structure-Size-Fuction programme of the State Council		2, Lane 2, Baihuanglu, Xuanwu District, Beijing	Wang Shucheng	Ibid

4.4.1.2 Yunnan provincial and grass-roots management institutions (Table 31)

Table 31

Serial No.	Name	Legal basis	Responsibility	Address	Director	Note
1	Yunnan provincial management committee of the world heritage	Yunnan provincial Rules on the Management of Scenic and Cultural Resorts	Responsible for the Vital decision to and the overall guidance over the cultural heritage management	Kunming, Yunnan	Niu Shao yao Chen Xunru	Competent department
2	Department of Construction of Yunnan Province	Yunnan Provincial Rules on the Management of Scenic and Cultural Resorts	Responsible for the sectoral management and everyday maintenance and construction of scenic and cultural resorts	Xichang Lu, Kunming, Yunnan	Cheng Zhengning	Yunnan provincial competent department
3	Yunnan Provincial Management Office of Three Parallel Rivers as a State's Key Scenic Area	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for specific protection, construction and management work of the scenic resort	Xichang Lu, Kunming, Yunnan	Ma Shuhong	Competent management department of Three Parallel Rivers scenic area
4	Yunnan Provincial Forestry Department	Yunnan Provincial Rules on Nature Reserve	Responsible for the management work over the state-level and provincial-level nature reserves in the Three Parallel Rivers scenic area	Qingnian Lu, Kunming, Yunnan	Chen Jihai	Provincial competent management department
5	Department of Water Resources of Yunnan Province	Water Law of PRC	Responsible for managing the water resource development projects in the Three Parallel Rivers scenic area	Wuhuashan, Yunnan	Kong Chuizhu	Ibid
6	Department of Geology and Mineral Resources of Yunnan Province	Law of Mineral Resources	Responsible for the protection and utilization of mineral resources in the Three Parallel Rivers scenic area	Baita Lu, Kunming, Yunnan	Chen Xijing	Ibid
7	Construction Bureau of Lijiang Prefecture	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for the sectoral management of Three Parallel Rivers scenic area in Lijiang area	Shangrila Dadao, Lijiang County, Yunnan	Sun Jiayi	Prefectural competent department
8	Management Office of Three Parallel Rivers Lijiang Section	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for the specific management of Three Parallel Rivers scenic area in Lijiang area	Shangrila Dadao, Lijiang County, Yunnan	Yang Zhipeng	Grass-roots management institution in the scenic area

Serial No.	Name	Legal basis	Responsibility	Address	Director	Note
9	Construction Bureau of Diqing Prefecture	Yunnan Provincial Stipulation on the Management of Three Parallel Rivers as a State's Key Scenic Area	Responsible for the sectoral management of Three Parallel Rivers scenic area in Diqing Prefecture	Hongqi Lu, Zhongdian County	Yang Shuji	Prefectural competent department
10	Management Office of Three Parallel Rivers Diqing Section	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for the sectoral management and specific management of Three Parallel Rivers scenic area in Diqing area	Hongqi Lu, Zhongdian County	Du Zicili	Grass-roots management institution
11	Construction Bureau of Nujiang Prefecture	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for the administrative and sectoral management of Three Parallel Rivers scenic area in Nujiang area	Liuku Township	Wang Guofang	Prefectural competent department
12	Management Office of Three Parallel Rivers Nujiang Section	Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area	Responsible for the sectoral and specific management of Three Parallel Rivers scenic area in Nujiang Prefecture	Liuku Township	Zhou Shoukang	Grass-roots management institution

4.4.2 Management Measures and Methods

4.4.2.1 History and administration

As it covers eight counties in three prefectures, the property area has been managed by different administrative governments and specialized departments. The administrative leaders exercise jurisdictional management while specialized management is done in a zone with certain natural and cultural characteristics. For instance, the Lijiang old town, which has been listed as a world cultural heritage site, six biodiversity protection areas approved by central and provincial governments and scenic spots Laojun Mountain and Meili Snow Mountain all have separated management institutions and staff. The governments at various levels in the area all have a competent department, to exercise management and protection over the scenic resources in their administrative area.

4.4.2.2 Current measures and methods

4.4.2.2.1 To ensure effective protection and orderly

management, China has adopted a pattern combining vertical and horizontal management from central government to Yunnan local governments. Under this pattern, the management is conducted at various levels and in various districts; administrative management is assisted by technical support. The management focuses on improving regulations and development plans and working out standardized management patterns on a strict legal basis and under a strict plan. Central and local competent departments all exercise management strictly according to laws, regulations and plans.

At present, more than 40 scenic areas (spots) have been set up, including Meili Snow Mountain, Bitahai, Qianhushan, Liming Liguang, Ninety-nine ponds in Laojun Mountain, Pianma and Bingzhongluo. Each area (spot) has specialized management units to take care of the specific protection, construction, operation and management work. While receiving instruction from superior departments, they also are directed by local governments at various levels.

4.4.2.2.2 Administrative management

The administrative management is exercised by the three prefectures over the scenic areas or spots in their areas. The provincial government authorizes Yunnan Provincial Management Office of Three parallel rivers as a State's Key Scenic Area to be responsible for the overall control from the angle of administrative management. At present, under the provincial office, each prefectural government has also set up its management office who is entrusted to manage the scenic areas in their sections.

4.4.2.2.3 Technical support and technical management

4.4.2.2.3.1 Regional protection and development

The property area is playing a crucial role in regional economic and social development. It is an important part of Yunnan's ethnic socio-economic development strategy. The relationship between effective protection of the property area and rational socio-economic development of local ethnic groups should be properly handled so that they would bid farewell to outmoded and destructive work and life styles. This is the precondition for the protection and sustained utilization of resources. Yunnan provincial gov-

ernment and America's Nature Society jointly initiated the research project "Protection and Development Action Plan in Northwest Yunnan." The project involves biodiversity, cultural diversity, ethnic diversity and socio-economic development in a 6,000,000ha. area in northwest Yunnan, including the property area. On the basis of an analysis of basic materials, an operable and practical action target and development strategy will be formulated to offer technical support and policy guidance over the development and protection of northwest Yunnan area in the future. In addition, the central and provincial governments are also drafting special plans for the property area on water conservancy, tourism and socio-economic development as an important part of its protection and regional development strategy. These efforts aim to push regional development in a scientific and sustained way so that it might become a model area for sustained development in China and even in the world.

4.4.2.2.3.2 Basic facilities and environmental protection projects

In the short-term plans, the provincial government has set a number of environmental protection, transport, sewage treatment and monitoring station projects in the property area. Large environmental protection projects such as "natural forest protection project," "water and soil preservation project," "migration of impoverished residents out of mountains" and "returning farmland on the 25 degrees of slope to forest" have been under way. Meanwhile, the ecological construction projects, which help residents to produce and use methane and electricity and treat refuse and sewage in an eco-friendly way, have also been planned or initiated soon.

4.4.2.3 Counter measures and Steps

4.4.2.3.1 Building a special ecological zone in the property and its surrounding areas and adopting special policies in the zone; taking special measures and giving special favorable financial support to explore the development pattern on the basis of protection. At the same time, all the protection and development efforts in the zone shall be given special policy and funding support by the central and provincial governments.

4.4.2.3.2 On the premise that current management system and decision making mechanism are improved and intensified, the “hot area protection framework” up to the international standard will be introduced to the planning and management of the scenic and cultural resorts and nature reserves in the property area and a complete management system characterized by “a particular rule governing a particular zone”, “integration of boundary and responsibility”, “participation of various aspects, separate management and overall regional planning” will be adopted.

4.4.2.3.3 Fully mobilizing the enthusiasm of the masses in the property and the outlying areas, respecting their rights, building and improving a sound community resource management system involving local residents and adjusting industrial structure in order to improve the production and living conditions of local people and create a sound protection mechanism aimed to boost protection with development.

4.4.2.3.4 Building an ecological benefit compensation and compensable resource use mechanism, intensifying the government’s financial support and preferential tariff cut and opening more investment and fund raising channels for the protection and development so as to provide capital guarantee for the sustained protection and development of the property.

4.4.2.3.5 On the basis of the current legal system, offering forceful legislative guarantee through enacting new rules and amending or annulling outdated rules to improve the legislation and law enforcement.

4.4.3 Management targets and action plan

4.4.3.1 Principles and guiding ideas

Management principles: In light of the principle of persistent protection and sustained development, the management will take into consideration of the situation of the property area located in the underdeveloped ethnic area. With the help of modern management methods, macro control will be combined with micro management and administrative management with technical support. A complete, systematic and scientific management will proceed from law enforcement, plan implementation, protec-

tion management and scenic area operation.

Guiding ideas: Strict protection, proper development, all-around education and instruction, active technical support will help local residents develop living resources amid the protection and development of the property area. The government will exercise effective management over the scenic resources through funding, technical input and law enforcement. At the same time, the government will also help local residents get rid of poverty through fund and policy supports, so that they would do away with the outmoded production and lifestyle. The goal is persistent and sustained protection and development of the property area.

4.4.3.2 Targets

Short-term management target: Establish management institutions under an orderly management system; establish an effective law enforcement mechanism and team; improve protection, development and construction planning system; and build a modern operable management mechanism and pattern in a certain partial area.

Long-term target: Establish an orderly management procedure with the help of scientific management means and complete legal and technical supports so that the property area would be completely protected and rationally developed and become an outstanding world heritage site.

4.4.3.3 Main measures and action plan

4.4.3.3.1 Measures

Establish a complete management system and staff from higher to lower levels, especially in the basic scenic areas and spots;

Conduct standardized education and training of managerial personnel to raise their overall quality and enrich their legal and professional knowledge;

Conduct extensive publicity and education work over local residents and tourists to enhance their protection awareness;

Establish an operation mode which combines administrative management and business management. Under a sound operation mechanism, the funds will be mainly given by governments at various levels in addition to business income;

Strictly adhere to the policy of "administrating and

building according to laws and regulations" and intensify the legal awareness of managers and protectors who will push forward construction and development according to the plans.

4.4.3.3.2 Action plan

4.4.3.3.2.1 The Yunnan Provincial Management Office of Three parallel rivers as a State's Key Scenic Area exercises macro management. The management offices at prefectural- and county-levels manage their specific sections. The management stations in various scenic resorts and spots are responsible daily management. As a result, a pyramid-like management structure equipped with necessary managerial and technical staff has been shaped. The management institutions have been built at all levels where designated personnel hold specific responsibility for management affairs.

4.4.3.3.2.2 Three comprehensive management centres are set up in three prefectures. They will use modern tools to concentrate their research and management on their sections' resources, management methods, protection measures and development forms. These centres will become a window and base for research, scientific publicity, protection and external exchanges.

4.4.3.3.2.3 In light of the principle of "strict protection, rational development, unified management and sustained utilization," the management will be centred on the effective protection and property construction in the kernel area and surrounding areas. The main duties of management institutions and personnel are to exercise supervision and education over the conducts of units, residents and transient people in the area through legal, administrative and economic means so as to meet the goal of proper construction and sustained utilization on the basis of protecting existent resources to the greatest extent.

4.4.3.3.2.4 A complete planning system will be built at the three levels -- regional plan, prefectural plan and scenic area plan, and their authoritativeness and operability will be intensified through legal and administrative means in order to ensure that all the development, construction and management would be conducted strictly according to plans.

4.4.3.3.2.5 Proper tourist items and rational degree of development will be considered to attract high-income and well-educated visitors to make ecological investigation trips by using local residents' current living conditions. They will help local residents improve living conditions and get rid of original primitive resource-consuming production style in a bid to raise their all-around quality and economic level, push forward the healthy social development and ensure the sustained utilization of primitive resources.

4.4.3.3.2.6 In answer to the requirement of the environment-bearing ability, capacity of basic facilities and development plans of scenic resorts or spots, the scope and nature of tourism areas will be defined. The number of tourists will be also be strictly controlled. At present, the area can receive 1.5 million tourists a year mainly in Lijiang, Zhongdian and Deqin areas with transport facility. In the short run, the annual tourists to this area will be controlled within 2 million, and the average days of their stay will be seven days.

4.5 Protection

4.5.1 Historical perspective

In the long historical development, high mountains, deep gorges, outdated communication conditions and primitive production and lifestyle have determined that the protection is still at primitive and natural protection.

4.5.1.1 The role of religious belief in resource protection

There are 14 ethnic groups living in the area. The main minorities are Tibetan, Naxi and Lisu, etc. Religion, as the top maxim of daily life, is being strictly and contentiously practiced. As a result of the worship and consecration of nature, local people regard environmental protection as part of their behaviour norm. In Tibetan Buddhism, each Tibetan village will divide a patch of nearby mountain "holy mountain" where every tree and bush should be absolutely protected. Naxi people who believe in Dongba religion regard nature as god, holding that damage of nature will bring about great disaster... Religion-driven worship of nature and sense of natural

protection have become residents' motivation for protection of natural resources.

4.5.1.2 Conscientious sense of protection from the need of survival

Primitive production and life style have caused people's absolute dependence on, and awe towards existing conditions. To guarantee survival space and environment, residents contentiously protect natural resources and landforms. In Yanmen of Deqin, people living in dry-hot river valley plant lots of trees around their habitats to prevent soil erosion. They would plant a small forest beside each house.

4.5.1.3 Passive sense of protection due to panic over natural disasters

As the landforms are complex and climates are changeable, minor damage to environment might lead to mud-rock flow, landslide, drought and flood, etc. They must protect living conditions to prevent natural disasters.

4.5.1.4 Village rules, folk rules agreed upon by local residents over protection of forests and drinking water, reflect their sense of natural protection.

As a primitive way of law, village rules are the norms of behaviour agreed upon and abided by villagers. In the rules in the property area, more than 200 articles concern natural protection.

4.5.1.5 Since the founding of the People's Republic of China, the State has attached great importance to the protection of natural resources. At present, there are two state-level nature reserves and five provincial-level nature reserves. The investment mainly comes from state and provincial governments for all-around protection.

In 1986, approved by the Chinese government, "Three Parallel Rivers" National Park was listed as state-level scenic resort, covering three prefectures and eight counties.

4.5.2 Status of protection

4.5.2.1 The central government and Yunnan provincial government have invested and plan to put in billions of yuan into large environmental protection projects such as "natural forest protection project," "water and soil preservation project," "relocation of residents" and "protection of rare and precious wild animals and plants." It is

expected that these projects will see initial effect in 10 years.

4.5.2.2 Multi-channel publicity has enhanced the sense of natural protection and overall quality of local residents. They are increasingly enthusiastic in promoting, protecting and supervising natural protection. At the same time, they are gradually escaping the primitive "slash-and-burn" farming method and developing an ecological friendly way of life.

4.5.2.3 As the laws and regulations are more and more complete, law enforcement systems gradually perfected and people's legal awareness enhanced, protection according to law has been the mainstream.

4.5.3 Protection policies and plans

4.5.3.1 Protection policies

4.5.3.1.1 Protection laws and regulations

4.5.3.1.1.1 The Constitution of PRC, Law of PRC on the Protection of Wild Animals, Environmental Protection Law of PRC, Forest Law of PRC and Interim Rules on the Management of Scenic and Cultural Resorts are the basic legal guarantee of the protection of property area.

4.5.3.1.1.2 The Rules of Yunnan Province on the Management of Scenic and Cultural Resorts and Rules of Yunnan Province on the Management of Nature Reserves and other local regulations are the guide lines to protecting the property area.

4.5.3.1.1.3 The Yunnan Provincial Stipulation on the Management of "Three Parallel Rivers" as a State's Key Scenic Area, Rules of Yunnan Province on the Management of Baimang Snow Mountain as a State-level Nature Reserve and Management Methods of Laojun Mountain Scenic Resort, etc are the operable rules for specific scenic spots.

4.5.3.1.2 Duties of governments in protection

Administrative chiefs of governments and construction departments at various levels hold direct responsibility over the resource protection in their jurisdictional areas.

4.5.3.2 Protection plan

4.5.3.2.1 The protection plan touches upon macro protection schemes; enhancing people's protection awareness from the point view of safeguarding the common

wealth of all mankind; and drafting a whole set of implementing plans on regulations, planning, construction, management and scientific research to guide the property management and protection work.

4.5.3.2.2 Strict protection by levels and zones

In view of the fact that the property area is large and has a big population, and that the scenic spots are far apart, the area is divided into core areas, protection areas and co-ordinated areas. The core areas are composed of 10 independent scenic areas and six nature reserves. The management institutions adopt relatively separate protection measures under a unified plan. Rational protection and proper development are conducted in the protection areas and co-ordination areas in answer to the need of core area protection.

4.5.3.2.3 With the help of advanced technology means, the protection will be made more scientific and effective.

4.5.4 Implementing methods of protection plans

4.5.4.1 The plans are carried out according to relevant laws, regulations and rules.

4.5.4.2 protection by levels and zones is conducted according to the protection plans.

4.5.4.3 Key protection actions are taken at different times in light of the environmental bearing conditions of the property area.

4.5.4.4 An implementing time-table will be set for near, mid and long-term protection so as to rationally arrange funds and personnel.

4.6 Current state of the flow of tourists to the property and control measures

4.6.1 Current state of tourism development

4.6.1.1 Tourist flow statistics in the recent five years

4.6.1.2 Tourist reception and service facilities and convenient conditions

4.6.1.2.1 Facilities in the main reception areas.

4.6.1.2.2 Conveniences and Measures

More than 300 publications and 10 million copies have been published on the “Three Parallel Rivers”. In

Year	Number of tourists	Year by year growth rate	Main sections of concentration
1997	205,693	16.96%	Pian man,Bing zhong luo
1998	246,466	19.82%	Pian man,Bing zhong luo
1999	295,108	19.73%	Pian man,Bing zhong luo
2000	410,355	39.05%	Pian man,Bing zhong luo
2001	256,800 half a year		Pian man,Bing zhong luo

	Hotel beds	Hospitals	Restaurants	Services
Zhongdian County town				
Deqin				
Liuku Township	1643	6	20	
Gongshan county town	400	8	10	
Lijiang county town				

the main scenic and cultural resorts where tourists gather, parking lots, guideposts and protection promotion billboards have been erected. The emergency rescue stations have been built for tourists.

Horse riding, interpreter and guide services are offered. Observation stations have also been set up to ensure the tourists’ safety and offer conveniences to them.

More than 120 public toilets, garbage disposition devices, 2,000 dustbins and 20,000 meters of plank roads have been built.

4.6.2 Tourist control

To protect the fragile primitive ecological environment in the property area, the tourist accommodation in the region is 22,000 persons/day and the annual tourist number is controlled within 1 million.

4.7 Protection personnel

4.7.1 There are more than 4,700 people engaged in protection management in the property area. They are involved in the work of administrative management, resource survey, protection supervision, scientific research, envi-

ronmental protection, fire prevention and security, business management, law enforcement and publicity. About 10% of the personnel have higher than middle professional titles.

4.7.2 Professional and technical training

4.7.2.1 The retraining of in-service personnel

The personnel receive training through lectures, full-time training, on-the-job re-education programmes organized by superior departments and prior-job training. Since 1990, the technical personnel can receive a full-time training every three years, and administrative managerial personnel can receive on-the-job re-education every five years, which has helped raise their technological and managerial level.

4.7.2.2 Introduction of high-level technical personnel

Since 1990, more than 200 technical personnel with at least college diploma have been introduced from university graduates, post-graduates and other units.

4.7.2.3 Technical support is given to the property area through research projects, resource surveys and scientific investigations with the help of domestic and foreign experts from scientific institutes.

Since 1980, the Chinese Academy of Sciences, Qinghua University, Beijing University, Beijing Forestry University, Chinese Academy of Forestry Science as well as universities and research institutes in Yunnan have done a great deal of research on the property area's biodiversity, landform diversity and scenic diversity, geological structure, and regional and urban plans, offering much technical support to the area's protection, management and development.

Starting from 1998, American's Nature Society and China's Yunnan Province jointly worked on "Action Plan on the Protection and Development of Northwest Yunnan", mainly centering on the property area. This research will provide theoretical and project support to the sustained utilization and rational development of this area.

4.8 Sources of funds

From 1993, the central and local governments as well

as management institutions in scenic areas have put 460 million yuan in the protection of forest, geological and scenic resources and environmental and residential conditions. As the property area is located in a less-developed area, more than 85% of the funds come from central and provincial finance.

In the future, while increasing state's financial support, active measures will be taken to develop local economy and green industry so that local governments could also invest more. Preferential conditions will also be offered to attract foreign funds to participate in environmental protection projects.

5. Factors that affect the property area

5.1 Environment

Vast with a long boundary and sharp regional difference, the property area is an under-developed area and home to nearly 1 million people, including Tibetans, Naxis, Lisus, Pumis, Bais and other minorities. Traditional primitive way of life and production of ethnic groups plus an ever expanding resident population are all posing pressures on the fragile biological communities, ecosystem, water system, climate and topography, causing a certain degree of damage to environment.

5.2 Harsh conditions

The vast area, complex landforms, different natural conditions and poor transport facilities pose great pressures on scientific surveys, research and active protection work.

5.3 Development

With the socio-economic development, the population expansion in residential areas and the residents' demand for a higher living condition and modern life have also brought pressure on the protection of natural resources and maintenance of status quo.

5.4 Tourism

As the property site is more and more known, the number of tourists has seen a sharp increased in recent

years. In 1990, only 300,000 people visited the area. But in 1999, the number hit 1.5 million. Such rapid growth, plus fragile ecosystem, backward transport conditions, basic facilities and insufficient receiving capacity have posed pressures to ecological and social environment.

5.5 Natural disasters

Due to special topography, landforms and ecological conditions, the property area could be threatened by such natural disasters as earthquakes, mud-rock flows, landslides, cold damages, fire, plant diseases and insect pests.

5.6 Prospects

The unfavourable factors mentioned above as well as the possible serious consequences have been taken into serious consideration by governments and competent departments at various levels. Active measures -- more legislature support, increased scientific research and more funding -- have been gradually taken to control and solve these problems.

6. Monitoring

6.1 It is an important part of the protection strategy to monitor the overall situation, biological species, natural disasters and the impact of human activities in Three Rivers area through scientific means.

6.2 Main monitoring methods

6.2.1 Large-area, all-dimensional satellite monitoring: make use of man-made satellites and other technical data to monitor the large-area disaster, unforeseen incidents and overall situations and changes of natural environment in the property area.

6.2.2 Regular air and ground monitoring over the core areas: the work focuses on disaster prevention and control, species aid and supervision over human activities; regular aviation and ground patrol is helpful to understanding the basic situation in the whole core areas and deal with disasters and emergencies timely.

6.2.3 Long-term spot monitoring: Special facilities and personnel are set up and assigned to watch key scenic zones, nature reserves, disaster-prone areas, concentrated human activity areas.

6.2.4 Special-item monitoring: This is to monitor endangered species under key protection and important geological remains in co-operation with scientific research institutes, and then come up with specific protection plans on the basis of monitoring results.

6.3 Main monitoring types

6.3.1 Routine monitoring: Regular monitoring is done to check the quality of ecosystem, hydrological changes and sources of pollution.

6.3.2 Special-item monitoring: This is to monitor the ecosystem types, primitive forests and distribution of vegetation species and communities and gene-tank species.

6.3.3 Monitoring of wild animals under key protection: The number of animals, trace of their activities and human interference are monitored individually and generally and files will be set up.

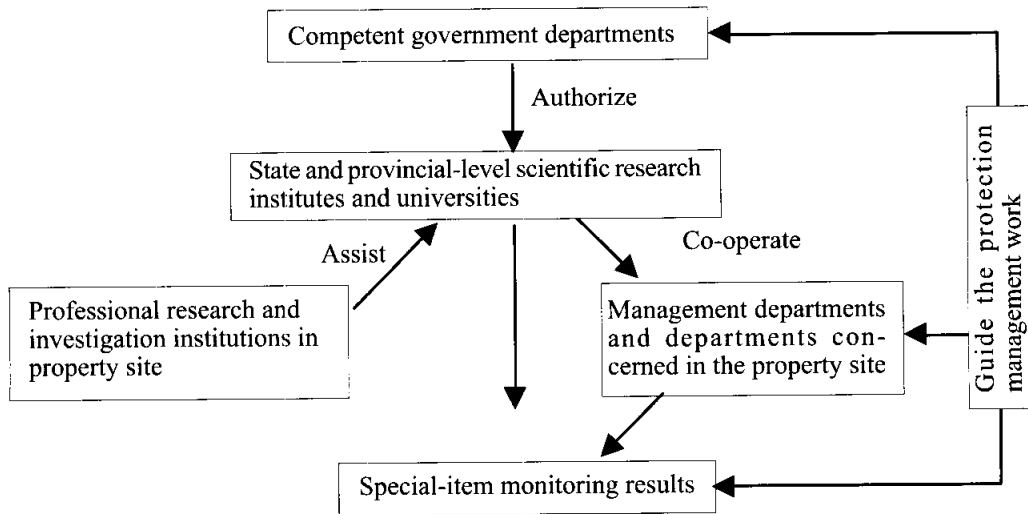
6.3.4 Monitoring of natural disasters: This is to watch and discover the hidden perils of fire, plant diseases and insects and human sabotage.

6.3.5 Monitoring of tourism: This is to analyze number of tourists, time of stay, make-up of tourists, consumption level and economic return from tourism in order to control the number of tourists, improve tourist service and obtain good economic returns.

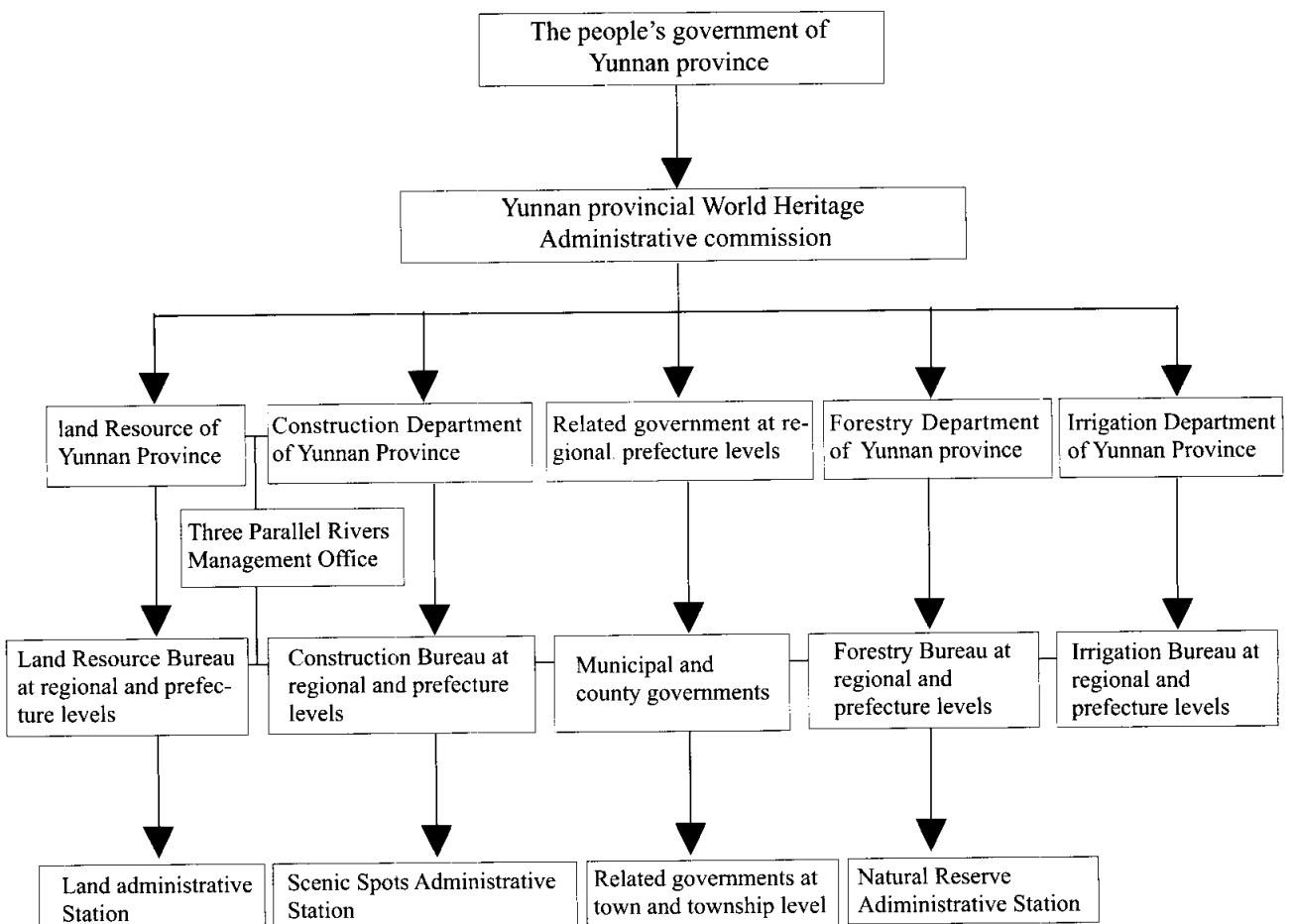
6.3.6 Monitoring of human-inhabited areas: With the monitoring of economic and social development and number and make-up of population in human-inhabited areas, a timely socio-economic development which suit the protection plan could be made to guide the decision making of local governments.

6.4 Monitoring system

6.4.1 Scientific monitoring system



6.4.2 Management and monitoring system



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7.4 Relevant laws and regulations of Yunnan province and PRC

7.4.1 Interim Rules of PRC on the Management of Scenic and Cultural Resorts

Interim Rules of PRC on the Management of Scenic and Cultural Resorts (Promulgated by the State Council on June 7, 1985)

Article 1 These rules are formulated to strengthen the management of scenic and cultural resorts and to better protect, utilize and develop the resources of scenic and cultural resorts.

Article 2 All areas with sight-seeing, cultural and scientific values where natural landscapes or human sites are relatively concentrated, where the environment is beautiful, which have a certain scale and scope and can be used for sight-seeing, recreation or scientific or cultural activities shall be listed as scenic and cultural resorts.

Article 3 Scenic and Cultural Resorts may be divided into three grades in line with their sight-seeing, cultural and scientific values, environmental quality, sizes and conditions for sight-seeing:

(1) City- or county-level Scenic and Cultural Resorts: the competent departments of the cities or counties shall organize departments concerned to produce investigation and evaluation reports on the resources of Scenic and Cultural Resorts, submit them to the municipal and county people's governments for approval and public announcement, and send them up to the competent departments at the provincial level for record;

(2) Provincial-level Scenic and Cultural Resorts: the municipal or county people's governments shall produce investigation and evaluation reports on the resources of the Scenic and Cultural Resorts, submit them to the people's governments of the provinces, autonomous regions or municipalities directly under the central government for approval and public announcement, and send them up to the Ministry of Rural and Urban Construction and Environmental Protection for record;

(3) State-level key Scenic and Cultural Resorts: the people's governments of the provinces, autonomous regions and municipalities directly under the central government shall produce investigation and evaluation reports on the resources of the Scenic and Cultural Resorts and submit them to the State Council for approval and public announcements.

Article 4 The Ministry of Rural and Urban Construction and Environmental Protection is in charge of the work of Scenic and Cultural Resorts across the country. The rural and urban construction departments under the local people's governments are in charge of the work of Scenic and Cultural Resorts in their respective areas.

Article 5 People's governments shall be established according to the law in the Scenic and Cultural Resorts, which shall take full responsibility for protecting, utilizing, planning and constructing the Scenic and Cultural Resorts.

In Scenic and Cultural Resorts where people's governments are not established, management organizations shall be established to take charge of the management of

Scenic and Cultural Resorts under the leadership of the people's governments to which they are subject. All units set up within the scope of Scenic and Cultural Resorts shall observe the unified planning and management over the Scenic and Cultural Resorts by the management organization, besides subordinating themselves to their superior competent departments in the aspect of their respective vocational work.

Article 6 Scenic and Cultural Resorts at all levels shall work out their planning, which shall include the following particulars:

(1) Determining the nature of the scenic and cultural resorts;

(2) Demarcating the scope of the scenic and cultural resorts and their surrounding zone under protection;

(3) Dividing the scenic spot zone and zones for other functions;

(4) Deciding the measures for the protection, development and utilization of the Scenic and Cultural Resorts;

(5) Fixing the quota of visitors that can be accommodated, and the measures of organization and management for sight-seeing activities;

(6) Arranging in unison public utility, service and other facilities;

(7) Estimating investment required and benefits expected; and

(8) Other particulars that need to be planned.

Article 7 The planning of Scenic and Cultural Resorts shall be organized and compiled by the competent departments together with other departments concerned under the leadership of the people's governments having jurisdiction over the spots and places.

The compiling of such plans shall be subject to comparison and evaluation of various proposals, by extensively soliciting opinions and comments from departments concerned, specialists and the masses.

Plans for Scenic and Cultural Resorts shall, after having been examined by the competent departments, be submitted to the people's governments which originally decided to set up such spots and places for approval, and be also sent up to the competent departments of higher level

for record.

Article 8 No units or individuals may seize or use the land of Scenic and Cultural Resorts.

All landscapes and natural environment within Scenic and Cultural Resorts must be under strict protection, may not be damaged or changed without authorization.

All construction facilities within Scenic and Cultural Resorts and their surrounding zones under protection shall be compatible with the landscapes, no facilities that damage the landscapes, pollute the environment or obstruct sight-seeing may be constructed.

In sight-seeing areas where visitors congregate, no hotels, hostels, or sanatoriums or rehabilitating organizations may be constructed.

In areas surrounding precious landscapes and in important scenic spots, no other engineering facilities may be constructed in addition to protective and supporting facilities that must be built.

Article 9 In Scenic and Cultural Resorts, work in the aspects of forest conservancy, afforestation, forest fire prevention and insect and disease prevention shall be carried out. And forest, vegetation and the habitat of plant and animal species shall be properly protected.

Forest within Scenic and Cultural Resorts and their surrounding zones under protection, disregarding the ownership, shall be nurtured and managed according to the plans, and may not be felled. If it is necessary to fell trees for the purpose of regeneration and nurture, it must be approved by the local competent departments.

It is forbidden to fell ancient and precious trees.

Any collection of specimens, wild medicinal herbs or other forest byproducts within Scenic and Cultural Resorts must be subject to approval by the management organizations; the amount to be collected shall be limited, and collection shall be executed within the designated scope.

Article 10 Important landscapes, cultural relics, ancient remains and ancient and precious trees within Scenic and Cultural Resorts shall be surveyed and evaluated, and protective measures shall be worked out and implemented.

Article 11 Scenic and Cultural Resorts shall, in line with the plans, vigorously develop the resources of scenic and cultural heritage, improve transportation and service facilities and conditions for sight-seeing; organize sight-seeing activities in a planned manner and in accordance with the specified quota of accommodation, and may not accommodate visitors without limits in excess of the specified quota.

Article 12 Scenic and Cultural Resorts shall, by making full use of the advantages and features of the resources of Scenic and Cultural Resorts, promote healthy and beneficial sight-seeing and cultural recreational activities, publicize socialism and patriotism, spread knowledge on history, culture and science.

Article 13 Scenic and Cultural Resorts shall strengthen safety management, guarantee the safety of visitors and keep the landscapes in good condition.

Residents and visitors in Scenic and Cultural Resorts shall take care of and protect landscapes, forest, vegetation, wildlife and various facilities in the Scenic and Cultural Resorts, and abide by the relevant rules and regulations.

Article 14 As for units and individuals having made remarkable achievements in or having made great contributions to the protection of Scenic and Cultural Resorts, the people's governments or the competent departments concerned shall give rewards to them.

Article 15 Anyone who has any of the following acts in violation of these rules shall be given administrative sanctions or economic penalty:

(1) Seizing and using land of Scenic and Cultural Resorts for construction of illegal facilities, the departments or the management organizations concerned shall order them to return the land seized, to dismantle the illegal construction structures, and may impose a penalty according to the actual circumstances;

(2) Damaging landscapes, forest or vegetation, catching or killing wildlife or polluting the environment, the departments or the management organizations concerned shall order them to stop their damage for the acts and compensate for the economic losses, and may impose a penalty according to the circumstance;

(3) Sabotaging the sight-seeing order and safety regulations of Scenic and Cultural Resorts and not observing persuasion, the departments or the management organizations concerned shall give them a warning or impose a penalty; if the acts violate relevant rules on public security order, the police departments shall mete out punishment according to law;

Of the acts mentioned in the preceding paragraphs, if they are serious and constitute a violation of the Criminal Law or the relevant State laws on forestry, environmental protection and cultural relics protection, punishment shall be meted out according to law.

Article 16 The right to interpret these rules resides with the Ministry of Urban and Rural Construction and Environmental Protection; detailed rules for implementation shall be formulated by the Ministry of Urban and Rural Construction and Environmental Protection.

Article 17 These rules shall become effective and be implemented as of the date of promulgation.

Issued by the State Council on June 7, 1985

7.4.2 Regulations for the Implementation of the Interim Rules of PRC on the Management of Scenic and Cultural Resort

Regulations for the Implementation of the Interim Rules of PRC on the Management of Scenic and Cultural Resort

Chapter I General Provisions

Article 1 In accordance with the Interim Rules of PRC on the Management of Scenic and Cultural Resort promulgated by the State Council (Guo Fa [1985] No. 76) and related State provisions, these Regulations are hereby enacted.

Article 2 Scenic resources and resources of historical interests refer to such natural landscapes as mountains, waters, lakes and seas, landforms, forests, animals and plants, fossils, special geologic and astrometeorological phenomena, and such human landscapes as cultural relics, ancient sites, revolutionary and memorial places, histori-

cal remains, gardens, architectures and construction facilities as well as the environment in which they are located and local customs and practices, all of which are of sight-seeing, cultural and scientific values.

Scenic and Cultural Resort refer to areas where scenic and cultural resources distribute in concentration, where the environment is beautiful, which have a certain scale and conditions for sight-seeing, which are named and demarcated after examination and approval by the people's governments at or above the county level for sight-seeing, recreation or for conducting scientific or cultural activities.

Article 3 Scenic resources and resources of historical interests shall be investigated into and assessed to determine their characteristics and values. Contents for investigation and the assessment requirements of scenic and cultural resources are specified in Attachment I to these Regulations.

Article 4 Scenic and Cultural Resort shall be examined and approved by the people's governments at or above the county level in line with the stipulations of the Interim Rules of PRC on the Management of Scenic and Cultural Resort. Criteria for Scenic and Cultural Resort of different levels are as follows:

(I) Those of certain sight-seeing, cultural or scientific value, with a beautiful environment, of a small scale and with simple facilities, and mainly accommodating local tourists shall be classified as city (county)-level Scenic and Cultural Resort;

(II) Those of a fairly important value for sight-seeing, culture and scientific research, with representative local landscapes, with a certain scale and facilities, and of a status in and out of the province shall be classified as provincial-level Scenic and Cultural Resort;

(III) Those of an important value for sight-seeing, culture and scientific research, with unique landscapes, of a domestic and international fame and of a large scale shall be classified as State key Scenic and Cultural Resort.

Documents and information required for applying to be listed as State key Scenic and Cultural Resort are specified in Attachment II to these Regulations.

Article 5 The Ministry of Urban and Rural Construction and Environment Protection and local urban and rural construction departments at or above the county level are in charge of the work of Scenic and Cultural Resort, and apply separate management over Scenic and Cultural Resort at various levels. Their main tasks are, under the leadership of the people's governments to which they are subject, to organize investigations into and assessment of scenic and cultural resources ; report on, examine and approve Scenic and Cultural Resort; organize the compilation, examination and approval of plans for Scenic and Cultural Resort; formulate management rules and implement such rules; and supervise and inspect the work of protection, construction and management of Scenic and Cultural Resort.

Article 6 Management organizations of Scenic and Cultural Resort exercise, within the scope of Scenic and Cultural Resort, the functions of administrative management empowered by the competent people's governments, and are subordinate to vocational directions of the urban and rural construction department of the people's governments at the higher levels. Their main functions are, in line with the Interim Rules of PRC on the Management of Scenic and Cultural Resort and the plans, apply centralized management over resources protection, development and construction as well as operation activities of Scenic and Cultural Resort.

Article 7 Once the plan for a scenic and cultural resort is approved, entrance marks shall be erected at the main entrances of the scenic and cultural resort, boundary tables shall be erected along the approved borderline.

The content and logo design of the entrance mark of State key Scenic and Cultural Resort shall be published and announced by the Ministry of Construction. Entrance marks may be designed and manufactured in line with the characteristics of the Scenic and Cultural Resort, which shall be simple, natural, solemn and graceful and be of permanent significance. The designs of entrance markers of State key Scenic and Cultural Resort shall be examined and approved by the Ministry of Construction.

Chapter II Protection

Article 8 Every one is obligated to protecting State Scenic and Cultural Resort. All organs, units, armies, residents and visitors in the Scenic and Cultural Resort must take care of and protect the landscapes, forest, facilities and environment of the Scenic and Cultural Resort, and abide by related rules and regulations.

Article 9 The management organizations of Scenic and Cultural Resort must place the protection of Scenic and Cultural Resort on top of their work agenda, assign necessary and adequate manpower and equipment for this purpose, establish and perfect various rules and regulations, and define the responsibility for protection. At the same time, they shall perform well in publicity, set up simple and accurate explanations about the sceneries, scenic spots and scenic zones and conspicuous protection boards, the forms of which shall be suitable for the local conditions and in harmony with the surrounding landscapes.

Article 10 Scenic and Cultural Resort shall establish and amplify various rules and regulations on tree-planting, afforestation, forest conservancy, forest protection and fire prevention and the prevention and control of pests and diseases, implement various management responsibility systems, and carry out forest-cultivation and management according to the requirements set out in the plans.

All forests in Scenic and Cultural Resort are for special purposes, and may not be felled. If the felling is necessitated by thinning, regeneration and other purposes, it shall be consented by the management organizations of Scenic and Cultural Resort and be reported to and approved by the local competent departments before such felling can be carried out.

Scenic and Cultural Resort shall properly solve the problem of firewood of the residents in the zones. If it is unavoidable to burn firewood for living for a short-term period, a certain area of low scenic value in such zones may be designated as fuel forest to meet such short-term demands.

Article 11 Ancient and precious trees in Scenic and

Cultural Resort shall be strictly protected, and any felling or transplanting shall be strictly forbidden. Investigation, evaluation and registration of such trees shall be carried out, and records shall be set up for them. Placards shall be attached to ancient and precious trees after evaluation. Special introduction shall be made to trees of unique value and significance.

Scenic and Cultural Resort shall establish a responsibility system so as to better execute the protection and rejuvenation measures for ancient and precious trees, and to perform a timely, good job in soil loosening, fertilizing, hole-mending, prevention of pests and diseases and the prevention of such disasters as winds, snow, lightning and flood. The habitat of ancient and precious trees shall be properly protected, and any damage caused by visitors, man-made facilities, engineering activities or atmospheric and water pollution shall be strictly prevented.

Article 12 Scenic and Cultural Resort shall strengthen their protection and management of waters, prevent and check any activity that might lead to water pollution and damages and overuse; timely cleaning and dredging shall be carried out for rivers and lakes, and no arbitrary filling, dike-building, blocking or any other changes is allowed. The protection and management of land of water sources shall be strengthened according to relevant rules and regulations.

Article 13 Scenic and Cultural Resort shall properly protect the habitat of animals, it is strictly forbid the acts of hurting or recklessly hunting wildlife. Publicity of ecological and protection knowledge on wildlife shall be strengthened so as to form the habit of taking good care of and protecting wildlife.

Article 14 Landforms of Scenic and Cultural Resort shall be strictly protected, and such business activities as stone-quarrying and sand-dredging are forbidden. Sand and stone materials for the maintenance projects in Scenic and Cultural Resort may be dug in the zones under the preconditions of not destroying and damaging the original land form, however, the local people's governments shall arrange a proper site and impose a limit on the amount to be dug.

Article 15 Cultural remains as ancient architecture, ancient gardens and stone carvings, revolutionary sites, ancient sites and other human landscapes as well as the environment of their location within Scenic and Cultural Resort shall be strictly protected and be subject to regular maintenance. Management shall be well carried out; responsibility system shall be set up and improved; and measures for fire prevention, lightning resistance, flood prevention, anti-shock and anti-decaying shall be implemented.

Article 16 Scenic and Cultural Resort shall maintain their original natural and historical appearance. It is forbidden to start massive earthwork projects and activities significantly changing the land forms and natural environment of Scenic and Cultural Resort so as to prevent the artificialization and urbanization of Scenic and Cultural Resort.

Chapter III Planning

Article 17 Plans of Scenic and Cultural Resort are the comprehensive blueprint to effectively protect, rationally develop and construct and scientifically manage the Scenic and Cultural Resort. The approved plans shall serve as the basis for the protection, construction and management of Scenic and Cultural Resort.

Article 18 Plans for Scenic and Cultural Resort shall be compiled in line with the requirements of the Interim Rules of PRC on the Management of Scenic and Cultural Resort and these regulations.

Article 19 Plans for Scenic and Cultural Resort shall, under the leadership of the people's governments to which they are subject, be organized and compiled by the urban and rural construction departments or the management organizations of the scenic spots together with departments of cultural relics, environmental protection, tourism, agriculture, water resources, electric power, communications, posts and telecommunications, commerce and services.

Article 20 The compilation of plans for Scenic and Cultural Resort may be commissioned to qualified do-

mestic planning, designing, and scientific research units or institutes of higher learning for assistance. Chief technical supervisors shall be appointed to be responsible for organizing, coordinating and gathering the plans.

Article 21 In compiling plans for Scenic and Cultural Resort, the first job is to conduct a comprehensive, multi-discipline survey and investigation into the scenic and cultural resources, and to collect complete basic information about them.

Basic information for the planning of Scenic and Cultural Resort shall be gathered and improved by the compiling units of plan documents. All information after being sorted out shall be kept permanently by the management organizations of Scenic and Cultural Resort.

Article 22 The planning of Scenic and Cultural Resort shall conform to the following principles:

(I) Effectively implement relevant State principles and policies on the protection, development and utilization of scenic and cultural resources; protect natural and cultural heritage; maintain the balance of nature; fully tap the environmental, social and economic benefits of the Scenic and Cultural Resort; and coordinate the relationship among various undertakings.

(II) Fully recognize the characteristics and values of the resources, give prominence to the features of the said scenic and cultural resort and the dominant role of the natural environment. Scenic and Cultural Resort are to be distinguished from parks in cities, and any massive construction of "artificial landscapes" shall be avoided.

(III) Carry out deep and thorough survey and study to get a clear picture about the history and present status of the Scenic and Cultural Resort, and stick to the working style of adapting to local conditions and seeking truth from facts in solving problems in the course of planning.

Article 23 The scope of Scenic and Cultural Resort shall, in consideration of the completeness of landscapes, the maintenance of the natural and historical appearance, the protection of the ecological environment, the development of the resort into a certain scale, and the requirements for convenient sight-seeing and management, be specified in the plans, and become effective upon the ap-

proval of the overall plan.

In the surrounding areas of Scenic and Cultural Resort, protective zones shall be defined and specified in the plans of Scenic and Cultural Resort in accordance with the needs to maintain the features of landscapes, and the natural environment and ecological balance of the Scenic and Cultural Resort, and to prevent pollution and impose control on construction activities. The original administrative management and subordinate relationship shall remain unchanged. For such protective zones, the management organizations of Scenic and Cultural Resort shall, after the approval of plans for the Scenic and Cultural Resort, propose the requirements for environment protection according to the plans, which shall be implemented by administrative organs.

Article 24 Examination and approval of plans for Scenic and Cultural Resort:

(I) Plans for city or county level Scenic and Cultural Resort shall be examined by the municipal and county urban and rural construction departments first, then be submitted to the municipal and county people's governments for approval, and after that be submitted to the provincial urban and rural construction departments for record.

(II) Plans for provincial level Scenic and Cultural Resort shall be submitted by the city or county people's governments in the places where the management organizations of Scenic and Cultural Resort are located to the provincial, autonomous region or municipality directly under the central government people's governments for examination and approval, and be reported to the Ministry of Urban and Rural Construction and Environment Protection for record.

(III) Plans for State key Scenic and Cultural Resort shall be submitted by the people's governments of the province, autonomous region or municipality directly under the central government to the State Council for examination and approval.

(IV) Detailed plans for State key Scenic and Cultural Resort are normally examined and approved by the construction departments (commissions) of the provinces,

autonomous regions or municipalities directly under the Central Government where they are located. Detailed plans for the extremely important areas shall be examined first by the provincial construction departments and then be reported to the Ministry of Construction for approval.

Article 25 Plans and documents to be submitted for the examination and approval of State key Scenic and Cultural Resort are specified in Attachment III to these Rules.

Article 26 Once a plan for the scenic and cultural resort is approved, it must be implemented strictly and no organizations or individuals may alter it without authorization. If it is necessary to make significant changes or to construct additional large projects, it shall be subject to consent by the competent departments of Scenic and Cultural Resort and be reported to the people's governments originally examined and approved the plans.

Chapter IV Construction

Article 27 Any units and individuals intending to use land to construct houses or other projects in the Scenic and Cultural Resort shall be subject to examination and approval by the management organizations of the Scenic and Cultural Resort, and shall complete the examination and approval procedures according to related rules and regulations.

Control shall be imposed on the construction scale in the Scenic and Cultural Resort, and land and facilities within the Scenic and Cultural Resort shall be utilized with compensation.

Article 28 Regarding units and individuals that had already utilized land of the Scenic and Cultural Resort prior to the promulgation of the Interim Rules of PRC on the Management of Scenic and Cultural Resort, the people's governments, management organizations or competent departments having jurisdiction shall sort out and rectify them according to the Rules and these Regulations, treat them differently in line with different conditions. Those that pollute the environment, impair the landscapes and natural appearance or seriously obstruct sight-seeing

activities shall be ordered to make improvement and treatment within a given limit of time or move out of the zones gradually; no expansion or new construction of facilities may be started prior to their relocation. Existing engineering facilities that obstruct the landscapes in the Scenic and Cultural Resort shall be concealed, renovated or dismantled according to the requirements of the plans.

Article 29 In the Scenic and Cultural Resort and their surrounding protective zones, no mining enterprises, railways, stations, warehouses or hospitals irrelevant to the landscape or sight-seeing, or units and facilities that damage the landscapes, pollute the environment or obstruct sight-seeing may be constructed. All facilities constructed in line with the plans shall be compatible with the surrounding landscapes in their layout, height, volume, appearance and colour.

Article 30 In sight-seeing areas where visitors congregate and in the natural environment reserve land, no hotels, hostels, or sanatoriums or rehabilitating organizations, management organization, living quarters and other large-scale projects may be constructed.

Article 31 The feasibility study reports or project designs for construction projects in the Scenic and Cultural Resort, particularly those extremely important projects, such as large reservoirs, highways, railway stations and cablecars, must be examined and consented by the competent department of urban and rural construction at the same level prior to submitting them to the planning departments for examination and approval. The preliminary designs of projects shall be examined and approved by the urban and rural construction departments under the local governments at various levels. The construction of any project may not be started without a certification from the management organizations of the Scenic and Cultural Resort.

No large and important construction projects may be started prior to the approval of the plans for Scenic and Cultural Resort. If a few projects are extremely necessary to be constructed, the scale and choice of sites must be subject to feasibility study and analysis, and technical appraisal, and the projects shall be consented first by the

management organizations of the Scenic and Cultural Resort and then be submitted to the urban and rural construction department at the higher level for examination and approval.

Article 32 In the course of construction of various engineering projects within the Scenic and Cultural Resort and their surrounding protective zones, effective measures must be taken to protect the landscapes and the surrounding forest, vegetation, waters and land forms, and no pollution or damage may be caused. When the construction completes, the construction sites must be cleaned, afforestation be carried out, and original appearance of environment be restored.

Article 33 The management organizations of Scenic and Cultural Resort shall, on the basis of the plans, vigorously organize the unified development, construction and management of various facilities. Funds from various sources shall be pooled for the maintenance, development and construction of the Scenic and Cultural Resort. No construction project may violate the plans, and it is not allowed to satisfy any unreasonable demands of investing units just for the purpose of attracting investment.

Chapter V Management

Article 34 In order to protect various scenic and cultural resources and to maintain a harmonious development of various undertakings, the management organizations of Scenic and Cultural Resort shall exercise a unified planning and management over the units of gardening, cultural relics, environment protection, agriculture and forestry, scientific research, religious affairs, industry and communications, commerce, services, hygiene and sanitation and public security located in the Scenic and Cultural Resort. The business channels and sources of capital for all units shall remain unchanged.

All units and individuals within the Scenic and Cultural Resort shall abide by planning of the Scenic and Cultural Resort, and place themselves under the unified management.

Article 35 Scenic and Cultural Resort shall enhance

their public security and safety management, set up organizations or assign persons to ensure the order of the tours and public security, supply them with necessary equipment, and strengthen public security patrol and check. Law-breaking persons who make troubles, disrupt the order or engage in illegal activities shall be severely punished to ensure the safety of State property and the tourists. Regular checks of such transport facilities as ships, vehicles, cablecars, cableways and docks, equipment for sight-seeing activities, perilous tracks, crowded intersections and dangerous sections of stairways shall be carried out; responsibility system shall be applied; management and maintenance shall be strengthened so as to eliminate perilous rocks and other factors jeopardizing safety. Safety warnings shall be erected at the dangerous sections of roads and water areas, and at places where beasts of prey haunt or harmful plants grow, and safety precautions and measures shall be advised. In areas without safety assurance, no sight-seeing activities may be organized.

Article 36 Scenic and Cultural Resort shall organize sight-seeing activities in a planned way. The management organizations of Scenic and Cultural Resort shall coordinate with the transport, railway and public security departments of the regions concerned to arrange the transportation and guidance of visitors. It is forbidden to accommodate visitors in excess of the capacity. If accidents of personal safety or damages to landscapes occur because of over-capacity accommodation of visitors, the responsibility of related leaders and management personnel will be investigated.

Article 37 Scenic and Cultural Resort shall properly dispose house waste and sanitary sewage, constantly improve the environment and hygienic conditions, strengthen supervision and check, and forbid any random dumping.

The hygiene management over food and service sectors shall be strengthened according to relevant State rules and regulations, and any food service failing to meet the requirements of the rules and hygiene standards shall be disposed timely.

Article 38 The Scenic and Cultural Resort shall organize the local residents to develop production and service

undertakings with local flavour in a planned manner, to manufacture tourism souvenirs, and to provide various services and shall put an end to those production undertakings that damage the landscapes and pollute the environment.

Article 39 Units and individuals engaging in business operations within the Scenic and Cultural Resort must be consented by the management organizations of the Scenic and Cultural Resort, obtain their business licences and engage in business activities within designated areas and within the approved scope of business.

Article 40 Scenic and Cultural Resort shall, operate various sight-seeing and recreational activities and scientific and cultural activities according to the characteristics of resorts. Those that have necessary conditions shall gradually set up tourists information centers to introduce the Scenic and Cultural Resort in a variety of ways, to guide the sight-seeing activities and to provide services. All sight-seeing activities in the Scenic and Cultural Resort shall be loyal to science, civil, and beneficial to people's mental and physical health, and such unhealthy activities as low-taste, backward and superstitious activities shall be eliminated and stopped.

Article 41 Scenic and Cultural Resort shall do a good job in promoting and publicizing civil sight-seeing activities. Visitors shall be guided to observe public order, to take care of scenic and cultural resources, to love and protect public property and to pay attention to hygiene and sanitation. Every Scenic and Cultural Resorts shall work out the notice of attention for sight-seeing, which shall be conscientiously implemented.

Article 42 Scenic and Cultural Resort shall establish and perfect the archive system, carry out investigation and statistical research into such conditions as the historical evolution, resources, scopes, ecological environment, various facilities, construction activities, production, economy and sight-seeing and accommodation of the Scenic and Cultural Resort, compile a complete set of information and materials and properly keep them.

Article 43 Scenic and Cultural Resort shall step up the building of their management team and improve the

quality of their staff. Measures such as mid-career studies, vocational studies, rotating training and collective training during the off seasons shall be taken to improve the political, cultural and professional levels of the staff members, and enable them to master the basic knowledge and methods about the management of Scenic and Cultural Resort. Special training on the management of Scenic and Cultural Resort shall be organized for leaders and backbone personnel of Scenic and Cultural Resort.

Chapter VI Supplementary provisions

Article 44 The Attachment I to these Regulations is the Syllabus for Investigation and Assessment of Scenic and Cultural Resort;

The Attachment II to these Regulations is the Provisions on the Materials for Applying to Be Listed as State Key Scenic and Cultural Resort.

The Attachment III is the Provisions on the Planning Contents of Scenic and Cultural Resort and Materials to be Submitted.

Article 45 These Rules are applicable to Scenic and Cultural Resort at various level across the country.

Article 46 All localities may formulate their detailed regulations for implementation in according to the Interim Rules of PRC on the Management of Scenic and Cultural Resort and these Rules.

Article 47 The interpretation right of these Rules resides with the Ministry of Urban and Rural Construction and Environment Protection.

Article 48 These Rules shall come into force as of the date of promulgation.

7.4.3 Rules of PRC on Nature Reserve Management

Rules Of the People's Republic
Of China on Nature Reserve Management
(Decree No.167 of the State Council on October 9,
1994)

Chapter I General Provisions

Article 1 These Rules are formulated with a view

to strengthening the construction and management of nature reserves and protecting the natural environment and resources.

Article 2 The nature reserves as referred to in these Rules mean the areas delimited according to relevant laws for special protection and administration in the areas where typical natural ecological systems, and precious, rare and vanishing wildlife species are naturally concentrated, or in the dry land, water area on the land and sea area where protected objects such as natural traces with special significance are situated.

Article 3 All establishment and management of nature reserves within the territory of the People's Republic of China or the other sea areas under the jurisdiction of the People's Republic of China must be conducted in conformity with these Rules.

Article 4 The State shall incorporate the development plan of nature reserves into the national economic and social development plans by means of adopting economic and technological policies and measures favourable to the development of nature reserves.

Article 5 The local economic construction, the production activities and everyday life of local residents shall be properly taken into consideration in the establishment and management of a nature reserve.

Article 6 Nature reserves administrative agencies and their competent administrative departments may accept donations from both domestic and foreign organizations and individuals for the establishment and management of nature reserves.

Article 7 The people's governments at or above the county level shall strengthen leadership in the work of nature reserves.

All units and individuals shall have the obligation to protect the natural environment and resources within nature reserves and have the right to inform against or lodge complaints against the units or individuals who damage or encroach the nature reserves.

Article 8 The State shall institute a system which combines integrated management with separate departmental management for the management of nature

reserves.

The competent department of environment protection under the State Council is responsible for the integrated management of the nature reserves throughout the country.

The competent departments of forestry, agriculture, geology and mineral resources, water conservancy, and marine affairs and other departments concerned are respectively responsible for relevant nature reserves under their jurisdiction.

The people's governments of provinces, autonomous regions and municipalities directly under the Central Government shall, according to the specific condition of the locality, decide on the establishment and the responsibilities of the administrative departments of nature reserves in the people's governments at or above the county level.

Article 9 The people's governments at various levels shall give awards to the units or the individuals who have made outstanding contributions to the establishment and management of nature reserves or to the related scientific research.

Chapter II Establishment of Nature Reserves

Article 10 In the areas which meet one of the following requirements, a nature reserve shall be established:

(1) typical physiographic areas, typical natural ecosystem areas, and those areas where the natural ecosystems have been damaged, but can be restored to the same category of natural ecosystems through proper protection;

(2) where precious, rare and vanishing wildlife species are naturally concentrated;

(3) having marine and coastal areas, islands, wetland, inland water bodies, forests, grassland and deserts which are of special protection value;

(4) natural remains which are of significant scientific or cultural value, such as geological structures, famous karst caves, fossil distribution areas, glaciers, volcanoes, and hot springs;

(5) other natural areas in need of special protec-

tion upon the approval of the State Council or the people's governments of provinces, autonomous regions or municipalities directly under the Central Government.

Article 11 The nature reserves consist of national and local nature reserves.

National nature reserves include those of typical significance in or out of the country, and those of significant international influence in science, or of special value in scientific research.

Local nature reserves include those, other than the national ones, which are of typical significance or with special value in scientific research. Local nature reserves may be managed by local governments at different levels. The specific measures shall be formulated by the competent department of nature reserves under the State Council or by the people's governments of provinces, autonomous regions or municipalities directly under the Central Government according to their specific conditions, and shall be submitted to the competent department of environment protection under the State Council for record.

Article 12 The establishment of a national nature reserve requires an application from the people's government of the province, autonomous region or municipality directly under the Central Government where the proposed nature reserve is located or from the competent department of nature reserves under the State Council. After the appraisal by the national nature reserves appraisal committee, the competent department of environment protection under the State Council shall coordinate with relevant department to provide appraisal comments on the application and then submit it to the State Council for approval.

The establishment of a local nature reserve requires an application from the people's government of the county, autonomous county, municipality or autonomous prefecture where the proposed nature reserve is located, or from the competent department of nature reserves in the people's government of the relevant province, autonomous region or municipality directly under the Central Government. After the appraisal by local nature reserves appraisal committee, the competent department of environment pro-

tection administration in the people's government of the province, autonomous region or municipality directly under the Central Government shall coordinate with relevant departments to provide appraisal comments on the application and then submit it to the people's government of the province, autonomous region or the municipality directly under the Central Government for approval, and meanwhile submit it to the competent department of environment protection under the State Council and the relevant competent department of nature reserves under the State Council for record.

The establishment of a nature reserve involving more than two administrative regions requires an application from the people's governments of relevant regions after their consultations. Then the application shall go through the same procedures as described in the preceding two paragraphs.

The establishment of a maritime nature reserve must be approved by the State Council.

Article 13 In application for the establishment of nature reserves, an application form for a nature reserve establishment shall be filled out and submitted for approval according to the relevant provisions of the State.

Article 14 The ranges and boundaries of nature reserves shall be determined by the people's governments responsible for the approval of the establishment. The boundaries of nature reserves shall be marked and announced.

Proper consideration shall be given to the integrity and suitability of the protected objects and to the needs of local economic construction, and production activities and the daily life of local residents in determining the ranges and boundaries of nature reserves.

Article 15 The cancellation of a nature reserve or any change or adjustment made in its nature, range or boundaries shall be subject to the approval of the people's government which approved the establishment of the nature reserve.

No units or individuals may be allowed to move the landmarks of nature reserves without authorization.

Article 16 Nature reserves shall be named in the

following ways:

National nature reserves: the name of the location where the nature reserve is situated is added before the "National Nature Reserve".

Local nature reserves: the name of the location where the nature reserve is situated is added before the "Local Nature Reserve".

If a nature reserve has any special protected object, the name of the object may be added following the name of the location where the nature reserve is situated.

Article 17 The competent department of environment protection administration under the State Council shall, together with the competent administrative department of nature reserves under the State Council, draw up a plan for the development of national nature reserves based upon the investigation and evaluation of the natural environment and resources of the whole country. After the overall balance by the competent planning department under the State Council, the plan shall be submitted to the State Council for approval and implementation.

The nature reserves administrative organ or competent administrative department of a particular nature reserve shall work out construction plans for nature reserves, which shall be included in the national, local or departmental investment plans according to stipulated procedures, and put the plan into effect.

Article 18 Nature reserves may be divided into three parts: the core zone, buffer zone and experimental zone.

The intact natural ecological systems and the areas where precious, rare and vanishing wildlife species are concentrated within nature reserves shall be delimited as the core zone which no units or individuals are allowed to enter. No scientific research activities are allowed in this zone except for those approved according to Article 27 of these Regulations.

A certain amount of area surrounding the core zone may be designated as the buffer zone, where only scientific research and observation are allowed.

The area surrounding the buffer zone may be designated as the experimental zone, where activities such as

scientific experiment, educational practice, visit, tourism and the domestication and breeding of precious, rare and vanishing wildlife species may be carried out.

A certain amount of area surrounding the nature reserve may be designated as the outer protection area, when the people's government which approved the establishment of the nature reserve considers necessary.

Chapter III Management of Nature Reserves

Article 19 The competent department of environment protection administration under the State Council shall organize the relevant administrative departments of nature reserves under the State Council to formulate the technical regulations and criteria for the management of nature reserves all over the country.

The relevant competent administrative departments of nature reserves under the State Council shall formulate the technical regulations for the management of various types of nature reserves according to their division of duties and submit them to the competent department of environment protection administration under the State Council for record.

Article 20 The competent departments of environment protection administration in the people's governments at or above the county level shall have the right to conduct supervision and inspection on the management of all the nature reserves within their administrative areas. The relevant competent administrative departments of nature reserves in the people's government at or above the county level shall have the right to conduct supervision and inspection on the management of the nature reserves in their charge. The units subject to the inspection shall report the situation accurately to them and provide them with necessary information. The inspectors shall keep technological and professional secrets confidential for the units inspected.

Article 21 The competent administrative departments of the nature reserves of the people's governments of provinces, autonomous regions and municipalities directly under the Central Government or the competent administrative department of the nature reserves under the

State Council shall be responsible for the management of the national nature reserves. The competent administrative department of nature reserves in the people's governments at or above the county level shall be responsible for the management of the local nature reserves within their administrative areas.

The relevant competent administrative departments of nature reserves shall set up a special management institution in each nature reserve and provide specialized technical staff for the management of the nature reserves.

Article 22 The major functions of management institutions of nature reserves shall be as follows:

(1) to implement relevant laws, regulations, guidelines and policies formulated by the State on nature conservation;

(2) to formulate various management regulations so as to exert unified management of the nature reserves;

(3) to investigate natural resources and place them on file, and organize environmental monitoring to protect the natural environment and resources in the nature reserves;

(4) to organize or assist relevant departments to make scientific researches on the nature reserves;

(5) to conduct the publicity and education work on nature conservation;

(6) to organize activities such as visiting and sightseeing tour in the nature reserves on the presupposition that the natural environment and resources of the nature reserve are not affected by such activities.

Article 23 The expenses needed for the management of the nature reserves shall be handled by the people's governments at or above the county level where the nature reserves are located. The State shall subsidize the management of national nature reserves appropriately.

Article 24 The public security organ of the region where the nature reserves are located may set up its dispatched agency within the nature reserves to maintain public security if necessary.

Article 25 The units, residents in the nature reserves and the personnel allowed to enter the nature reserves shall comply with various regulations of

administration, and subject themselves to the management institutions of the nature reserves.

Article 26 In nature reserves, such activities as felling, grazing, hunting, fishing, gathering medicinal herbs, reclaiming, burning, mining, stone quarrying and sand dredging, shall be prohibited unless otherwise stipulated by relevant laws and regulations.

Article 27 Nobody may be allowed to enter the core zone of nature reserves. Where scientific observations and investigation thereto are necessary for scientific research, an application and activity plan shall be submitted to the management institution of the nature reserves in advance and be approved by the competent administrative department of nature reserves in the people's government at or above the provincial level. The entrance into the core zone of national nature reserves shall be approved by the competent administrative department of nature reserves under the State Council.

If it is necessary for the residents living in the core zone of a nature reserve to move out, the local people's government shall make proper arrangements to have them resettled elsewhere.

Article 28 Tourism, production and commercial activities are prohibited in the buffer zone of nature reserves. In the buffer zone of nature reserves, if it is necessary to engage in the nondestructive activities such as scientific research, educational practice and specimen collection for the purpose of teaching or scientific research, an application and activity plan shall be submitted to the management institution of the nature reserves in advance for approval.

Units and individuals who engage in such activities described in the preceding paragraph shall submit a copy of the report of the activity result to the management institution of the nature reserves.

Article 29 With respect to the visiting and tourist activities in the experimental zone of a national nature reserve, the management institution of the nature reserve shall propose an activity program. After it is reviewed by the competent administrative department of the nature reserves of the people's government of the province, au-

onomous region or the municipality directly under the Central Government, the program shall be submitted to the competent administrative department of the nature reserve under the State Council for final approval. With respect to the visiting and tourist activities in the experimental zone of local nature reserves, the management institution of the nature reserve shall propose an activity program, and submit it to the competent administrative department of the nature reserves of the people's government of the province, autonomous region or the municipality directly under the Central Government for final approval.

Visiting and sightseeing tourist activities in nature reserves shall be conducted according to the approved activity program. The management of such activities shall be strengthened. All units and individuals who enter the nature reserves for visiting or sightseeing tour shall subject themselves to the management of the nature reserves.

The visiting and tourist projects that are not in conformity with the protection guidelines of nature reserves shall be prohibited.

Article 30 Where there is no division of zones within the nature reserves, they shall be managed in accordance with the provisions concerning the core zone or buffer zone in the Rules.

Article 31 In case foreigners wish to enter a local nature reserve, the host organization shall apply in advance for approval to the competent administrative department of the nature reserves of the people's government of the province, autonomous region or the municipality directly under the Central Government. In case of national nature reserves, the host organization shall apply in advance for approval to the competent administrative department of the nature reserves under the State Council.

All foreigners who enter nature reserves shall abide by the laws, regulations and provisions concerning nature reserves.

Article 32 No production facilities may be built in the core and buffer zones of nature reserves. In the experimental zone, no production facilities that cause environmental pollution or damage to the natural resources or

landscape may be built. For other projects to be built in this zone the discharge of pollutants may not exceed the national or local discharge standards. For those facilities already built in the experimental zone of the nature reserves, if the discharge of pollutants exceeds the national or local discharge standards, rectification shall be made within a time limit. Remedial measures shall be adopted for those that has caused damages.

The projects constructed in the outer protection zone of nature reserves may not affect the environmental quality inside the nature reserves. If the damage has already been done, rectification shall be made within a time limit.

The decision to make a rectification within the specified time shall be made by the organs specified by relevant laws and regulations. Any enterprises or institutions required to do so shall complete it in time.

Article 33 If any accident or accidental event which causes or may cause pollution or damage to the nature reserves, for which the units or individuals who are responsible shall immediately take remedial measures, inform all units or residents that may be endangered and report to the management institutions of nature reserves, the competent departments of environment protection administration and the competent administrative departments of the nature reserves in the locality and wait for investigation and disposition.

Chapter IV Legal Liability

Article 34 Any unit or individual in violation of these Rules in one of the following manners shall be ordered by the management institution of the nature reserves to make a correction and may be fined 100 to 5,000 yuan according to circumstances of the case:

- (1) moving or doing damage to the landmarks of nature reserves without authorization;
- (2) entering the nature reserves without approval, or failing to meet the requirements of the management institution while being in the nature reserves;
- (3) engaging in scientific research, educational practice and specimen collection in the buffer zone of na-

ture reserves with the approval of the relevant department but failing to submit a copy of the report of their activity results to the management institution of the nature reserves.

Article 35 Any unit or individual who, in violation of these Regulations, is engaged in such activities as felling, grazing, hunting, fishing, gathering medicinal herbs, reclaiming, burning the grass, mining, stone-quarrying and sand dredging, shall be punished according to relevant laws and administrative regulations. Besides, the competent administrative department of nature reserves in the people's government at or above the county level or its authorized management institution of the nature reserves may confiscate the violators' illegal gains, order the violators to stop illegal actions, or to restore the damaged to the original state or take other remedial measures within a specified time. Anyone who does damage to the nature reserves may be fined 300 to 10,000 yuan.

Article 36 Any management institution of the nature reserves that, in violation of these Regulations, refuse the supervision and inspection of the competent department of environment protection administration or the competent administrative department of the nature reserves, or resort to deception during the inspection, shall be fined 300 to 3,000 yuan by the competent department of environment protection administration or the competent administrative department of the nature reserves in the people's government at or above the county level.

Article 37 Any management institution of the nature reserves that, in violation of these Rules has one of the following acts shall be ordered to make correction within a time limit by the competent administrative department of nature reserves in the people's government at or above the county level. The person who is directly responsible for such violations shall be subject to disciplinary sanctions by the department to which he belongs or by the organ at the higher level:

(1) developing programs of sightseeing and touring in nature reserves without approval;

(2) initiating programs of sightseeing and touring which are against the general guidelines of the conservation of nature reserves;

(3) developing programs of sightseeing and touring which are not in conformity with the approved plan.

Article 38 Anyone who violates these Regulations thus causing losses to the nature reserves shall be ordered to compensate for the losses by the competent administrative department of the nature reserves in the people's government at or above the county level.

Article 39 Anyone who hinders the administrative staff of the nature reserves from performing their duties shall be punished by the public security organ in accordance with the Regulations of the People's Republic of China on Administrative Penalty for Public Security. If the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility according to law.

Article 40 If the violation of these Rules causes serious pollution or damage to the nature reserves, leading to heavy losses of public or private property or human injuries and deaths that constitutes a criminal offence, the person directly in charge and other persons who are directly responsible for the violation shall be prosecuted for criminal responsibility according to law.

Article 41 Administrative personnel of nature reserves who abuses his power, neglects his duty or engages in malpractices for personal gains to the extent of constituting a criminal offence shall be prosecuted for criminal responsibility according to law, if the circumstances are not serious enough to constitute a criminal offence, he shall be subject to disciplinary sanctions by the department to which he belongs or the organ at the higher level.

Chapter V Supplementary Provisions

Article 42 The competent administrative department of nature reserves under the State Council may, in accordance with these Rules, formulate the administrative rules for different types of nature reserves.

Article 43 People's governments of provinces, autonomous regions and municipalities directly under the Central Government may, in accordance with these Regulations, formulate measures for their implementation.

Article 44 These Rules shall come into force as of

December 1, 1994.

7.4.4 Yunnan Provincial Rules on the Management of Scenic and Cultural Resort

Chapter 1 General provisions

Article 1 These rules are formulated, in accordance with relevant laws and regulations and in combination with the conditions of Yunnan, with the aim to strictly protect and exercise unified management, rational development and sustained utility of the resources of scenic and cultural resorts, quicken the construction of the resorts and promote local economic and social development.

Article 2 These rules are applied to the scenic and cultural resorts at various levels and of various types in the province.

Article 3 The scenic and cultural resources as mentioned in these rules refer to the natural scenes and scenes of sightseeing, cultural interest or scientific value.

Article 4 The various kinds of development zones and resort zones may not be built within the scenic and cultural resort zones. The development zones, the areas that are both holiday resorts and scenic and cultural resorts and the parks and amusement parks in the zones that had been built before the promulgation of these rules shall follow these rules and the relevant laws and regulations concerning the management of scenic and cultural resorts.

The areas that are both scenic and cultural resorts and historical relic protection units are under unified planning of the people's government above the county level, which shall specify the work division and duties and perform well in the management.

Article 5 The people's governments above county level shall intensify the leadership over the management of scenic and cultural resorts.

The provincial competent construction department is in charge of the management of scenic and cultural resorts; the construction department of prefectures, cities and counties are regulating the work of scenic and cultural resorts in their administrative areas within the scope of responsibilities set by these rules.

The departments in the aspects of tourism, culture,

religion, transport, industrial and commercial administration, public security, agriculture and forestry, water conservancy, environment protection and land administration shall also co-operate with the competent department and the management authorities of scenic and cultural resorts in the management according to their duties.

Article 6 The scenic and cultural resorts or scenic areas should set up unified management organs to exercise the management duties provided by these rules and authorized by the governments above county level, fully assume the responsibility of planning, protecting, utilizing and building the zones or resorts and receive the management and instruction of the competent construction departments.

Article 7 The units or individuals who have made remarkable achievements in protection, planning, construction and management of scenic and cultural resorts shall be awarded and honored by the governments above county level and competent construction department.

Chapter 2 Establishment and planning

Article 8 Before a scenic and cultural resort zone is established, a survey and evaluation shall be conducted to sort out the state, characteristics and nature of the resources.

According to the relevant provisions of the state, the scenic and cultural resorts shall be divided into three classes in light of their values in sightseeing, culture and science, quality of the environments and their scales, etc., namely, state's key scenic and cultural resorts, province-level scenic and cultural resorts and city- and county-level scenic and cultural resorts.

Article 9 The survey and evaluation of scenic and cultural resources shall be organized by the competent construction department. The state-level, province-level and city- and county-level scenic and cultural resorts are examined and made public according to the regulations of the state and the provinces.

If the resorts which have been examined and made

public need to be upgraded due to changes of situation, they shall be re-examined according to the set procedures. If they need to be downgraded or cancelled, the competent construction department shall submit it to the original examination organ for approval.

Article 10 After the zones are examined and made public, the plans shall be made in time. The general and specific plans need to be compiled.

The planning of the zones shall be undertaken by the units with relevant planning and designing qualification. Technical appraisal and examination shall be organized according to the state and provincial regulations.

Article 11 The approved plans of scenic and cultural resorts must be strictly followed. No units or individuals may alter it without permission. If the plans do need to be altered, they shall be submitted for approval according to the procedures.

Chapter 3 Protection

Article 12 Scenic and historic resort zones should maintain their original natural and historical looks.

The management organs of the zones should have full-time staff to improve and carry out the protection measures. At the entrances of the resorts and related scenic spots protection marks and instructions should be put up.

All the units and residents in the zones and visitors to the resorts must abide by the management rules, take care of the scenes and facilities and protect the environment. They may not damage the resources in the zones or change their shape arbitrarily.

Article 13 A three-level protection system shall be adopted in the scenic and cultural resorts and their peripheral areas in light of the value of the scenes and the requirements of protection and with the main sightseeing resorts as the center.

The first-class protection area is the kernel protection area, referring to the sightseeing areas and the places that need special protection.

Second-class protection area is the scenic protection area, referring to the area within the scope of the resort

but outside the first-class protection area.

Third-class protection area is the peripheral area.

The scope of first-, second- and third-class protection areas are defined in the plans of the scenic and cultural resorts approved by the city or county people's governments. Marks shall be set up to indicate the boundary.

Article 14 The scenic and cultural resources and the land in the resorts that belongs to the state may not be transferred in any name or form, or transferred in a disguised form.

The units or facilities that are built in the zones and affect the protection of scenic and cultural resources shall be moved out within a set time limit.

Article 15 The zones shall establish and perfect afforestation, hill closing for afforestation, forest protection and fire prevention and wood pest treatment systems in order to protect the ecological environment for the plants.

Felling of trees is prohibited in the zones. Intermediate cutting and regeneration, if necessary should be approved by the management organs of the zone, and according to the related provisions, certain approval procedures shall be gone through for such actions.

The ancient and famous trees in the resorts, after being appraised and surveyed, shall be registered and put on files. Signs to indicate the protection shall be put up. Felling or transplanting of such trees are prohibited.

The collection of specimens and medicinal herbs in the resorts must be approved by the management organ. After the relevant procedures are gone through, the collection shall be done in the designated place and within the quantity limitation. The forest and scenes may not be destroyed.

Article 16 The water sources and water bodies in the zones should be strictly protected. Pollution and excessive use of water are prohibited. Blocking or embanking of water body and reclaiming land from the lake are forbidden.

The landforms should be strictly protected in the resorts. In the first- and second-class protection areas, stone-quarrying, sand dredging and tomb building are prohibited. Obtaining materials locally for construction projects in the resorts are banned.

Article 17 Animals and their habitats should be strictly protected. Harming or capturing wild animals under state protection is forbidden.

The animals or plants that fail to pass the quarantine inspection are prohibited to introduce into the zones.

Chapter 4 Construction

Article 18 The scenic resources shall be developed on the premise of strict protection. The construction activities in the zones must be done according to the approved plan of scenic and cultural resorts.

Effective measures must be taken to protect the scenes and environment when the construction activities are done in the resorts and their peripheral protection areas. After the projects are completed, the sites must be cleared, afforestation be done and original environment look be restored.

The scenic resource development is encouraged, and the investors' legal rights shall be protected.

Article 19 Before the plan of a scenic and historic resort zone is approved, no permanent facilities may be built within the resort. The temporary buildings or facilities, if necessary, must be approved by the competent department in charge of construction administration. When the temporary buildings or facilities need to be dismantled to meet the need of implementation of the plan of the scenic and historic resort zone, the construction units or users must dismantle them within a time limit unconditionally and undertake the expenses by themselves.

The buildings or facilities that had been built before the zone was set up must be dismantled or moved out within a time limit if they do not conform to the plan, pollute environment, impair the scenes and hinder sightseeing.

Article 20 The facilities that are not related to scenic

resort and sightseeing or impair the scenes, pollute environment and hinder sightseeing may not be built in the scenic and historic resort zone.

Except the scenic spots and a small number of tourist service facilities really in the first-class protection resorts, no other facilities are allowed to be built. If it is necessary to build traffic lanes or cableways in the resorts, they should be in harmony with the surrounding scenes and conditions to protect the original surface features and landforms.

The facilities that are not related to the scenes and sightseeing are prohibited to be built in the second-class protection zone.

The facilities that pollute and damage environment are prohibited to be built in the third-class protection zone.

Article 21 The newly built, renovated and expanded projects in the zones must go through the procedures to obtain the Construction License in Scenic and Cultural Resorts in addition to other formalities according to the related provisions.

To apply for the license, the construction unit shall, holding the approval document, apply to the management authorities of the resorts. After being approved, the license shall be granted by the departments within the limits of authority as follows:

(1) The provincial competent department in charge of construction administration shall issue the Construction License in the Scenic and Cultural Resorts to the projects and other special projects in the first-class protection zones of state- and province-level key scenic and cultural resorts.

(2) The prefecture and city competent departments in charge of construction administration shall issue the license to the projects in the second- and third-class protection zones in the province-level scenic and cultural resorts.

After receiving the application and relevant materials for the license, the competent departments in charge of construction administration shall give a reply within a month.

The license shall be printed under the auspice of the provincial construction department.

Chapter 5 Management

Article 22 The duties of the competent departments in charge of construction administration above county-level in managing the scenic and cultural resorts under the leadership of the people's government at the same level are:

(1) Publicizing and organizing the implementation of the laws and regulations concerning the management of scenic and cultural resorts;

(2) Organizing the resource survey, evaluation and grading of scenic and cultural resorts for application; organizing the compiling, appraisal and approval of the plan of scenic and cultural resorts within their limits of power;

(3) Supervising and checking the protection, development, construction and management of and in the scenic and cultural resorts;

Approving and issuing Construction License in the Scenic and Cultural Resorts;

Applying centralized management by specialized departments to the scenic and cultural resorts and their management bodies.

The main duties of the management bodies of the scenic and cultural resorts are:

(1) Publicizing and implementing the laws, rules and documents concerning the management of scenic and historic resort zone;

(2) Organizing the implementation of the plan of the resorts;

(3) Exercising unified management of environment and resource protection, development, and construction and business activities in the resorts;

(4) Examining the construction projects in the resorts;

(5) Issuing the Business License of the Scenic and Historic Resort Zone;

Responsible for professional training of the managerial personnel in the resorts.

Article 23 All the units located in the zone must be subject to the unified planning and management of the management agency of the resorts besides carrying out their

respective vocational work under the leadership of their superior competent department.

Article 24 The units or individuals that conduct business activities in commerce, hotels, restaurants, entertainment and special-line transport shall first seek the consent of the management bodies of the resort. Only after obtaining the Business License in the Scenic and Historic Zones can they go through other formalities. After being approved, they can engage in business activities in the places and within the scope designated by the management agency of the zone.

After receiving the application and relevant materials for the Business License in Scenic and Cultural Resorts, the management agency shall give a reply within 20 days.

Article 25 All the units or individual businessmen in the zones shall be responsible for the cleaning and garbage removing in the designated areas. Those who fail to clean, remove or dispose the garbage according to the rules shall be liable for the payment for the cleaning, removing and disposal of garbage undertaken by the units designated by the management agency.

The reception and entertainment facilities near the water sources or water bodies in the zones must conduct wastewater interception. Only after the sewage is up to the standard of urban sewage standard can it be discharged into the sewer system.

Article 26 Compensatable use of the scenic and cultural resources is practiced. The units or individuals who conduct business activities by counting on the zones shall pay scenic and cultural resource protection fee.

The units and individuals that use the facilities of road, water supply, sewage and sanitation in the resorts shall pay facility a maintenance fee.

The collection, use and management methods of scenic and cultural resource protection fees and facility maintenance fees shall be formulated by the provincial financial and pricing departments together with the competent department in charge of construction administration and submitted to the provincial people's government for approval.

The prices of the admission tickets to the resorts are

set by the state. The specific standards shall be set by the pricing management departments above the county level according to their limit of authority.

Chapter 6 Legal liabilities

Article 27 For any of the following acts in violation of these rules, the competent department in charge of construction administration shall give orders to suspend the constructions and dismantle them within time limit, confiscate the illegal buildings or facilities and impose a fine equivalent to 2% to 5% of the total illegal project cost or less than 200 yuan per square meter:

Building permanent constructions or facilities without approval;

Failure to dismantle temporary constructions or facilities within the time limit;

Proceeding with construction without obtaining the Construction License in the Scenic and Cultural Resorts.

Article 28 The documents that approve the construction projects in the zones in violation of these rules and in excess of power shall be deemed invalid. The chiefs directly responsible or the persons in charge shall be given an administrative sanction by their units or the superior departments, and may be concurrently imposed upon a fine of 500 yuan to 2,000 yuan.

Article 29 For any of the following acts in violation of these rules, the management agency of the resort shall give sanctions:

(1) Anyone who damages the scene, changes the original topography, engages in cutting into the mountain, quarrying stones, dredging soil and sand and building tombs in the resort shall be imposed upon a fine of 200 to 5,000 yuan in addition to being ordered to make remedies, restore the scene to its original state and compensate for the economic losses;

(2) Anyone who collects specimens or medicinal herbs without the permission of the management agency of the resort shall be imposed upon a fine of 200 yuan to 1,000 yuan besides having his illegal gains confiscated.

(3) Anyone who conducts business activities without

permission or in the places not approved shall have his illegal gains confiscated and may be concurrently imposed upon a fine of 200 to 1,000 yuan in addition to being ordered to make remedies or having his business license in the resort cancelled.

(4) Anyone who does not obey the unified management of the resort's management agency and sabotage the order in the zone shall be given a warning and ordered to make remedies.

Article 30 Anyone who breaks the laws and regulations concerned in the resort, which constitutes a crime, shall be prosecuted for their criminal liability according to law.

Article 31 The party concerned who does not accept the administrative sanctions may, within 15 days after the sanction decision is made, apply to the superior department of the organ that makes the sanction decision for reconsideration. He may also lodge a suit to the people's court directly. For the party who fails to apply for reconsideration within the time limit or fails to lodge a suit or fulfil the sanction decision, the organ that makes the sanction decision shall apply to the people's court for compulsory execution.

Article 32 The competent department in charge of construction administration or the management agency of the zone that violate these rules shall be investigated and treated respectively by the superior department or the competent department in charge of construction administration at the same level; their staff workers who neglect their duties, abuse their power or play favoritism and commit irregularities shall be given administrative sanctions by their units or their superior competent department; and those whose acts constitute a crime shall be prosecuted for criminal liability according to law.

Chapter 7 Supplementary provisions

Article 33 The implementation of these rules shall be interpreted by the provincial competent department in charge of construction administration.

Article 34 These rules shall come into force as of

August 1, 1996.

7.4.5 Yunnan Provincial Stipulation on the Management of “Three Parallel Rivers” as a State's Key Scenic Area

Article 1. in line with the provisional Regulation on the Administration of Scenic Spots and Place of Historical Interest, Regulation of Yunnan Province on the Administration of Scenic Spots and Places of Historical Interest and relevant laws and regulations, and in consideration of the practical conditions, these Rules are made in order to strictly protect, unifiedly manage rationally develop and utilize the resources of the Three Parallel Rivers State Key Scenic Area.

Article 2 The “Three Parallel River” Key State Scenic Area used in these Rules (hereinafter referred to as the “Three Parallel Rivers”) refers to the scenic area in the valleys of the Hengduan Mountains in the northwestern part of the province, with the unique geographical landscape in the world that the Jinshajiang, Lancangjiang and Nujiang rivers flow parallel to each other and covering the Lijiang, Diqing and Nujiang prefectures and autonomous prefectures.

Specific scope of the “Three Parallel Rivers” and its areas shall be specified in the plan of the “Three Parallel Rivers area”.

The names and scopes of scenic areas (spots) shall be specified in the master plan of the Three Parallel Rivers.

Article 3. The provincial people's government authorizes the provincial competent department of construction to be in charge of the unified administration of the Three Parallel Rivers, the Three Parallel Rivers management organization affiliated (hereinafter referred to the provincial management organization) perform specific management duties and responsibilities.

Area management organizations established in the “Three Parallel Rivers” area by the people's governments of autonomous prefectures and the administrative offices of prefectures in the place where the “Three Parallel Rivers” are located are responsible for the management of the “Three Parallel Rivers” within their respective administrative regions, and accept guidance and instruction from

the provincial management organization.

The special management organizations established in the scenic areas (spots) of the Three Parallel River area by the people's governments at the county level are responsible for the planning, protection, development, construction and routine management work of the scenic areas (spots). They shall accept guidance and instructions of the management organizations at the higher levels and the management of the competent departments of construction at the same level.

Article 4. The provincial management organization and the area management organizations shall perform the following duties and responsibilities:

(I). Publicize and organize to implement relevant laws, regulations and rules;

(II). Organize surveys and assessment of scenic resources of the Three Parallel Rivers areas, and application of the setup of scenic areas (spots);

(III). Organize to compile plans on the Three Parallel Rivers area;

(IV). Supervise and inspect the protection, development, construction and management work of the Three Parallel Rivers area.

Specific duties and responsibilities of the management organizations of scenic areas (spots) shall be defined according to the provisions of the Regulation of Yunnan Province on the Administration of Scenic Areas and Places of Historical Interest.

Article 5. The management of nature reserves and tourist vacationing zones already established within the Three Parallel Rivers area and the management of natural resources as land, minerals, water forest, grassland and wildlife shall follow the provisions of relevant laws, regulations and rules.

Article 6. The scenic resources in the Three Parallel Rivers area belong to the ownership of the state, and their original natural and historical states shall be strictly protected.

Within the core zone and protective zones of the Three Parallel Rivers area, no development zone or vacationing

resorts may be established, The scenic resources of scenic areas (spots) and their land may not be leased or leased in a disguised manner.

Article 7. Plans of the “Three Parallel Rivers” area are classified into the regional plans, area master plans and detailed plans of scenic areas (spots). The area master plan shall be compiled according to the regional plan, The detailed plans of scenic areas (spots) shall be compiled according to the area master plans. Plans on the “Three Parallel Rivers” area shall be consistent with relevant specialized plans.

The regional plan area master plan shall be organized and compiled by the provincial management organization. The detailed plans of scenic areas (spots) shall be organized and compiled by the area management organizations.

Article 8. Plans on the “Three Parallel Rivers” area shall be submitted for approval according to the following procedures;

(I). The regional plan and area master plan shall, after going through technical appraisal by the provincial competent department of construction, be reported to the provincial people's government. Regional plan shall, after being examined by the provincial people's government, submitted to the State Council for examination and approval. The area master plan shall be examined and approved by the provincial people's government.

(II) Detailed plans of scenic areas (spots) shall, after going through technical appraisals organized by the competent departments of construction of the autonomous prefectures or prefectures, be reported to the people's government of the autonomous prefectures or administrative offices of the prefectures for examination and approval, and be reported to the provincial competent department of construction and the provincial management organization for the record.

Article 9. A plan, once approved, must be strictly implemented, no unit or person may alter it without authorization. If modifications are necessary, it must be submitted to the original examination and approval organizations for approval according to the set procedures.

Article 10. The “Three Parallel Rivers” area adopts a

protection method by the area and by the grade according to the following provisions:

(I) The core area, i.e. the Grade-one protective zone, refers to the area which is of extremely high value for scientific studies and sightseeing, has fragile environmental resources vulnerable to damage and deserves special protection.

(II). The protective area, i.e. the Grade-two protective zone, refers to areas outside the core area which have a direct impact on the ecological environment and landscape of the core area, have a high quality of ecological environment and landscape and an important value for protection:

(I). The core area, i.e. the Grade-one protective zone, refers to the area which is of extremely high values for scientific studies and sightseeing, has fragile environmental resources vulnerable to damage and deserves special protection.

(II). The protective area, i.e. the Grade-two protective zone, refers to areas outside the core area which have a direct impact on the ecological environment and landscape of the core area, have a high quality of ecological environment and landscape and an important value for protection.

(III). The coordinated area, i.e. the Grade-three protective zone, refers to areas outside the protective area for which protection is necessary

Specific scopes of the core area, protective area and coordinated area shall be determined according to the regional plan of the “Three Parallel Rivers” area.

Article 11. Within the core area of the “Three Parallel Rivers” area, it is forbidden to conduct any business development activities and other activities that damage the original natural environment or alter the primitive natural landscapes.

Buildings and construction structures irrelevant to the protection already in existence before the implementation of these Rules shall be demolished, and units irrelevant to the protection and management shall be relocated within a given time limit.

The total number of visitors and researchers going to

the core area of the “Three Parallel Rivers” area shall be controlled, the specific control number shall be set by the provincial management organization.

Article 12. Scenic resources of the “Three Parallel Rivers” area shall be rationally developed under the pre-conditions of strict protection. Various construction activities within the scenic areas must be carried out strictly according to the plans. Prior to the approval of detailed plans of scenic areas, it is not allowed to construct permanent buildings or construction structures within the scenic areas. If it is necessary to construct temporary buildings or construction structures, they shall be submitted for approval according to the limit of management power.

Article 13. All new, expansion and renovation construction projects in the core area and protective area of the Three Parallel Rivers area must apply to the competent departments of constructions, according to the limit of power, for issuance of the Examination Report on the Choice of Site of Construction Project, the Certificate on the Planning of Land Use for Construction and Construction Certificate for Scenic Area and Place of Historical Interest (hereinafter referred to as the One Report and Two Certificates).

Article 14. The issue of the One Report and Two Certificates for construction projects within the Three Parallel Rivers area is subject to examination and approval by the level:

(I) All construction projects within the core area, and construction project with an investment of 30 million yuan in the protective zone, 100 million yuan in the coordinated area or having significant impact on the environment and landscapes must be examined by the provincial management organization, and the provincial competent department of construction shall be responsible for issuance of the One Report and Two Certificates.

(II) Other construction projects in the protective area and coordinated areas shall be examined by the area management organizations, the competent departments of construction of the autonomous prefectures or prefectures shall be responsible for issuance of the One Report and Two Certificates. They shall also be reported to the provincial

competent department of construction for the record .

Article 15. If a construction unit or person, one year after having obtained the Certificate on the Planning of Land Use for Construction, fails to go through the land-use procedures, or one year after having obtained the Construction Certificate for Scenic Area and Place of Historical Interest, does not start the construction nor goes through the renewal procedures, the above-mentioned Two Certificates will automatically be invalidated. If changes occur to the project after having obtained the two-mentioned certificates, it shall go through the examination and approval procedures again according to the set procedures.

Article 16. If a construction unit or person needs to construct temporary buildings or construction structures in the scenic areas of the Three Parallel Rivers area, it must submit a site application to the management organization of the scenic areas. Upon consent through examination, it shall then go through the procedures for temporary use of land with the land administration department, then the competent department of construction will, according to the limit of power, issue the temporary Construction Certificate for Scenic Area and Place of Historical Interest.

The issue period of land for temporary construction projects may not exceed two years. If it is necessary to extend the use period, it must be approved by the management organization of scenic areas (spots) and then be reported to the original examination and approval department for approval. When the use period of temporary buildings or construction structures expires, they must be demolished unconditionally within the use period of temporary buildings and construction structures. If they shall be demolished due to the needs of protection or construction of the scenic areas, they must be demolished unconditionally within a given time limit. On land approved for temporary, or permanent buildings or construction structures.

Article 17. The scenic resources of the “Three Parallel Rivers” area are subject to the paid use. Scenic areas (spots) of the “Three Parallel Rivers” area with matured conditions may, upon approval by the provincial manage-

ment organization, be open to the public and accommodate visitors.

Tickets to scenic areas opened to the public shall be printed in uniform by the provincial management organization. Ticket cost shall follow the price set by the state, specific standards shall be set by the provincial price control department together with the provincial management organization.

Ticket revenues shall be used mainly for the routine management of the Three Parallel Rivers area and key construction projects for projection.

Article 18. At the dangerous sections of scenic areas (spots) of the Three Parallel Rivers area, safety and protection facilities for flood control, disaster prevention and protection railings shall be constructed according to rules, and shall be maintained in good condition. Warning signs shall be erected at the key sections.

Article 19. The management organization of the "Three Parallel Rivers" area and construction units shall equip fire prevention and fire-fighting facilities and equipment, and establish a fire prevention and fire-fighting responsibility system.

Article 20. If any unit or person violate these Rules, the competent department of construction at or above the county level or other departments concerned shall impose a penalty according to the provisions of relevant laws, regulations and rules.

Article 21. These Rules shall become effective as of the date of promulgation.

Key words: Urban and rural construction, scenic area and places of historical interest; rules, decree.

Copies to: Standing members of the provincial Party Committee, director and deputy directors of the Standing Committee of the Provincial People's Congress, chairman and vice-chairmen of the provincial Chinese People's Political Consultative Conference, Governor, deputy Governors, Secretary-General, Deputy Secretary-General People's Government of all autonomous prefectures, cities and counties, administrative offices of all prefectures, all commissions, offices, departments and bureaus directly under the provincial government.

All departments of the provincial Party Committee, general office of the provincial people's congress, research offices, all special (working) committees, general office of the provincial Chinese People's Consultative Conference, the provincial people's court, the provincial procuratorate, the provincial military command, the No 14 Army, Yunnan Daily, Yunnan TV Station, Yunnan People's Broadcasting Station.

The General Office of the Yunnan Provincial People's Government printed and circulated on December 28, 1999

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7.4.6 An Official Reply to the Request on Establishing the Management Office of Three Parallel Rivers State Scenic and Cultural Resort of Yunnan Province

Provincial Department of Construction:

The "Request on Establishing the Management Office of "Three parallel Rivers" State Scenic and Cultural Resort, Y.J.R (1995) No. 525, from your department has been received. In light of the ideas of the provincial government's joint meeting on the application to be included in World Natural Heritage list and the discussion with the provincial Department of Finance, this office has hereby agreed upon the establishment of the Management Office of the "Three Parallel Rivers" State Scenic and Cultural Resort of Yunnan Province as your subordinate institution. The staff size of the office has been set at five, including two division-level leaders. At the same time, during the application period, your office can conduct your work in the name of Yunnan "Three Parallel Rivers" World Natural Heritage Application Office. The provisions of the Department of Finance shall be implemented concerning the expenditure needed.

In order to guarantee co-ordination for a successful application, it is suggested that the offices of administrative size management in Diqing, Nujiang and Lijiang prefectures establish the scenic resort zone management and

heritage application organs in the construction departments. Their manning quotas are included in the statistics of the prefectural organization size management. Primarily they are under the leadership of the prefectures, but they are instructed by the provincial application office in their vocational work. After the construction departments of Diqing, Nujiang and Lijiang receive this document, they shall report and apply to the prefectural organization size management office, which shall issue approval documents to confirm the establishment and size of such organs.

Office of Yunnan Provincial Organization Size Management Committee
August 2, 1999

Theme words: Organization of scenic resort zone, staff size and reply

Cc.: General Office of the provincial government, Department of Finance, Department of Personnel; organization size management offices of Diqing, Nujiang and Lijiang prefectures.

7.4.7 Relevant laws and regulations

7.4.7.1 Environmental Protection Law of PRC adopted at the 11th meeting of the Standing Committee of the 7th National People's Congress on December 26, 1989.

7.4.7.2 Law of the PRC on the Protection of Wildlife adopted at the 4th meeting of the Standing Committee of the 7th National People's Congress on November 8, 1988.

7.4.7.3 Regulations for the protection of wild plants of the PRC issued by the State Council on September 30, 1996.

7.4.7.4 Regulations of PRC concerning the Protection of Terrestrial Wild Animals issued by the State Council on February 12, 1992.

7.4.7.5 "Methods of the Management of the Land in Nature Reserves, G.T.(F) Z. No. 117 (1995) issued by the State Land Administration Bureau and State Environment Protection Administration on July 24, 1995.

7.4.7.6 Mineral Resources Law of the PRC adopted at the 15th meeting of the Standing Committee of the 6th National People's Congress on March 19, 1986 and amended according to the Decision on Amending the "Mineral Resources Law of PRC" at the 21st meeting of the Standing Committee of 8th National People Congress on August 29, 1996.

7.4.7.7 The Forestry Law of PRC adopted at the 7th meeting of the Standing Committee of 6th National People's Congress on September 20, 1984 and amended according to the Decision on Amending "The Forestry Law of PRC" at the 2nd meeting of the Standing Committee of the 9th National People's Congress on April 29, 1998.

7.4.7.8 Grassland Law of PRC adopted at the 11th meeting of the Standing Committee of the 6th National People's Congress on June 18, 1985.

7.4.7.9 Environmental Protection Law adopted at the 11th meeting of the Standing Committee of 7th National People's Congress on December 26, 1989.

7.4.7.10 Regulations for the Implementation of the Law of the PRC concerning the Conservation of Water and Soil issued by the State Council on August 1, 1993 under Decree No. 120.

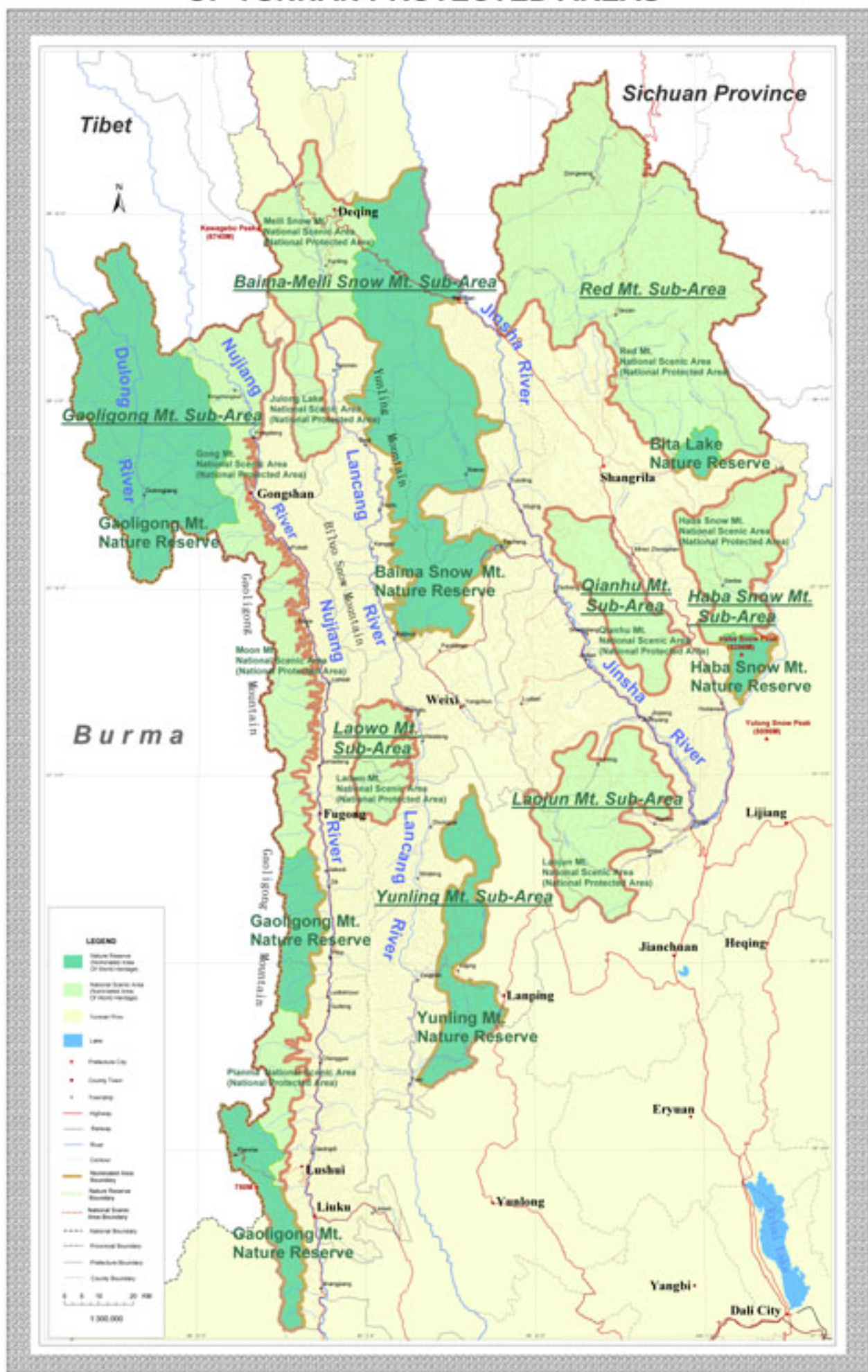
7.5 General plan for the Three Parallel Rivers National Park(Document and atlas)

8. Signature on behalf of the state

The Ministry of Construction of the People's Republic of China:

A handwritten signature in black ink, consisting of three Chinese characters: 王老吉 (Wang Laoji). The signature is written in a cursive style with a long horizontal stroke at the bottom.

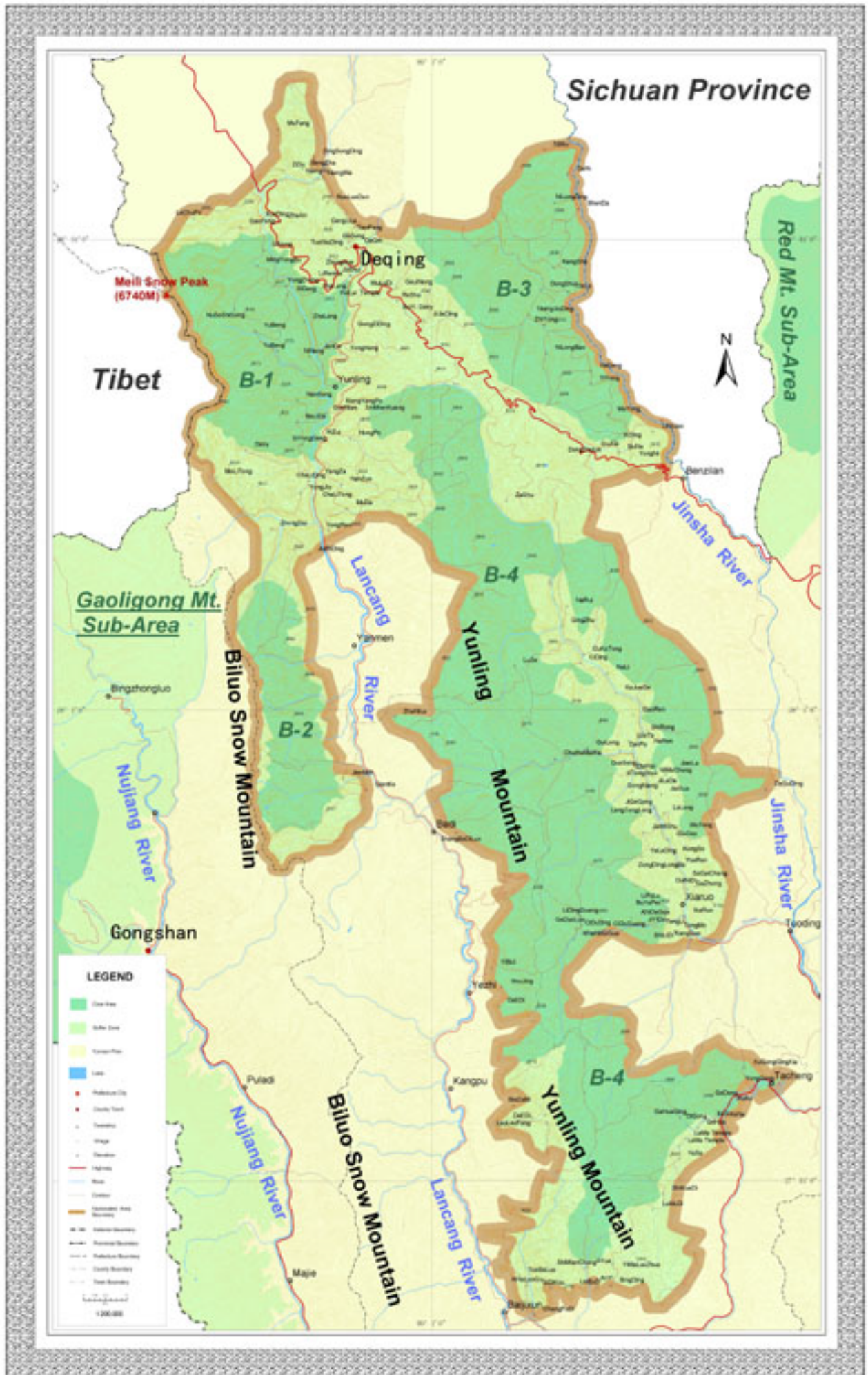
THE DETAIL MAP OF THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREAS



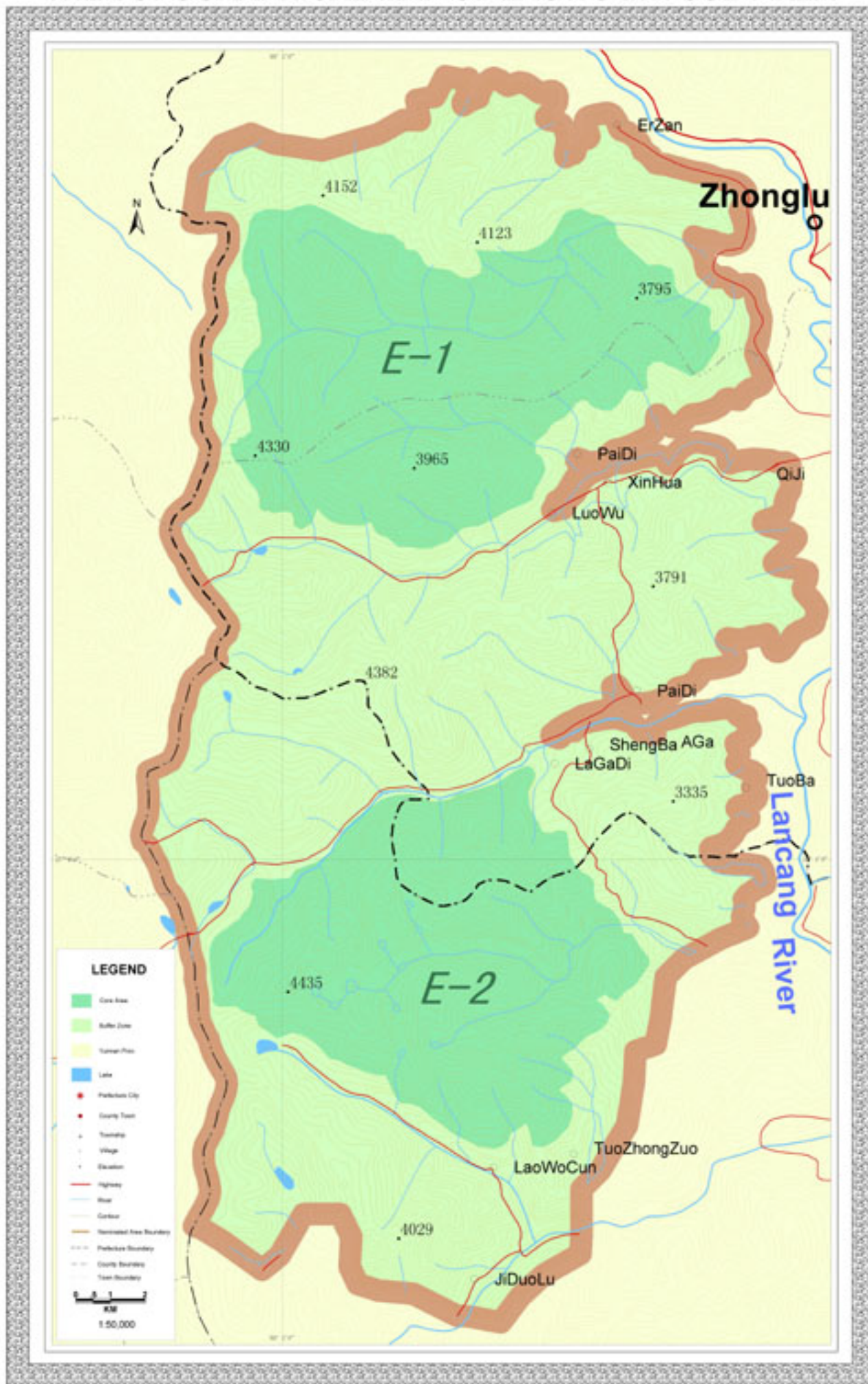
THE TOPOGRAPHICAL MAP OF GAOLIGONG MT. SUB-AREA



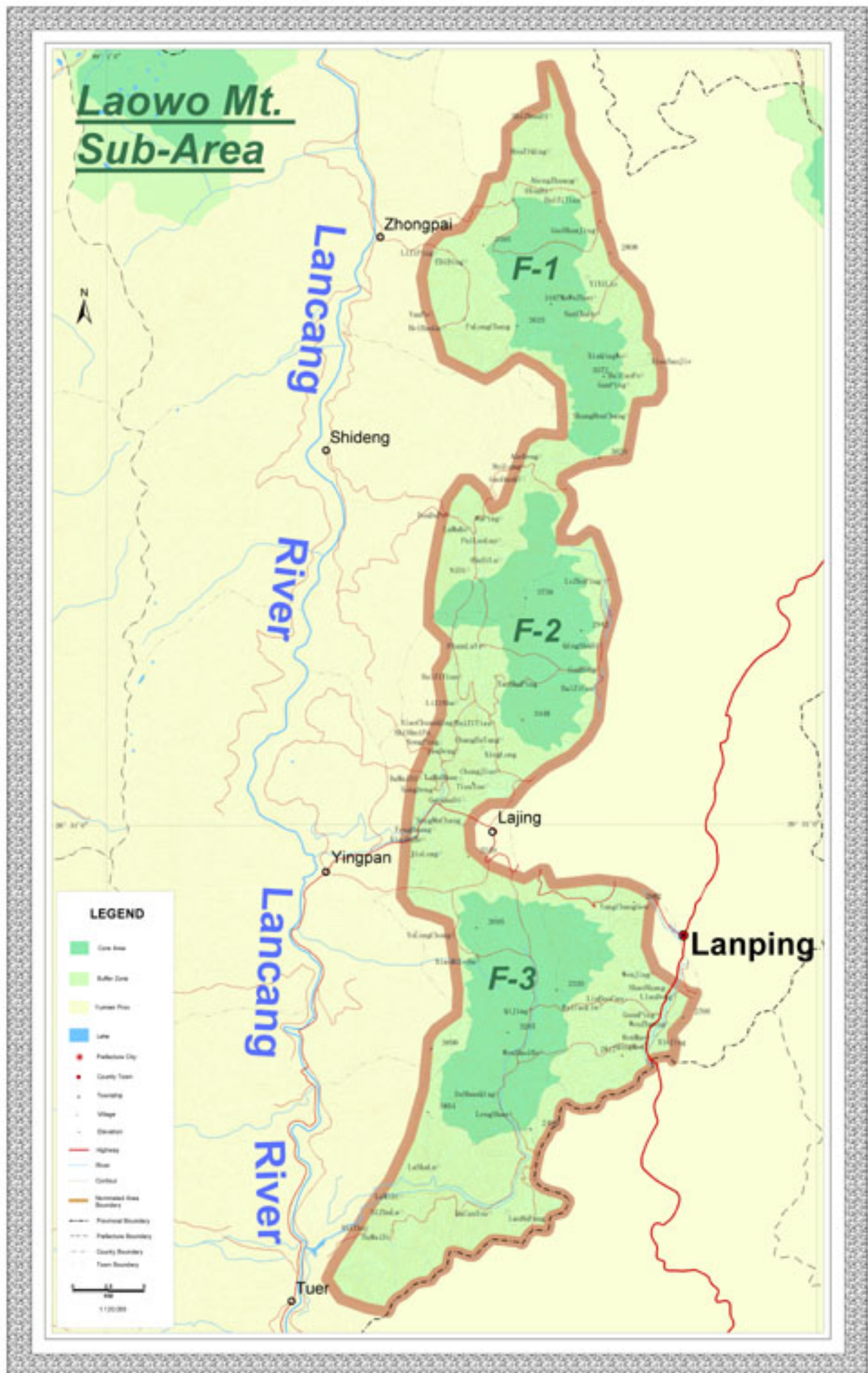
THE TOPOGRAPHICAL MAP OF BAIMA-MEILI SNOW MT. SUB-AREA



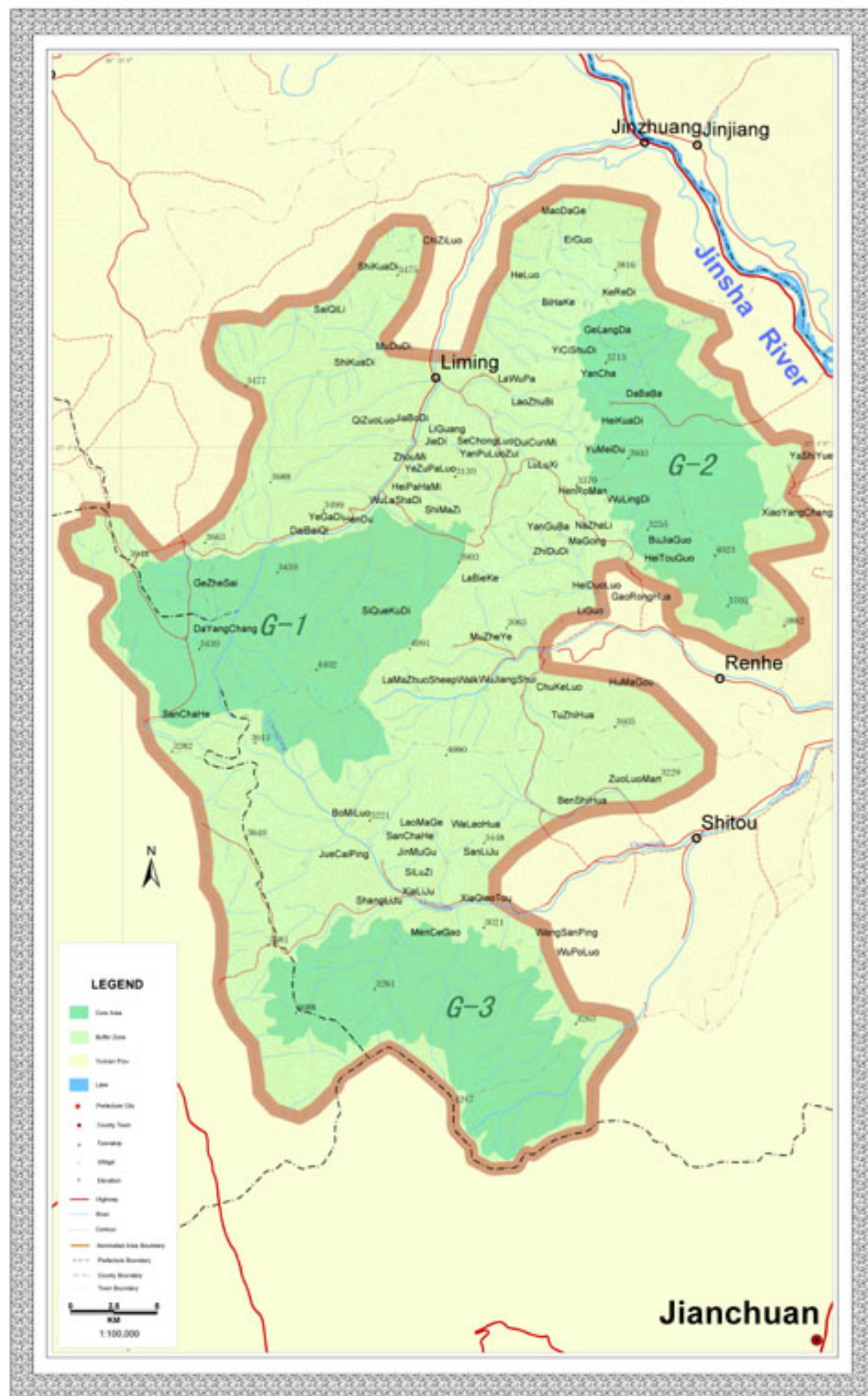
THE TOPOGRAPHICAL MAP OF LAOWO MT. SUB-AREA



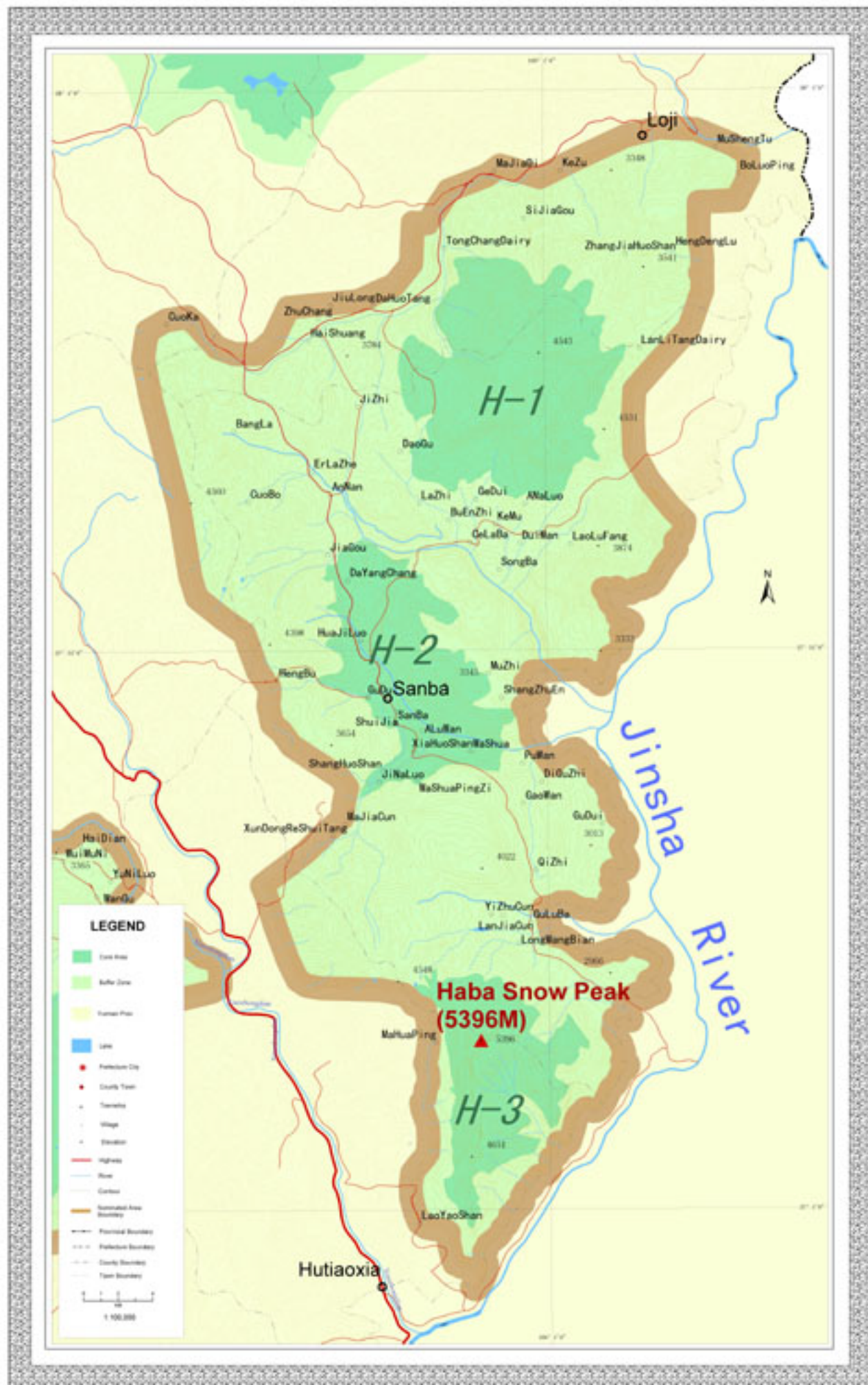
THE TOPOGRAPHICAL MAP OF YUNLING MT. SUB-AREA



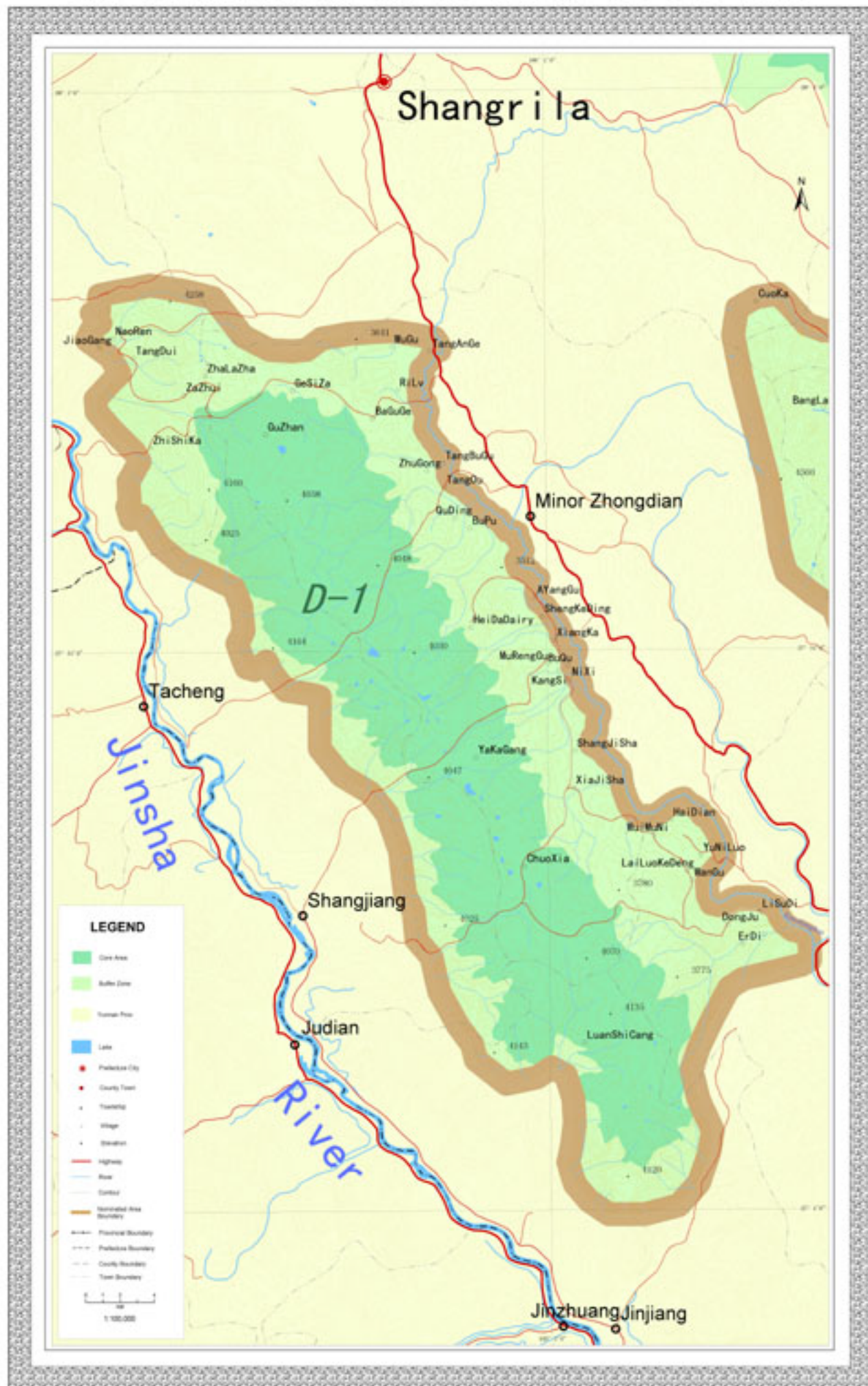
THE TOPOGRAPHICAL MAP OF LAOJUN MT. SUB-AREA



THE TOPOGRAPHICAL MAP OF HABA SNOW MT. SUB-AREA



THE TOPOGRAPHICAL MAP OF QIANHU MT. SUB-AREA



THE TOPOGRAPHICAL MAP OF RED MT. SUB-AREA

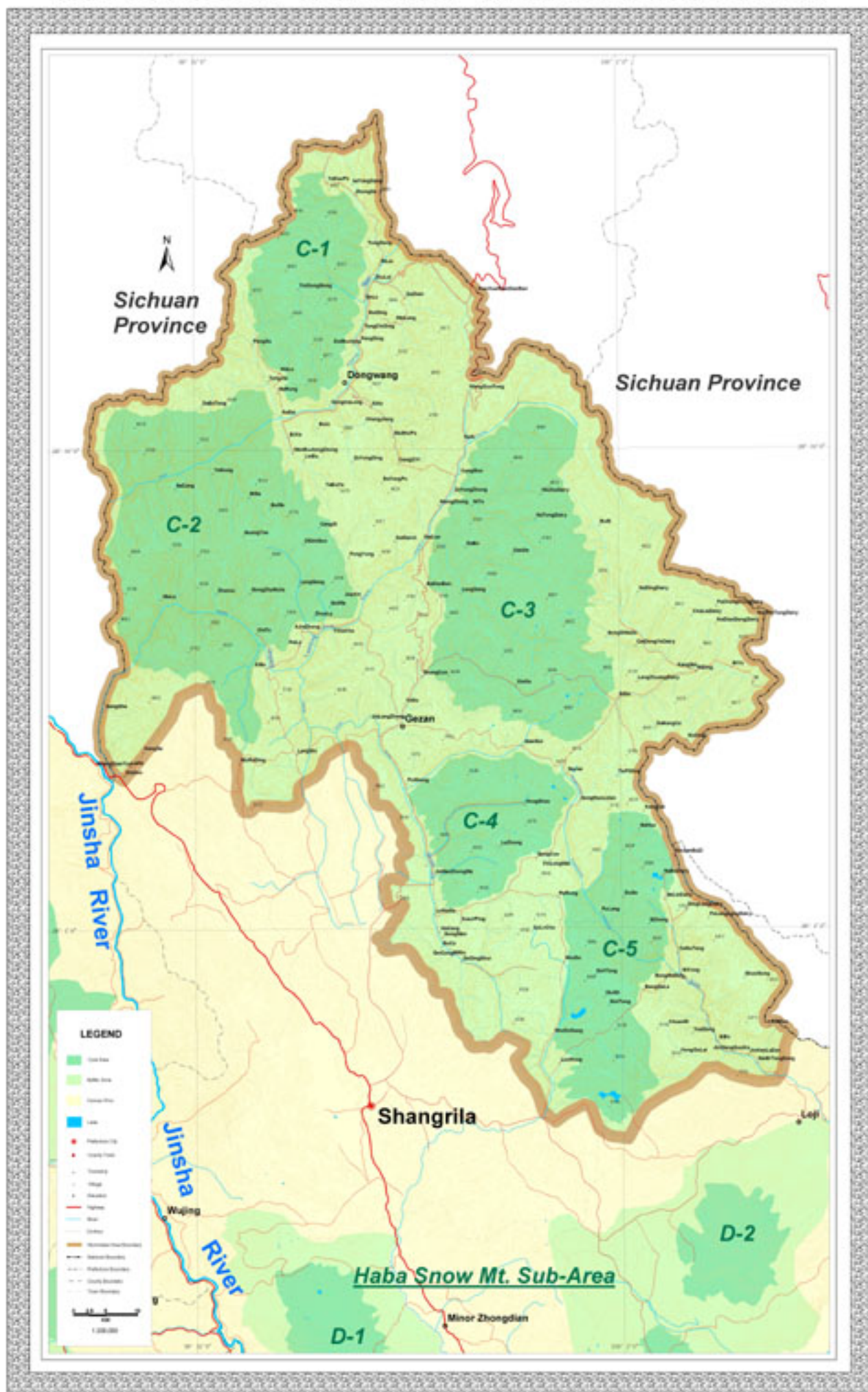




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I. Introduction

1. The Area

The Three Parallel Rivers National Park (hereinafter referred to as "the Area") refers the combined watershed area of the Nujiang (Salween), Lancang (Mekong) and the Yangtze rivers in western Yunnan, through which the three rivers, parallel to one another, flow majestically southwards. The Area covers 3,430,700 ha., including 10 scenic zones within three watersheds(the area of the site for world nature heritage nomination totals 1,700,000 ha., including 860,910 ha. for core areas, 839,090 ha. for protected areas and 1,730,700 ha. for buffer zones). The whole area represents a colossal scenic area in China.

2. Master Planning System

The master planning system for the Area is divided into four strata, i.e., Master Plan for the Area, scenic zone-specific master plans, scenic zone-specific management work plans and development action plans.

3. Project Phases

This master plan covers a 20-year period from 2001 to 2020. From time to time scenic zone-specific plans, regardless of their nature or purposes, are subject to modifications, as appropriate, to ensure their being consistent with the status quo, scale and development of the Area.

- A. Short-term development plan: In the period from 2001 to 2005, the Laojun Mountain, Qianhu Mountain, Hongshan, Pianma and Haba Snow Mountain scenic zones in the Area would be developed in a moderate manner, with focus on the infrastructure construction as a priority over all other development endeavors.
- B. Mid-term development plan: During the 5-year period from 2006 to 2010, the infrastructure construction in Laojun Mountain, Qianhu Mountain, Hongshan, Pianma and Haba Snow Mountain scenic zones would be upgraded further, while the development of Meili Snow Mountain, Julong Lake and Gongshan scenic zones would be launched in a phased manner. All these efforts aim at the goals of making all development projects

compatible with the regional ecological environment.

- C. Long-term development plan: During the 5-year period from 2011 to 2020, efforts would be made to improve the service-related facilities in Meili Snow Mountain, Julong Lake and Gongshan scenic zones. In the meantime, the development of Laowo Mountain, Yueliang Mountain and Gongshan scenic zones would be phased in over the period.

4. Purpose of Development of a Master Plan

This master plan is meant to provide a basis for the development of scenic zone-specific master plans, management work plans and development action plans. All organizations, entities and individuals must abide by, as far as their construction activity and other development activity are concerned in this region, the provisions set forth in this document.

5. Significance of the Area

Three Parallel Rivers region is one of the key venues for Yunnan Provincial Government's development package implementation, i.e., initiatives of building Yunnan into a province featuring strong ethnic cultures, with 'green' or environment-friendly economic orientations and a major gateway towards Southeast Asia and South Asia.

The Area is one of the areas in the world that have the richest ecological landscape types and biodiversity. It is also one of the epicenters in which species endemic to China evolve and differentiate. The Area enjoys the most complete primeval eco-systems and represents one of the world's best-protected ecological areas in the temperate zones. A natural 'gene pool', the Area has served as a gigantic repository that has provided abundant unparalleled biological resources for Yunnan in its long-term drive to build an eco-friendly local economy.

6. Cultural Diversity

The Area has a population of some 800,000 and about 86.6% of the population is from many of the province's ethnic groups, including ethnic Tibetan, Naxi, Bai, Yi, Lisu, Pumi, Nu and Dulong groups. Among these ethnic groups, the Naxi, Bai, Lisu, Pumi, Nu and Dulong groups are people unique to China. Over thousands of years, these ethnic groups have lived congenially with nature and each has created a distinct conservation culture of their own. In such a setting cultural heritage

and nature adapt to and depend on one another in a reciprocal manner, making it possible for them to co-exist in the same geographical dimensions. In a word, the region's rich and diversified cultural heritage has helped highlight Yunnan as a key area full of potential for becoming a province featuring ethnic cultures.

7. Scenic Diversity

The Area has diversified scenic resources too. Of the 55 types of scenic resources identified in many of China's scenic zones, **the Area** alone boasts 50. Specifically the region has most of the recognized scenic resources except for desert landscape and marine spectacle. This will serve as a sound foundation upon which Yunnan's future tourism could be developed.

8. Geographical Location

A major international gateway southwards, **the Area** lies on one of the three routes from Yunnan to South Asia or Southeast Asia via Myitkyina, Burma. It is also one of the major hotspots of biological diversity, cultural diversity and tourism to be protected for their regional, national or even global significance.

9. Great Potential for the Area to Get Nominated

The Area is abundant in unique landscape resources, including the region's indigenous grandeurs of precipitous mountains, deep gorges, snow peaks, glaciers, alpine wetlands, geological relics, forest, meadows, rare flora and fauna, and colorful ethnic customs and cultures. All these would lend themselves to building **the Area** into a national level scenic area and a multi-functional venue with a world heritage status for scientific research, natural expedition and sightseeing purposes.

10. Boundaries of the Area

The Area covers a vast area that starts from Yunnan-Tibet border in the north, Yunnan-Sichuan border in the east, and ends at the Sino-Burma border in the west, and southern boundaries of Daju (Lijiang)-Shigu-Southernmost end of Nujiang Prefecture in the south. This region is about 1,700,000 ha., including Lushui County, Lanping County, Fugong County, Gongshan County, Deqin County, Zhongdian County, Weixi County and the northwest part of Lijiang County, and the

core area covers 860,910 ha.

Table 1. Existing Scenic Zones

No.	Zone Name	Area (ha.)	Jurisdiction	Watershed
1	Pianma	23,910	Lushui County	Nujiang (Salween) River
2	Yueliang Mountain	44,550	Fugong County	Nujiang (Salween) River
3	Gongshan	98,690	Gongshan County	Nujiang (Salween) River
4	Meili Snow Mountain	76,240	Deqin County	Lancang (Mekong) River
5	Hongshan	229,240	Zhongdian County	Yangtze River
6	Qianhu Mountain	98,540	Zhongdian County	Yangtze River
7	Haba Snow Mountain	84,600	Zhongdian County	Yangtze River
8	Laowo Mountain	60,690	Weixi County	Lancang (Mekong) River
9	Julong Lake	26,930	Weixi County	Lancang (Mekong) River
10	Laojun Mountain	117,520	Lijiang and Lanping counties	Yangtze River
The Area's Total		860,910	-	-

Gaoligong Mt. Area

Red Mountain
Naya Lake Area

Yuntai Mt. Area

11. Legislation Basis on which the Plan is Developed

State Council of China: 《Interim Regulations on the Administration of National Parks》 ;

Ministry of Construction: 《Measures for the Compilation and Approval of the Plan of National Parks》 ;

Standing Committee, Yunnan Provincial People's Congress: 《Regulations of Yunnan Province for the Administration of Scenic Areas》 ;

Yunnan Provincial People's Government: 《Regulations of Yunnan Province for the Administration of Three Parallel Rivers National Scenic Area》 ;

Yunnan Provincial People's Government: 《Regulations of Yunnan Province for the Protection of Nature Reserves》 ;

UNESCO: 《World Heritage Convention》 ; and Ministry of Construction: 《Code for Scenic Area Planning》 , GB 50298-1999

12. Planning Principles

Ecological equilibrium principle: The establishment of **the Area** represents an all-embracing endeavor that not only involves natural environment conservation but also socio-economic and cultural development in the region. In the course of the socio-economic and cultural development in the Area, stability and equilibrium in natural and environmental structure should always be our focus of attention in ensuring the development to proceed in a balanced, compatible and healthy manner.

Ecological conservation principle: While efforts are being made to sustain its own survival, the humanity should treasure and conserve natural resources, protect environment and wildlife. Through treating all parts of this globe of the Earth as a harmonious unity, our generation must act in the long-term interest of future generations.

Rule-of-law principle: While relating to local people's day-to-day socio-economic life, all development activities in the Area should be carried out in compliance with all legislation, in the forms of published laws, regulations or rules and policies and be made consistent with government regulatory requirements to ensure a sound and sustainable development of **the Area**.

13. Proposed Strategies for Conservation and Development

The development of **the Area** should be based on the conservation of natural resources and environment itself, which calls for compatibility with the carrying capacity of the local environment. In this regard efforts to be made should include:

- A. Protection of the environment on which local biodiversity relies through the following measures. a) To ensure compliance of the logging ban on natural forests; b) To ensure the conversion of the existing hillside croplands with slopes of over 25 degrees to forests or grasslands; c) To relocate residents inhabiting the areas where human activity has exceeded the carrying capacity of the local ecologies; and d) take advantage of alternative sources such as hydropower, solar energy, biogas and other renewable energy sources to address the issue of local residents' needs for energy;
- B. Replacement of traditional means of production for high-growth, which are characterized by high levels of pollution and energy consumption, with renewable energy sources, and promotion of the awareness of long-term sustainable development among the public;

- C. Creation of easy-to-apply legislation and policies that encourage efficiency and effectiveness, and installation of management teams for **the Area's** administration and management with a view to effectively conserving the rich biological, landscape and cultural diversity in **the Area**;
- D. Restructuring of the economic sectors based in **the Area** by developing high-efficiency agriculture, bio-resource utilization sector and tourism that not only promote natural and cultural resource protection but also generate incomes to, and ultimately improve the living standards of, the local communities in **the Area**; and
- E. Improvement of the general level of education and capacity of the local residents by promoting the environmental protection awareness among them. It is hoped that, through application for a world heritage nomination, an awareness or publicity of **the Area** would be greatly promoted and its name attract the attention of the general public who would become more concerned about the conservation of **the Area**.

14. Goals

- A. To build **the Area** into a site that would retain a variety of ecosystems full of biodiversity and preserve the rich cultural and landscape diversity through careful planning and conservation action;
- B. To upgrade the infrastructure of **the Area** including transport facility and living environment as a whole to ensure that the local residents would be able to work and live compatibly with the environment; and
- C. To make **the Area** a world natural heritage site in its full sense known to the rest of the world.

II. Analysis and Evaluation of Resources

15. Tourism Resources

The scenic resources of **the Area** fall into four categories:

- A. Biological resources. **The Area** has been seen as an epitome of the biological and ecological

types of the Eurasian Continent, since it alone harbors 80% of the ecological system types found in the Northern Hemisphere. Meanwhile **the Area** is also a region that has witnessed the most drastic differentiation process of biological species and natural communities since the Cenozoic Epoch, which is still in progress. In a word, the region enjoys unparalleled ecological and biological diversity;

- B. Geological and topographical resources. As a result of the push-up forces of the Indian Sub-Continent Plate and Eurasian Continent Plate, there has come two 'humps' in terms of geological structure at the east and west ends of Himalayan Mountain Range. **The Area** is located on the eastern 'hump' where two continental plates meet in the Qinghai-Tibet Plateau, presenting to the world a patchwork of diversified geological and topographical resources.
- C. Natural landscape resources. 'Three Rivers Parallel' is a unique spectacle in the world. The three rivers flow side by side within a distance of over 400 kilometers (in Yunnan alone) amid Hengduan Mountains that straddle the Qinghai-Tibet Plateau and the Yunnan-Guizhou Plateau. Landscape resources in this region can be further divided into many subtypes. These subtypes include the 'Three Rivers Parallel' spectacle, snow peaks, deep gorges, alpine lakes, streams and waterfalls, primeval forests, meadows, wetlands, remains of ancient continental plate geology, rare plants, modern glaciers, alpine *Danxia* terrain, plateau top, alpine karst topography, first bend of the Yangtze River and granite-based terrain; and
- D. Ethnic cultural resources. **The Area** is located a region inhabited by 13 ethnic groups, including ethnic Tibetan, Lisu, Naxi, Bai, Pumi, Nu and Dulong groups. The complex natural conditions and unique ethnic customs combine to have created the special regional and ethnic culture.

16. Evaluations of Existing Scenic Spots

A sample survey that covered 188 recognized scenic spots in **the Area** indicates that 49 or 26.1% of the total have been identified as 'first-grade', 70 or 37.2% for second-grade category and 69 or 36.7% for third-grade category. Among these scenic spots eight are near to county capitals and some are located in the five existing nature reserves. Below is a table of scenic spots distribution.

Table 2. Ranking of Existing Scenic Spots and Distribution

Scenic zone Name	First-grade	Second-grade	Third-grade	Total
Pianma	4	9	9	22
Yueliang Mountain	3	4	6	13
Gongshan	4	8	4	16
Meili Snow Mountain	7	8	4	19
Hongshan	7	6	1	14
Qianhu Mountain	3	10	9	22
Julong Lake	4	0	1	5
Haba Snow Mountain	7	5	2	11
Laowo Mountain	4	4	4	12
Laojun Mountain	6	16	29	51
Total	49	70	69	188
Percentage %	26.1	37.2	36.7	100

17. Characteristics of the Area

The Area represents a gigantic scenic zone that is rich in landscape diversity, biodiversity, cultural diversity, and geological and topographical diversity. It has under its umbrella a multitude of quality spots to offer to visitors. The whole zone that consists of the many scenic spots, however, has limited carrying capacity.

III. Framework for Planning**18. Four-Stratum Structure of the Area**

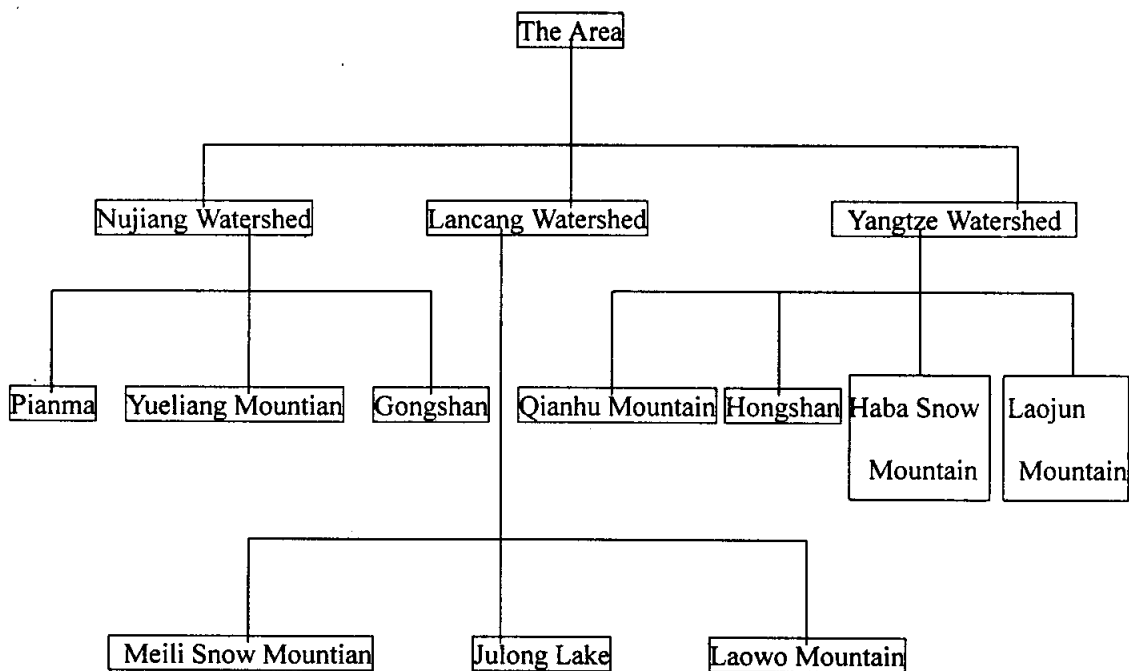
For the convenience of planning for future conservation and development the Area is divided into four strata as follows:

The Area → watersheds → scenic zones → scenic spots.

Three watersheds: Nujiang, Lancang and Yangtze watersheds.

Ten scenic zones: Pianma, Yueliang Mountain, Gongshan, Meili Snow Mountain, Julong Lake, Laowo Mountain, Hongshan, Qianhu Mountain, Haba Snow Mountain, and Laojun Mountain.

This structure in strata is shown below for illustration of the relationships between the first three strata of the Area.



19 Scenic and Landscape Resource System

This system is adopted for determining the type, aesthetic attributes and significance of the scenic resources in **the Area**, and other factors associated with tourism activities such as knowledge acquisition and appeal of adventure. In accordance with the resource properties, size and complexity, scenic resources are classified into four levels, i.e., the Three Parallel Rivers Nation Park, watersheds, scenic zones and scenic spots.

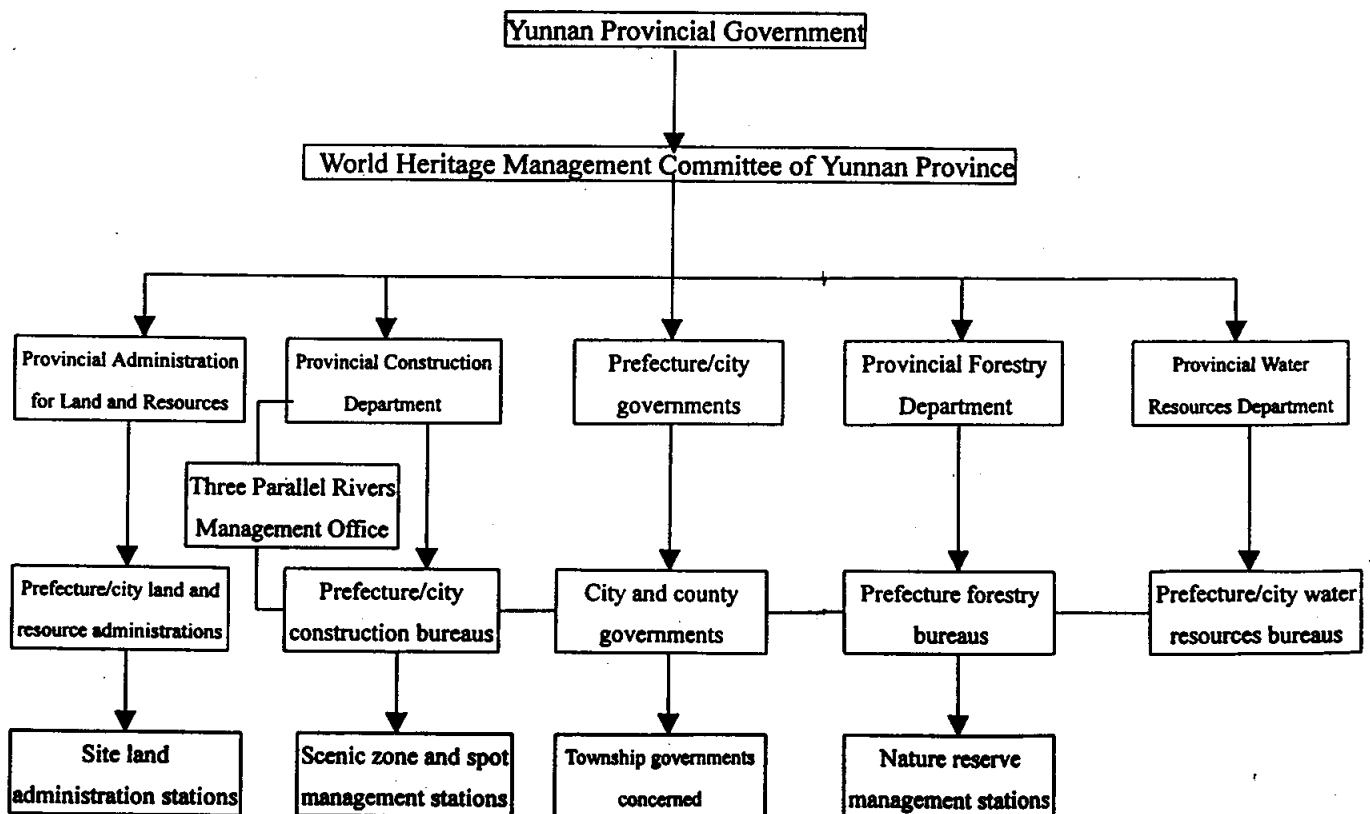
20 Urbanization Development System

The purpose of creating **the Area** is to promote the regional socio-economic development and

urban construction on condition that scenic resources are well protected. As they are interdependent on one another, apparently proper conservation of scenic resources could never be possible without the regional socio-economic development. As it is intended to meet visitors' needs for food, accommodation, transportation, sightseeing, shopping and other recreational services, an urban development system should be coordinated with the local tourism development. In construction development, the system should be structured into city, town and village categories in accordance with site-specific functions and scales to bring the system into full play in facilitating tourism development.

21. Conservation and Development Management System

The Area covers a vast range of area and apparently its administration and management is of great importance. Considering the status quo of the region, it is not realistic to appoint a new management team in charge of the regional conservation and development mission. Therefore, at the top agenda for creating a responsible management team is to redefine the duties of parties involved in the regional administration and management under the current management framework. Below is a chart of the current management system of the Area, which involves government bodies in charge of the Area's management at various levels.



IV. Conservation Plan

22. Conservation Visions:

- A. To build the “Three Rivers Parallel” region, through careful planning and conservation action, into a scenic zone that would operate under the framework of a well-recognized modern conservation administrative mechanism; and
- B. To upgrade the conservation management level to such a degree that the conservation operation and management would meet the criteria required of a world natural heritage site.

23. Conservation Targets:

- A. Natural primeval eco-systems;
- B. Habitats of rare and endangered wild animals;
- C. Areas home to rich plant species or habitats of rare plants;
- D. Crucial water resource preservation areas (e.g., watersheds);
- E. Natural and cultural landscapes of aesthetic significance; and
- F. Special geological and topographical terrains, geological remains representing different evolutionary phases of the Earth’s crust and the areas where important geological changes are still taking place.

24. Conservation and Development Principles

- A. One integrated area principle. With this principle, the natural and cultural resources within the 3,430,700 ha. range will be well conserved in its entirety. While overall planning will be conducted in adhering to the one integrated area principle, development of conservation measures for specific sites should be the responsibility of the site-specific management team concerned;
- B. Diversified strategies for sites conservation principle. In conformity with the natures, types and requirements of different sites, an array of made-to-order and easy-to-apply strategies should be adopted;
- C. Resource demonstration principle. Conservation and economic development should go hand in

hand in a coordinated manner. On condition that conservation takes priority, tourism, scientific research, education and other development activities featuring the region's rich resources could be carried out in the Area. In this way, the significance of the natural and cultural resources could then be brought to the attention of the general public, who would in turn offer their helping hand for the conservation mission, thus maximizing the profits of conservation and development actions.

25. Zoning Considerations

In the light of the nature and specific requirements for the Area's conservation, development and management purposes, the Area is classified into three categories with different levels of protection as follows:

- A. Core areas. Protected areas under this category refer to the core areas of the scenic regions with a level of national protection that enjoy the most spectacular landscapes and are characteristic of the unique landform, the core areas of the existing nature reserves and other areas where biodiversity is found in abundance. Current Core areas in the Area totals about 860,910 ha. , where are generally off-limits to visitors to keep them intact. While human intrusion to Core areas such as development or any other activities that may cause structural changes in natural communities is strictly prohibited, efforts should be made to restore those parts that have been damaged over time according to their original pristine state;
- B. Protected areas. Protected areas include part of the designated scenic zones and the existing nature reserves (excluding those in the first category) plus the habitats of snub-nosed monkeys and places with densely concentrated biodiversity above an altitude of 2,700 meters around the Gaoligong and Biluo Snow Mountain (currently outside the scenic zones and the existing nature reserves). Protected areas cover 839,090 ha.. Within these protected areas, limited number of food and accommodation facilities are allowed be built but entry of the motor vehicles to these areas are severely restricted. In addition, land reclamation, mining, quarrying and economic activities other than tours are also banned in these areas; and
- C. Buffer zone: This refers to the remaining part within the boundaries of the Area, which totals about 1,730,700 ha.. Within these protected areas, infrastructure and facility development should be

properly organized and monitored in accordance with the requirements for compatibility with site-specific settings. In addition, efforts should also be made to restore the damaged landscapes and ecological environment.

26. Conservation Strategies

- A. While logging acts committed in the existent natural forests should be strictly prohibited, secondary growth forests should also be protected to foster a restoration process of natural tree species. At the same time a long-term policy to prohibit entry to some forest-rich sites should be adopted to speed up the recovery of their forest cover, in addition to preventive measures to be taken against forest fires, blights and pest damage to forests;
- B. Biological species resources representing biodiversity should be properly protected. Projects concerning collection of rare and endangered wild animal and plants and processing of such products should always be prohibited while habitats of important endangered species should be strictly protected. In addition, legislation against poaching acts should also be enacted and implemented;
- C. Hillside cropland reclamation activities should be banned. The existing croplands cultivated on hillsides with slopes of more than 25 degrees should be converted in stages into forests or grasslands. At the same time environment-friendly technologies should be promoted among the local communities in the Area and efforts should be made to encourage technology-intensive development of agricultural farming products and animal husbandry products processing sectors to increase the local people's farming yields;
- D. Construction projects that may cause serious damage to the regional resources should be prohibited whereas necessary construction projects should be implemented on condition that possible damage to local topographical terrains and biological resources coupled with them are kept to a minimum;
- E. Efforts should be made to protect the environment of important water preservation areas or watersheds. Where conditions of these watersheds are degraded, actions should be taken to improve and restore them to their original state. Meanwhile anti-erosion/sand forest belts are projected for mitigating sand deposit in waters and extent of soil erosion. Furthermore, efforts

- to prevent river and lake embankments from collapse should be strengthened to reduce the chances of destruction to croplands and soil erosion;
- F. Plans for revamping the existing conservation management system to strengthen government agencies' roles in ensure conservation of natural resources should be implemented to ensure that they perform their responsibilities assigned through an effective and efficient results-oriented mechanism and the implementation of conservation projects is well organized.
- G. Population growth within the Area should be controlled to abate possible threats from overpopulation to the local natural resources. At the same time more education opportunities about environmental protection should be made available to the local residents to promote the awareness of conservation among them. On the other hand numbers of visitors to the Area should also be controlled to reduce the chances of the local natural resources being destroyed by tourism activities;
- H. While actions focusing on ecological reconstruction on former lumbering and mining sites should be taken, impacts on environment should be constantly monitored and evaluated on a regular basis for the existing mining businesses to ensure their operations are free from pollution;
- I. While atmosphere pollution should be treated in major tourist attractions and towns, pollution-free energy resources should be introduced for use in the Area to mitigate pollution from the local daily undertakings and business operations;
- J. Actions should be taken to preserve and promote the local cultures that have already been impacted by exotic cultures and virtually on the verge of extinction. Forms of such cultures include ethnic relics, literatures, fine arts, music and dances, and handicrafts, to name but a few; and so on.
- K. Efforts should be made to salvage, publicize and present to the outside world the local indigenous cultural components. These include local customs and practices, ethnic architectural styles, religious rituals, events and festivals, and costumes. Through collecting, recording, interpreting and publicizing, it would be possible to preserve and share with the general public these local cultures, in particular, the traditional values of these ethnic groups and recover their cultural identities. In addition, historic sites and relics should also be restored to their original state.

27. Cultural Diversity Preservation

As mentioned above, thirteen ethnic groups live in the Area, namely, the Tibetan, Lisu, Naxi, Bai, Pumi, Dulong and Jingpo groups. This plan requires that all government agencies concerned should work out their action plans to preserve these cultures of the ethnic groups. Measures to be taken include:

- A. To upgrade local residents' capacity to take advantage of modern science and technologies; help them to restore self-confidence and sense of pride about their own cultures, which would help them to readily contribute to the cultural preservation mission;
- B. To organize salvage operations for the ethnic cultures and demonstrate them to the general public for the awareness of their cultural importance, which would contribute greatly to anthropological, historical and philosophical studies;
- C. To highlight the role of local ethnic cultures in local tourism development that would benefit local residents, who would in turn help preserve these cultures; and
- D. To commission highly qualified scholars and experts to undertake planning assignments for construction projects highlighting authentic ethnic architectural styles. For existing housing facilities, measures should be taken to reduce activities that would cause damage to them.

28. Cultural Villages for Preservation

For preserving the local ethnic cultures, a portfolio of villages and townships has been designated as key sites to be protected. Within this portfolio are villages and townships that retain to this day their authentic ethnic attributes that appeal to scholars and tourists alike. These villages and townships are as follows:

Tibetan: Dazhongdian, Dongwang, Gezan, Deqin, Mingyong, Yubeng, Yunling and Benzilan.

Naxi: Sanba Township, Shigu, Liming and Judian

Bai: Jiuhe, Tongdian, Zhonglu, Tacheng and Liuku

Lisu: Lishadi, Maji, Lushui, Kangpu, Pantiang and Limin

Nu: Gongshan, Bangdang, Bingzhongluo, Lishadi and Baijixun

Pumi: Hexi and Shitou

Dulong: Dulongjiang

These towns and villages are all close to the scenic zones where tours featuring local ethnic

customs culture could be organized.

29 Biodiversity Conservation

Measures to be taken regarding biodiversity conservation include:

- A. To commission teams of interdisciplinary experts/scientists to conduct research programs on the existing biological resources in the Area, and create databases to assemble classified data about species distribution, populations and other factors affecting the regional biodiversity health;
- B. To conserve natural forests rich in biodiversity by imposing bans on any logging acts and convert croplands cultivated on hillsides with slopes of over 25 degrees to forests or grasslands;
- C. To introduce high-tech based agricultural farming practices (e.g., biological tech-based) in place of traditional ones to improve the local farming productivity and to restructure local agriculture into a high-yields sector focusing on tourism services;
- D. To implement an array of alternative energy source programs to address the outstanding issue of local dependence upon forests for energy sources. These programs primarily involve promotion of alternative energy uses among the local communities through technical assistance and other means of support. It is believed that once energy saving stoves/fireplaces, biogas, solar energy and hydropower are made available for use to the local people, the current rural energy issue concerning high levels of fuelwood consumption would be thoroughly solved; and
- E. To build overpasses for the convenience of golden monkey (i.e., snub-nosed monkeys) communities to migrate and interact with one another. Within the existing habitats of golden monkeys, bans on lumbering or fuelwood collection should be imposed to restore the local vegetation, which would consequently contribute to an expansion of the monkeys' habitat range.

30. Proposed World Natural Heritage Area.

The nominated area covers 1,700,000 ha..

V. Scenic Zone Planning

31. Visions and Considerations for Nujiang River Watershed

- A. Since Nujiang River covers a distance of 300 kilometers within the Area, which is characterized by high speed of currents due to great drop heights caused by numerous gorges and shoals in the setting, the situation has made navigation impossible. Based on these conditions, necessary preliminary surveys and would-be construction of hydropower stations on the river, it is recommended that boating and rafting activities be introduced in stages in line with the progress of the power station construction;
- B. Since about 75% of the slopes found in the watershed are at over 35 degrees and the watershed itself enjoys rich spectacular precipice spectacles, it is recommended that a selection of ridge top viewpoints offering good views of valleys should be created at appropriate places in Gongshan, Yueliang Mountain and Pianma scenic zones;
- C. As the scenic zones in Nujiang Prefecture are generally far away from one another and the situation requires visitors to take a vehicle ride from one site to another, which is often tiring and monotonous, it is recommended that rest areas should be built at sites where ethnic villages by the Nujiang River and waterfalls leading to it are found along the roads between scenic zones. At these rest areas visitors are able to walk and get a good view of the river and gorges, buy some ethnic products or have a taste of local produce. This kind of arrangement could at the same time benefit visitors and local residents who sell products or offer services; and
- D. It is recommended that while logging bans should be imposed in mountains above 2,800 meters ASL for forests to grow, croplands cultivated on hillsides with slopes of over 35 degrees should be converted to forests or grasslands in stages and afforestation should be effected on the riverbanks as a preventive means against soil erosion.

32. Specific Considerations for Pianma Scenic Zone

- A. Geographical location: west of Lushui County, bordering Myanmar, 23,910 ha. in area.
- B. Main scenic spots: Dishuiyan Waterfall, Yuejinqiao Hot Springs, Luzhang Chalin Yi villages,

Laowo River Gorge and Xiaojiang area.

- C. **Characteristics.** Hot springs, waterfalls, high peaks, steep cliffs, the roaring Nujiang River and some interesting ethnic Yi and Lisu villages that are rich in unique customs and other cultural elements.
- D. **Conservation and development actions.**
 - (1) To protect natural forests and waters. Commercial uses of hot springs should be controlled. Hot spring-based projects must be arranged according to the water amount to prevent depletion of the resource. In addition, wild flora and fauna should also be protected. Croplands cultivated on hillsides with slopes of over 35 degrees should be converted to forests or grasslands in stages while efforts should be made to prevent soil erosion;
 - (2) To make good use of the local ethnic villages in offering services to visitors, and renovate the residents' homes as needed for providing accommodation (quakeproof design to be considered) and food services since the scenic zone is located at a quake-prone region with rugged terrain that is not suitable for large scale service facility building; and
 - (3) To organize limited numbers of tours or other tourism activities such as savoring Luzhang tea, bathing in hot spring, enjoying sub-tropical landscapes, tasting sub-tropical fruits and experiencing local customs. The area could be open to researchers too.

33. Specific Considerations for Yueliang Mountain Scenic Zone

- A. **Geographical location:** Shalidi Township, Fugong County, west bank of Nujiang gorge, 51,700 ha. in area. It is linked with Gaoligong Mountains. The highest peak is 4,069 meters ASL. The lowest point is the altitude of the Nujiang River surface measuring 1,200 meters ASL, 44,550 ha. square kilometers in area.
- B. **Main scenic spots:** Shiyueliang, Zhui'eling, Fengxue Yakou (Pass), Changgongling, Lamadi Suspension Bridge and Shennu Stream.
- C. **Characteristics:** Grand gorges over the river, numerous streams, cliffs and odd-looking rocks, mountains, forests, flowers, animals, legends and ethnic customs, for visitors to experience.
- D. **Conservation and development actions.**
 - (1) To complete surveys on the natural and cultural resources in the area before a master plan

is developed;

- (2) To keep the existent communities within the scenic zone where they are and new settlements outside the scenic zone, and build bridges over the Nujiang River and roads leading to individual scenic spots;
- (3) To make treks and horse-riding tours major forms of tourism activities within the scenic zone and make a tourism helicopter pad construction part of the construction agenda while no highway for vehicle could be built within the area;
- (4) To implement limited service facility projects commensurate with the small scale tourism within the area located in extremely rugged terrain down a river valley setting, and make good use of the local ethnic villages within the scenic zone in offering services to visitors; and
- (5) To develop scenic spots near highways at initial stage and implement other tourism projects for those comparatively remote ones as appropriate at later stages, considering the present situation that the area is underdeveloped and lacks infrastructure.

34. Specific Considerations for Gongshan Scenic Zone

- E. Geographical location: Gongshan County, southernmost corner of Nujiang Prefecture, 98,690ha. square kilometers in area.
- F. Main scenic spots: primeval forests around Qiqi (a township), ethnic villages around Bingzhongluo, Qingnatong Gorge, Shimenguan Gorge and the First Bend of the Nujiang River.
- G. Characteristics: Numerous gorges, steams, waterfalls and lakes, primeval broadleaf forests and multiethnic customs.
- H. Conservation and development actions
 - (1) To make conservation of the zone's resources the paramount concern, and take advantage of the local villages and towns in developing the local tourism, considering the present situation that the area is located on the upper reaches of Nujiang River home to narrow river bulks, steep cliffs and deep gorges and the scenic zone as a whole is not suitable for large-scale development projects;
 - (2) To properly protect natural forests and ethnic villages, in particular the ethnic people's housing in the villages dotted on the region between Gongshan and Qingnatong, and

encourage local households to build their new housing in original ethnic architectural styles;

- (3) To build a natural biological museum s in Gongshan for science education;
- (4) To open a new tourism route between Bingzhongluo and Dimaluo and another between Gongshan and Dulongjiang, for the benefit of specialist visitor to the zone for scientific research, a major type of visitor activity around which focus of development work is oriented, and services should primarily be arranged in Gongshan and Bingzhongluo; and protect the ethnic villages in Bingzhongluo by keeping development projects under control in this region.

35. Visions and Considerations for Lancang River Watershed

- A. To complete the construction of the tourism highway between Dali and Deqin to add up to the existing roads leading to the Three Rivers Parallel Scenic Area;
- B. To conduct surveys on separate scenic spots and zones, and houses in ethnic villages for their possible inclusion into useful tourism assets for itinerary development;
- C. To create viewpoints for visitors to get a good view of the Lancang River and its tributaries to make up for the nondescript features of the routes down Yanmen while creating a selection of ridge top viewpoints offering good views of mountains and valleys, and rest areas for visitors' convenience at appropriate locations upcountry Yanman, in particular the region around Yunling, and build a road leading to Hongpo Temple and Hongpo Village for visitors to get a good view of the Lanyueliang Gorge;
- D. To improve the service facilities along the highway and encourage local communities to offer food, local produce, and other services appealing to visitors; and
- E. To address in a phased manner the issue of soil erosion, an issue that has long plagued the local communities because of the vulnerability of local ecologies.

36 Specific Considerations for Meili Snow Mountain Scenic Zone

- A. Geographical location: Upland areas in the west Deqin County, including Meili Snow Mountain, 107,200 ha.in area.
- B. Main scenic spots: Feilai Temple, Peak Kawagebo, Mingyong Glacier, Yubeng Holy Waterfall,

Cizhong church and Tibetan villages;

- C. Characteristics: Meili Snow Mountain, the highest peak in Yunnan, the spectacular gorges in Lancang River Valley and low-latitude modern glaciers can provide varied opportunities to experience the Tibetan religious culture and ethnic customs, such tours on Tibetan pilgrimage routes, hikes or treks to sacred places.
- D. Conservation and development actions:
- (1) To keep scales of tourism service development and entries to this area under control for its location on the upper reaches of Lancang River with numerous steep cliffs and deep gorges, which is characterized by limited visitor carrying capacity;
 - (2) To give priority to hikes, small scaled horse-riding tours and treks over other tourism activities regarding the difficulty it involves to build new roads in Deqin, which would cause tremendous damage to the local environment;
 - (3) To speed up the construction of the highway between Deqin to Gongshan to link the Lancang and Nujiang watersheds while upgrading the existing highway from Weixi to Deqin; and
 - (4) To strictly protect, apart from the natural forests, the dry-hot river valley at low altitudes, alpine screes and glaciers that make up the vulnerable local eco-systems for the irreparability of the ecological state once destroyed.

37 Specific Considerations for Julong Lake Scenic Zone

- A. Geographical location: west bank of Lancang River, 146 kilometers northwest of Lapoluo village in Yezhi Township, at the foot of the 4,800-meter Chabuduoga Mountain, and 26930ha. in area.
- B. Main scenic spots: 20-odd lakes, Luodazha and Chabuduoga glacier cascades, and ethnic villages.
- C. Characteristics: Alpine lakes, alpine glacier cascades, patches of primeval forests and ethnic villages.
- D. Conservation and development actions:
- (1) To create a scenic zone management team to supervise and facilitate surveys on the local landscape resources and create related databases, upon which useful resources could be

identified for the zone's overall conservation and development planning;

- (2) To protect the local vegetation such as natural forests around the lakes and impose bans on destructive activities such as lumbering, fuelwood collecting and animal poaching;
- (3) To upgrade the road linking Lapo Township to the scenic zone and open a new tourism route from Gongshan, and another from Qizong, to Julong Lake;
- (4) To encourage the local households to supplement the local lack of adequate service facilities by renovating and converting their homes to homestay facilities with focus on sanitation improvement for visitor accommodation;
- (5) To develop and implement energy programs to bring the rich local hydropower and solar energy into full play to satisfy the local needs for energy sources; and
- (6) To encourage the development of pollution-free foodstuff and service sectors as a means of optimizing the local economic structure.

38 Specific Considerations for Laowo Mountain Scenic Zone

- A. Geographical location: Laowo Village as the range center, Zhongtao and Weideng townships on the west bank of Lancang River, 20 kilometers west of Weixi, and 60,690ha. in area.
- B. Main scenic spots: Xinhua Lake, Laowo Mountain lake groups, Lualo River, Washiba Lake, White Crane Park, Wadi Mountain, Hongyan Cave and Sudiping.
- C. Characteristics: Alpine lakes and meadows covered with wild flowers.
- D. Conservation and development actions:
 - (1) To create a scenic zone management team to supervise and facilitate surveys on the local landscape resources, upon which useful resources could be identified for the zone's overall conservation and development planning;
 - (2) To conduct an overall planning with due consideration of the adjacent scenic zones and tourist attractions; and
 - (3) To make Weideng and Weixi local service centers, and impose a ban on large-scale service facility project implementation within the scenic zone.

39. Visions and Considerations for the Yangtze River Watershed

- A. To upgrade the highway between Lijiang and Zhongdian;

- B. To commission surveys on strengths of scenic spots, local residents' housing and ethnic villages within the scenic zone for possible inclusion of these assets in local tourism initiatives;
- C. To create viewpoints offering good views of the Yangtze and its tributaries, and rest areas;
- D. To improve the service facilities along the highway and encourage local communities to offer food, local produce, and other services interesting to visitors; and
- E. To harness soil erosion around the watershed in stages.

40. Specific Considerations for Hongshan Scenic Zone

- A. Geographical location: Upland townships of Dongwang, Gezan and Luoji, northeast of Zhongdian County, and 229,240ha. in area.
- B. Main scenic spots: Black Lake at Hongshan, Birang Gorge, Qianqu Gorge, Wengshui Gorge, Niru Waterfall and Napa Lake.
- C. Characteristics: Gorges, precipices, wildernesses, rhododendrons, alpine meadows, streams and waterfalls, alpine morainial lakes and primeval forests.
- D. Conservation and development actions:
 - (1) To implement a wide range of tourism activities within this scenic zone with its diversified and rich landscapes in a larger area: Suggested tourism activities and experiences include treks, horse-riding tours, holidaymaking, skiing, livestock herding, farm work, visits to local households and health-giving spas visits;
 - (2) To strengthen conservation of the local vegetation and landscapes, alongside tourism development: measures include minimum construction on hillsides with slopes of over 15 degrees, protection of watersheds, regardless of their sizes, supplying water to the local lakes and streams, bans on construction around rugged terrain of mountains and gorges, moderate livestock grazing on alpine meadows and logging bans on primeval forests and cropland cultivation on hillsides or wildernesses;
 - (3) To make Zhongdian (county capital) the scenic zone's service center and impose a ban on large-scale service facility project implementation within the scenic zone; and
 - (4) To restrict mining activities by exercising severe controls over the existing copper mining operations within the scenic zone; where mining operations have caused pollution to the local waters, appropriate authorities should intervene to set timeframes for pollution

treatment, and private businesses that generate serious pollution and whose treatment methods are not up to standard should be forced to close down their operations.

41. Specific Considerations for Qianhu Mountain Scenic Zone

- A. Geographical location: part of Shangjiang Township, and Xiaozhongdian and Wujing, west of Zhongdian county town, and 98,540 ha. in area.
- B. Main scenic spots: Alpine lakes, meadows and rhododendron scrubs.
- C. Characteristics: Alpine lakes, alpine rhododendron scrubs and alpine pastoral landscapes.
- D. Conservation and development actions:
 - (1) To build the scenic zone into a colossal botanical garden;
 - (2) To build a highway between Zhongdian and the foot area of Qianhu Mountain and make Xiajisha town the scenic zone's service center and impose a ban on vehicle entry to the upland areas while encouraging local horse caravans to serve as a means of transport for visitors to these areas;
 - (3) To encourage the Tibetan households in adjacent villages around Xiaozhongdian to receive or offer services to visitors, and preserve and protect the architectural styles of local households' housing by encouraging them to renovate or build their housing in the original Tibetan architectural styles; and
 - (4) To conserve the lakes and vegetation up the Qianhu Mountain and restrict local residents' overly grazing practices to protect adjacent grasslands.

42 Specific Considerations for Laojun Mountain Scenic Zone

- A. Geographical location: a site adjoining Shitou and Liming townships in Lijiang County, and Hexi and Tongdian townships in Lanping County, and 117,520 ha. in area.
- B. Main scenic spots: Heilongtan, Jinsichang, Peak Taishang and Zimei Lake.
- C. Characteristics: Natural forests, alpine lakes, Danxia terrain and golden monkeys (snub-nosed monkeys).
- D. Conservation and development actions:
 - (1) To keep control of visitor numbers to mitigate possible pollution and damage as a consequence of excessive numbers of visitors to Laojun Mountain, a near and convenient

destination for visitors from Lijiang county capital;

- (2) To keep development of food and accommodation facilities around upland areas and conduct evaluations of tourism impacts on the local environment on a regular basis while taking actions to treat polluted water discharge and garbage dumping; and
- (3) To encourage local communities to offer eco-friendly services at sites around the Laojun Mountain Scenic Zone and impose a ban on construction of new roads leading to these sites while encouraging horse-riding tours and treks along the existing roads.

43. Specific Considerations for Haba Snow Mountain Scenic Zone

- A. Geographical location: Primarily in Sanba and Dongba townships, southwest of Zhongdian County town, and 84,600 ha. in area.
- B. Main scenic spots: Haba Snow Mountain, White Water Terrace, Baidi Village, Aming Cave and Jila Waterfall.
- C. Characteristics: Rhododendron scrubs, and clouds amid Haba Snow Mountain, alpine lakes, snow peaks and ridges, and karst caves near White Water Terrace.
- D. Conservation and development actions:
 - (1) To develop tourism services commensurate with the scenic zone's carrying capacity, as opposed to those large scale activities;
 - (2) To encourage tourism activities such as treks and horse-riding tours using the existing roads, as construction of roads, regardless their sizes, would cause tremendous damage to the local environment;
 - (3) To protect the glaciers, in particular the remains of ancient glaciers that have survived to this day through ancient times within the scenic zone, apart from the natural forests (the local eco-systems are extremely vulnerable; once destroyed it would be impossible to restore the ecological state); and
 - (4) To keep control of visitor numbers to mitigate possible pollution and damage as a consequence of excessive numbers of visitors to Haba Snow Mountain, a near and convenient destination for visitors from Zhongdian county capital.

VI. Land Use Plan

44. Land Use Plan

- A. Resident settlements to be developed should meet the following requirements: a) land slopes are less than 15 degrees; b) new settlements are flood-resistant to the extent that they are capable of enduring damage caused by rare catastrophic floods (e.g. once-in a 50-year period); c) necessary highways are built on the area where land slopes do not exceed 15 degrees; d) local demand for land development and local community's demand for arable land are compatible; e) new settlements and service facilities are developed in areas for high visitor use with their scales controlled; f) new settlements and service facilities are kept away from the environmentally sensitive areas; and g) where existing settlements are in areas susceptible to natural disasters, measures are projected to improve the natural environment or ecological conditions.
- B. Expansion and conservation of the existing woodlands: Hillside croplands with slopes of over 25 degrees should be converted to forests. Afforestation should be effected in areas where trees have been overly felled to restore them to their original state. Woodlands within the protected areas or nature reserves should be treated on a discriminate basis for protection in the following order: a) Areas for intensified protection; b) Class I Protected Areas; c) Class II Protected Areas; and d) Class II Protected Areas. This kind of arrangement aims at preventing the regional rich plant communities, ecosystems and landscapes from being damaged. Meanwhile logging and poaching acts should be banned in natural forests. Last but not the least, upland areas at elevations of over 2,700 meters ASL should be made off-limits to visitors and no unnecessary human activity should be allowed in these areas, all these measures are meant to restore the forest covers to their original state.
- C. Grasslands: Grazing practices within scenic spots should be restricted to the extent that they cause limited damage to the local grasslands, which could be converted for tourism purposes (e.g., sightseeing activities). Whereas animal husbandry could be developed as appropriate around grasslands outside scenic spots. However, over grazing practices should always be prohibited to maintain the local ecological equilibrium.

- D. **Waters:** Since **The Area** is home to numerous rivers and streams, and full of water resources, which could be properly used to replace the non-renewable resources. Efforts should be made to improve the environmental conditions of the regional watershed areas.
- E. **Land conservation:** The land development should be promoted on a moderate basis, as intensified development would do more harm than good to the local environment. To improve soil quality for higher crop yields, local communities should be encouraged to use those biological fertilizers, which are eco-friendly and free from pollution. These are important measures to ensure sound land conservation, as well as the local environment. In addition, efforts should also be made to convert the improperly cultivated hillside croplands to forests or grasslands. Land use administration should be stepped up by introducing efficient and effective mechanisms.

45. Measures for Soil Preservation against Erosion

Deqin, Zhongdian, Gongshan, Weixi and Lushui are venues known for serious soil erosion. In these counties intensified erosion has plagued about 1% to 4% of the regions' erosion-susceptible areas, which account for percentages ranging from 25% to 40% of the aggregated area of these counties. In general most locations in the area are somewhat exposed to erosion, with those on the river valleys to medium erosion and part of the land to intensified degrees of erosion on the upper reaches of Langcang River northwest of Deqin (general intensity of soil erosion in these locations are below 2,500 tonnes per square kilometers with some exceptions ranging from 5,000 to 8,000 tonnes per square kilometers down the river valleys).

Strategies for erosion harness: a) afforestation in the local wildernesses and hillsides; b) conversion of hillside croplands to forests or grasslands, as appropriate; c) upgrade local crop farming productivity by means of introduction of high-tech based farming practices; and d) other feasible measures that promote water preservation.

VII. Management Plan

46. Ownership of the Area

People's Republic of China is the owner of the Three Parallel Rivers Area.

47. Legal basis of the management

A. Relevant laws of the People's Republic of China

B. Other rules and regulations promulgated by government authorities at all levels

48. Management Framework

A. Management Authorities and Responsibilities at National Level

No.	Agency	Legal basis	Responsibilities	Address	Status
1	Ministry of Construction	<Interim Regulations on the Management of Scenic Resort Zones> <Three-determination Plan of China's State Council>	Coordination and supervision of master planning, protection, construction and administration of scenic zones in China	9 Sanlihe Rd., Beijing, China 1000835	Authorized national administrative & management body
2	State Environmental Protection Bureau	<Environmental Protection Law of PRC> <Three-determination Plan of the State's State Council>	Review of proposals for approval for national nature reserve establishment and coordination of such affairs as appropriate	115 Nanxiaojie, Xizhimennei, Beijing, China	Authorized national administrative & management coordinating body
3	Ministry of Forestry	<Forest Law of the People's Republic of China> <Regulations of the People's Republic of China for the Administration of Nature> <Three-determination Plan of the State's State Council>	Biodiversity resources and nature reserves management	Chaoyang District, Beijing	Authorized national administrative & management coordinating body
4	Ministry of Land and Resources	<Three-determination Plan of the State's State Council>	Prospecting, protection and development of land and mineral resources	Yingguanyuan, Beijing	Authorized national administrative & management coordinating body
5	Ministry of Water Resources	<Water Law of the People's Republic of China and Three-determination Plan of the State's State Council>	Protection and development of water resources	2 Ertiao Baiguang Rd. Beijing	Authorized national administrative & management coordinating body

B. Management Authorities and Responsibilities at Provincial & Grassroots Levels

No.	Agency	Legal basis	Responsibilities	Address	Status
1	Construction Department	<Regulations of Yunnan Province for the Administration of Scenic Resort Zones>	General management, protection and construction of scenic zones in Yunnan	Xichang Rd., Kunming, Yunnan	Authorized provincial administrative & management body
2	Three Parallel Rivers Scenic Zone Management Office of Yunnan	<Regulations of Yunnan Province for the Three Parallel Rivers National Park>	Management, protection and building of scenic sites within the Three Parallel Rivers Scenic Zone	Xichang Rd., Kunming, Yunnan	Authorized site-specific administrative & management body
3	Forestry Department	<Regulations of Yunnan Province for the Administration of Nature Reserves>	Management of national and provincial nature reserves in the Three Rivers Scenic Zone	Qingnian Rd., Kunming, Yunnan Province	Authorized provincial administrative & management coordinating body
4	Department of Water Resources	<Water Law of the People's Republic of China>	Management of water resources development projects in the Area	Wuhuashan, Yunnan	Authorized provincial administrative & management coordinating body
5	Department of Land and Resources	<Mineral Resources Law of the People's Republic of China >and< Land Law of the People's Republic of China>	Protection and use of land and mineral resources in the Area	Huguo Rd., Kunming, Yunnan	Authorized provincial administrative & management coordinating body
6	Construction Bureau, Lijiang Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	General management of the Three Rivers Zone parts within the jurisdiction of Lijiang Prefecture	Xianggelila Rd., Lijiang County Capital, Yunnan	Authorized prefecture administrative & management body
7	Three Parallel Rivers Zone Regional Office, Lijiang Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	Day-to-day management of the Three River Zone parts within the jurisdiction of Lijiang Prefecture	Shanggelila Road, Lijiang County, Yunnan	Authorized site-specific administrative & management body
8	Construction Bureau, Diqing Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	General management of the Three Rivers Zone parts within the jurisdiction of Diqing Prefecture	Hongqi Rd., Zhongdian County	Authorized prefecture administrative & management body

No.	Agency	Legal basis	Responsibilities	Address	Status
9	Three Parallel Rivers Zone Regional Office, Diqing Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	Day-to-day management of the Three River Zone parts within the jurisdiction of Diqing Prefecture	Hongqi Rd., Zhongdian County	Authorized site-specific administrative & management body
10	Construction Bureau, Nujiang Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	General management of the Three Rivers Zone parts within the jurisdiction of Nujiang Prefecture	Liuku	Authorized prefecture administrative & management body
11	Three Parallel Rivers Zone Regional Office, Nujiang Prefecture	<Provisions on the Administration of Three Parallel Rivers National Park>	Day-to-day management of the Three River Zone parts within the jurisdiction of Nujiang Prefecture	Liuku	Authorized site-specific administrative & management body

49. Management Responsibility

General administration and management of **the Area** should be the responsibility of the relevant government authorities at prefecture level (i.e., Lijiang, Diqing and Nujiang prefectures) as coordinated by the Three Parallel Rivers Scenic Area Provincial Management Office (PMO), an administrative and management body authorized by the Provincial Government to coordinate the day-to-day administration and management of **the Area**. Currently the three prefectures involved have set up their respective 'Three Rivers Parallel Area' regional management offices (RMO) in line with the forgoing 3-watershed management framework to supervise the day-to-day operations of scenic spots within their jurisdiction.

50. Responsibilities and Duties of Management Teams at All Levels

- A. To facilitate, develop and submit plans concerning the administration and management of the Area for approval with appropriate authorities;
- B. To supervise and monitor the implementation of land development projects within the Area;
- C. To supervise and monitor other business activities within the Area;
- D. To initiate programs offering educational opportunities to the public as a means of public

conservation awareness promotion.

51. Management Objectives

A. Short-term management objectives:

- (1) To create efficient and effective management mechanisms with multileveled qualified management teams;
- (2) To strengthen law enforcement regarding regional conservation and development; and
- (3) To improve the existing conservation and development planning system with focus on creation of a feasible management mechanism.

B. Long-term objectives:

- (1) To create a set of well-organized and well-tested management procedures;
- (2) To accomplish the mission of long-term conservation alongside compatible development in **the Area**; and
- (3) To ultimately achieve the goal of building **the Area** into an outstanding world heritage site.

52. Management Strategies and Action Plans

A. Strategies

- (1) To create well-planned management mechanisms with multileveled teams staffed with qualified personnel, in particular at grassroots levels (e.g., the scenic spots);
- (2) To initiate staff capacity building programs to improve the members' level of education and professional skills;
- (3) To initiate programs offering educational opportunities to the local communities and visitors to promote a public conservation awareness;
- (4) To create an operational mode for **the Area** administration and management teams that integrates the strengths of government regulatory bodies and business operations with the former making the majority of financial input for project development;
- (5) To strengthen law enforcement awareness among people involved in administration and management of conservation and compatible development in **the Area** in accordance with master plans and work/action plans.

B. Action plans

- (1) The general administration and management of the Area should be made responsibility of the PMO while the on-the-spot day-to-day administration and management should be made responsibilities of the RMO and other management teams at grassroots levels (i.e., county, scenic zone and scenic spot) for their own scenic zones/spots, which would be staffed with qualified management and technical personnel. The arrangement forms a pyramid of multileveled management teams charged with different duties and responsibilities with each performing its own.
- (2) In line with the foregoing 3-watershed classification, three management centers or the RMO, should be created respectively in the watersheds (three RMO have already been set up). These RMO would take advantage of modern techniques to identify their regional useful natural resources for conservation and development, develop suitable strategies, improve their management level, and ultimately work together to build **the Area** into a multifunctional hub with sound strengths in scientific research, natural science education, conservation and compatible economic development.
- (3) Guided by the principles of long-term conservation and sustainable development, **the Area's** management as a whole should focus their attention on the effective conservation of the core areas and adjacent areas, where economic development should be promoted on a moderate and compatible basis to ensure sustainable utilization of the local natural resources. To this end management teams at all levels should ensure, through administration, monitoring and education, that visitors and local residents should abide by all codes of conduct developed;
- (4) Region and site-specific plans for conservation and development of **the Area**, scenic zones and scenic spots should be developed and enforced to ensure that economic development activities, administration and management endeavors are up to requirements set forth in these plans regarding **the Area** that consists of groups of scenic zones and scenic spots;
- (5) Compatible tourism should be developed in **the Area** on a moderate basis to target those potential high-end and educated visitors, who seek varied experiences with scientific elements and would rely on the local communities for food and accommodation. It is believed that such kind of tourism arrangement and other economic activities with

emphasis on local participation would definitely generate incomes to the local communities seeking a better life. At the same time efforts should also be made to improve local residents' capacity and skills to support the socio-economic development based on sustainable utilization of the local natural resources.

- (6) Spot-specific management teams should take account of such factors as environment and infrastructure carrying capacity and projected acceptable visitor arrivals in a given time, which should be kept under control by the said management teams, in determining the areas open to visitors and types of tourism activities to be made available to them.

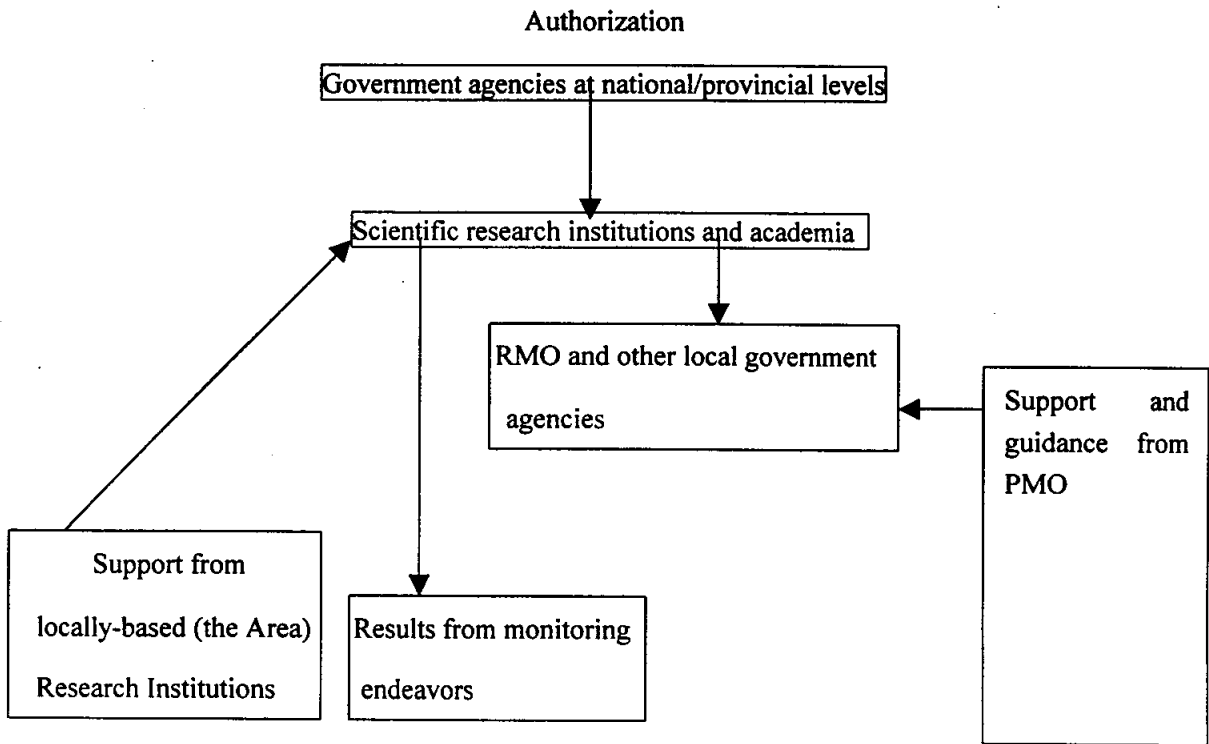
53. Monitoring

- A. As an important part of the overall strategy for the conservation and development in **the Area**, monitoring over the overall state of **the Area**, biological species health, natural disaster occurrence and impacts of human activity upon the local environment should be conducted on a regular basis.
- B. Monitoring approaches
 - (1) Satellite technologies and other art-of-the-fact techniques should be used to monitor damage to be caused by large scaled natural disasters or any other catastrophic accidents, the ecological state and change in the proposed world heritage site;
 - (2) Aerial and on-the-spot monitoring should be conducted on a regular basis for the core areas with focus on natural disaster prevention such as fire, pest and blight damage prevention, species recovery and prevention of the ecologies from being damaged by human activity, which would be conducive to keeping track of **the Area's** situation and preventing **the Area** from damage caused by natural disasters or accidents;
 - (3) A long-term fixed-point monitoring system should be developed. In the key scenic spots, nature reserves, disaster-susceptible areas and places with concentrated human activity, monitoring task outposts should be created with necessary equipment to keep track of the situation in these areas;
 - (4) In addition to the fixed point monitoring system, task-focused monitoring should also be effected: The management teams should work together with scientific research institutions to keep a watch on significant components of the local ecologies such as endangered species and important geological remains, for the development of special purpose-focused

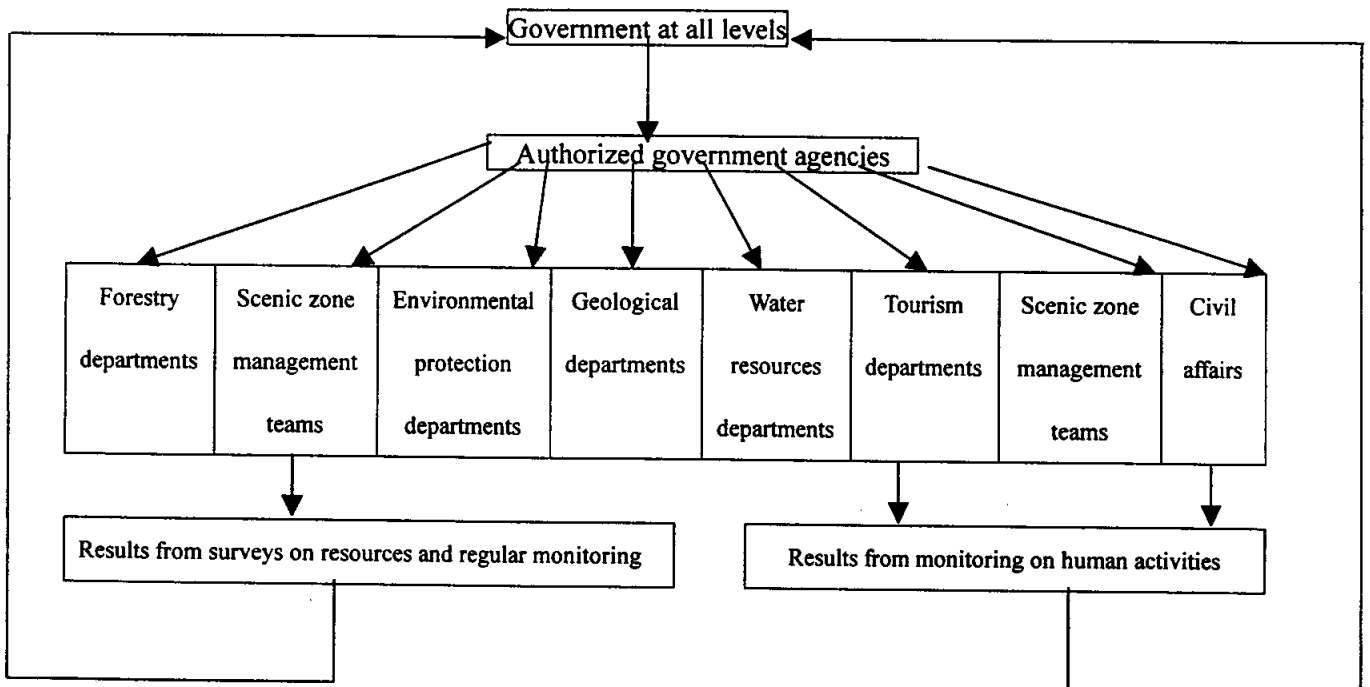
conservation plans.

C: Monitoring systems

(1) Monitoring system for scientific purposes



(2) Monitoring system for management purposes



54. Planning of Future Resident Settlements

In order to conserve the local landscape resources and restore the degraded parts of **the Area**, plans should be made to relocate some local residents inhabiting those environmentally vulnerable spots that are unfit for human survival to new settlements in more developed places outside the scenic zones or spots. Where relocation is not appropriate, economic development should be controlled. As projected future resident settlements should primarily be arranged around the three watersheds, Zhongdian Plateau and its adjacent areas (including Weixi County) for these areas are blessed with better living conditions and greater potential for development such as rich flat terrain, better transportation, more croplands and pastures. Larger scale projects could be implemented in these areas to speed up their urbanization drive for the short-term. In the long run, however, development in these areas should also be restricted.

Specifically, areas for resident settlements development could be Zhongdian, Xiaozhongdian, Yongchun, Weixi, Lijiang and Lanping counties. Management endeavors in this regard should be conservation-oriented.

On the other hand service-related sectors in these areas should be the focus of development to build the areas into service bases of **the Area**. In existing resident settlements within the scenic zones or spots that are not important protected areas, population growth and the development of service related sectors should be controlled in line with the allowable environmental carrying capacity. At the same time existing resident settlements outside the scenic zones or spots or protected areas, upon which human activity has less direct impact, should be made transit centers to scenic zones or spots nearby. These places could be projected as important sites for grain and farm crop production where local products could be sold to visitors in transit and local communities.

55. Labor Force Restructuring

- A. A selection of grain and farm crop production and processing bases could be created in more developed areas to meet people's needs for food and create opportunities for the local households to become better-off, thus alleviating pressures on the local ecological environment;
- B. Efforts should be made to improve the capacity of local people in fundamental education and technical training, increase the population of technical/professional personnel, and ultimately

- enable them to become self-supporting;
- C. Family planning should be promoted in **the Area** to realize the goal of making the growth of population compatible with the carrying capacity of the local ecological environment;
 - D. Efforts should be made to develop service-related sectors (e.g., development of holidaymaking establishments) to create more employment opportunities for the local residents;
 - E. Measures should be taken to ensure that people migrate to and from resident settlements in **the Area** in an organized manner, increase financial inputs to support the local infrastructure construction, speed up urbanization development of towns and encourage the development of service-related sectors in these towns; and
 - F. Exports of rural surplus labor to developed areas should be encouraged as a means of shifting pressures from upon local environment.

56. Tourism Activities

"Three Rivers Parallel Scenic Area" represents a vast area stretching as long a distance as 400 kilometers from south to north and 250 kilometers from east to west. Accordingly tourism activities to be organized in **the Area** could vary greatly in conformity with specific settings.

- A. Vehicle-riding tours: **The Area** is rich in scenic landscapes and a vehicle ride can offer opportunities to get a good view of the scenery on the way;
- B. Horse-riding tours: Numerous steep precipices and deep gorges characterize **the Area**, which makes it impossible to build more roads there. Horse rides would enable visitors to have an opportunity to experience the joys of unique tours and get a knowledge of the horse caravans in their heydays;
- C. Treks: Treks, an eco-friendly modern tourism form, are getting more popular these days because they offer opportunities for more physical exercises and enjoying the beauty of scenery at a time without causing damage to the environment.
- D. Boating and rafting: Surveys should be conducted on possibility of organizing boating or rafting tours on some parts of the three great rivers.

57. Travel Routes and Touring Opportunity Offers

Travel routes linking different scenic zones should be planned on the basis of the existing roads between county capitals to create an easy and convenient transport network for the benefit of visitors to the scenic zones or places of interest. This network would consist of vehicle roads, horse roads and simple trails intended to facilitate tourism activities.

Travel routes that make up the transport network within the scenic zones zone

Zhongdian-Deqin-Gongshan-Fugong-Lushui-Lijiang-Zhongdian

Zhongdian-Sanba-Tiger Leapin Gorge-Zhongdian

Zhongdian-Hongshan-Big Snow Mountain-Birang Canyon-Dongwang

Dali-Pianma-Fugong-Gongshan-Deqin-Julong Lake-Weixi-Dali

Dali-Lijiang-Zhongdian-Deqin-Julong Lake-Laowo Mountain-Dali

58. Areas Off-Limits to Visitors

This refers to the core zones of Class I Nature Reserves. In these core zones no visitor entry should be allowed to keep the pristine state of the natural communities, especially those plant communities from being impaired. Besides, efforts should be made to prevent possible change in the natural community structure as a result of human activity.

59. Considerations for Tourism Infrastructure and Facility Planning

Tourism infrastructure and facility should be arranged in accordance with the functions of a given place, its scale and specific requirements in a tourist service system. In the light of these factors, a service network with multileveled service bases should be created which consists of tourist service towns (Level 1 prefecture and county capitals), smaller tourist service towns where grassroots governments are located (Level 2), villages (Level 3) and sites (Level 4).

60. Level 1 Tourist Service Towns

In Level 1 service base category in the Area are prefecture and county capitals of Zhongdian, Deqin, Weixi, Gongshan, Fugong, Lushui, Lijiang and Liuku.

Seat of the Diqing Prefecture Government, Zhongdian is the economic, cultural and transportation hub of the prefecture. An important town on Inter-province 214, Zhongdian is situated in the

crossroads from the Southeastern Asia and Yunnan to Sichuan and Tibet. Considering its privileged location surrounded by the scenic zones of Hongshan, Qianhu Mountain and Haba Snow Mountain, the town of Zhongdian should be made an epicenter of the service network in **the Area**.

Also located in **the Area** are county capitals of Deqin, Weixi, Gongshan, Fugong, Lanping and Lushui, which have the same economic and cultural status in their respective counties. Since they have some levels of urbanization with comparatively good service facilities, these county capitals could be built into grain and other farm crop production and supply venues. Among them, Deqin and Gongshan are located respectively in Meili Snow Mountain and Gongshan scenic zones, which highlights both towns' standing as the most convenient service venues in **the Area**.

Having some levels of development in infrastructure and located at an edge of **the Area** in the northwest Yunnan, Lijiang is one of the important thresholds to **the Area** from outside and has potential for becoming an important service center. In addition, Lijiang has an airport capable of handling air transport duties.

61. Level 2 Tourist Service Towns

In Level 2 service base category in the Area are towns of Hutiaoxia Town, Sanba, Dongwang, Gezan, Xiaozhongdian, Yanmen, Benzilan, Tacheng, Weideng, Kangpu, Bingzhongluo, Lishadi, Zhongpai, Tongdian, Shigu Town, Shitou and Liming. All these towns are located at the edges of the scenic zones. With plenty of places of interest and privileged geographical locations, these towns have great potential for becoming holidaymakers' destinations.

62. Creation of a Service Information System

The service information system to be created should be meant to meet the requirements of the public for consulting services and those of the management teams for data analysis, evaluation and decision making purposes. With this system, potential tourists should be able to keep abreast of the latest tourism information about their preferred destinations, including information about transportation, tourism services, numbers of visitors to a given spot and other information interesting to them. This system should be made accessible to the public through installation of terminals in travel agencies or important public areas in towns. A regional service information network including creation of a good web page should be set up in Zhongdian so that potential

tourists from home and abroad could have access to the service information they need before making their decisions. This would help regulate flows of visitors during the season and off-season to make better use of and conserve the local resources by mitigating possible tourism impacts on the local ecological environment.

63. Strategies for Construction and Management of Tourism Service Facilities

- A. To create an efficient administration and management system under which multileveled management teams are installed with clear-cut duties and responsibilities at each of the levels;
- B. To launch a portfolio of training programs aiming at upgrading the management staff capacity and management skills;
- C. To provide educational opportunities to the local residents and visitors as a means of resources conservation awareness promotion;
- D. To establish an effective multi-channeled conservation financing system to facilitate conservation and development of scenic zones/spots in **the Area**. This system should include government appropriation inputs, bank loans, repayable public contributions, investment from overseas businesses and public donations; and
- E. To strengthen enforcement of the law throughout the whole conservation and development process.

64 Strategies for Capacity Building

- A. Actions should be taken to partner with appropriate institutions based in developed regions to initiate capacity building programs for the benefit of the local communities and management staff;
 - (1) To take advantage of the technical expertise of scientific and academic institutions based in the developed regions. This includes establishment of contact with appropriate experts and scholars, who, as invited, would offer useful suggestions and ideas regarding the future tourism development **the Area**;
 - (2) To introduce educational talent from the forgoing developed regions with a view to making use of their advanced educational practices and experiences;
 - (3) To introduce qualified administrative and managerial talent from the forgoing developed

regions for upgrading the management level of the management staff; and

- (4) To provide training opportunities in the developed regions home and abroad to a selection of local talent, including local business middle/senior executives and technical personnel, and those who would become teachers with local institutions.
- B. Initiatives for tourism vocational school or training center establishment should be encouraged to offer training programs that support the development of local tourism by preparing local young people in tourism principles and practices;
 - C. Establishment of an internal staff training system should be made obligatory as an important indicator in assessing the performance of an enterprise (SOE) at the initial stage of local tourism development;
 - D. A certification system should be created to encourage people employed in tourism-related jobs to attend training programs for qualifications for technical positions;
 - E. An arrangement for local young people with leadership potential to work with businesses with a reputation of sound management strengths should be effected to upgrade their business administration skills.

65. Demands for Funding

Demands for funding vary as long as purposes are concerned. Basically these demands fall into two categories, i.e., demands of the public sector and those of tourism business sector for funding.

- A. Demands of public sector for funding:
 - (1) Infrastructure construction and maintenance
 - (2) Tourism facilities construction and maintenance
 - (3) Programs for special purposes
 - (4) Construction of transportation facilities
 - (5) Tourism project start-ups
 - (6) Tourism promotion and marketing
 - (7) Educational and training programs

Public investment is characterized by higher input and longer duration for economic returns.

- B. Demands of tourism business sector for funding:
 - (1) Accommodation facilities (usually involve large amounts of financial inputs whether a

given project is of a construction or decoration nature)

- (2) Catering business operations, i.e., cafeterias, restaurants, bars, etc.;
- (3) General and administrative expenses, i.e., operational expenses including payroll;
- (4) Shopping operations, i.e., shopping centers, duty-free shops, etc.;
- (5) Other convenience facilities, i.e., laundries, gas stations, etc.

66. Funding Sources

Since 1993 governments at all levels and the administrative departments in scenic zones have invested RMB 460 million for the conservation mission that involves conservation of forest resources, landscape resources, local ecologies and resident settlements in **the Area**. Due to the fact that the proposed world heritage site are economically underdeveloped, over 85% of the funding for conservation and development relies on the government public spending sources at central and provincial levels.

Despite governments' increased financial inputs, it is recommended that strategies should be worked out to help develop economic activities and enterprises that promote bio-resource utilization. While financial inputs for conservation from local governments at all levels are to be increased, preferential policies should be introduced to attract funds from diversified sources for their participation in conservation-oriented projects.

67. Management of Funds

In order to properly manage the funds for future conservation and development, a fund management proposal has been developed which outlines the funding distribution and related considerations as follows:

A. Introduction:

This part of the proposal includes the names of the zones to be developed, their scopes, locations, areas of endeavors the projects would involve, ownership and authority over the project implementation, and background information of parties involved in the project implementation, such as nationality, operation status and economic strength.

B. Feasibility studies:

The second part of the proposal includes an analysis of the targeted tourism markets of **the Area**,

main cities or countries of tourist origin, tourism-related socio-demography, market demands in segments, tourist arrival forecasts and potential visitors to be tapped, etc.

C. Analysis of reception capability:

This includes the status quo of the local structural reception capacity and preliminary business plans commensurate with the current reception capacity.

D. Project planning:

- (1) Spatial layouts of projected tourism facilities: Restaurants, hotels (star-ranking), shops, parking lots, bars, dancing halls, gymnasiums, and other service facilities;
- (2) Equipment/facility procurement plans: Equipment and facility to be procured from domestically based or overseas based suppliers, as appropriate; and
- (3) Construction projects as needed, relevant budgets, project durations and contractual terms.

E. Financing planning:

- (1) Financing sources: self-possessed funds and borrowed funds. Self-possessed funds consist of total equity funds contributed by parties involved in the project implementation in cash or in kind (e.g., real estate, equipment, title to property, rights of land use, etc.) in accordance with agreed equity share arrangement while borrowed funds include bank loans (financial institutions from which to borrow the funds, amounts of loans to be borrowed, related rates, and other terms of repayments have been considered in the planning); and
- (2) Expenditures and working capitals: Fixed assets expenditure, general and administrative expenditure and working capitals.

F. Budgets of foreign exchange earnings:

- (1) Foreign exchange earnings: incomes/fees from tourism operations, incomes from hospitality and catering services.
- (2) Foreign exchange expenditures: expenditures on imported raw materials and spare parts, salaries of expatriate employees, their traveling expenses and welfares, profits distributions to overseas partners, training and traveling expenses of staff to overseas, etc.; and
- (3) Goal of a balanced international settlement.

- G. Financial plans: Preparation of financial statements such as statement of cash flow, balance sheet, calculation of financial ratios such as ratio of debt to equity, ratio of net profits to equity shares, discounted net current value, internal rate of return and investment recovery period.
- H. Overall evaluations of fund management planning feasibility: Multi-disciplinary experts in economics and financial accounting have reviewed relevant feasibility study reports.

VIII. Infrastructure Development Control Plan

69. Highway Construction Planning

- A. Renovation projects aiming at increasing current highway network's capacity:
 - (1) Inter-Province 214 highway involving the Area—Dali-Zhongdian-Deqin-Lasha (i.e., Dali-Zhongdian for Grade 2 and Zhongdian-Deqin-Lasha for Grade 3);
 - (2) Highway between Lanping and Lijiang for Grade 3;
 - (3) Highway between Liuku and Dali for improvement;
 - (4) Highway between Lanping and Yunlong for Grade 3;
 - (5) Highway between Lanping and Jianchuan for Grade 3;
 - (6) Highway between Liuku, Lushui and Pianma for Grade 3
- B. Construction projects:
 - (1) Highway between Gongshan and Liuku for Grade 3
 - (2) Highway between Lanping and Weixi for Grade 3
 - (3) Highway between Zhongdian and Weixi for Grade 3
 - (4) Highway between Weixi and Fugong for Grade 4
 - (5) Highway between Lanping and Liuku for Grade 3
- C. Other highway construction projects for tourism purposes (between towns and scenic zones/sports):
 - (1) Highway between Zhongdian, Sanba and Jiangbian for Grade 3
 - (2) Highway between Gongshan and Bingzhongluo for Grade 3
 - (3) Highway between Yanmen, Kangpu, Weideng and Zhongpai for Grade 3
 - (4) Highway between Shigu, Shitou and Tongdian for Grade 3

- (5) Highway between Jinzhuang, Liming and Liguang for Grade 3
- (6) Highway between Cangguo, Dongwang and Xinlian for Grade 3

In addition, efforts should also be made to facilitate the transportation between **the Area** and other regions (i.e., Sichuan and Tibet) by upgrading the highway between Zhongdian and adjacent areas in Sichuan to Grade 3, building a highway linking Lanchang River watershed area and Tibet.

70. Air Transport Development Planning

Two airports have been built and open to the public in Lijiang and Diqing. As planned, launching new air routes between Kunming, Lasha and Chengdu would further enhance the current air transportation capacity as far as **the Area** is concerned. And another airport would be built in Liuku in the future.

71. Tourism Development in Rivers

As mentioned above, Nujiang River, Lancang River and the Yangze River are blessed with numerous splendid deep gorges as wonderful sites for a variety of adventure tourism activities such as whitewater rafting, conditions permitting. It is planned to open tourism routes for whitewater rafting in the parts of the rivers with favorable hydrological conditions. Meanwhile tourism river ports would also be built in the wider parts of the rivers as sites for tourists to enjoy boating and other activities.

72. Local Trails Planning

Due to the remoteness and the geographic feature of the high mountains and deep gorges of **the Area**, trails have long been the main means of transport in the region. At present many villages and scenic spots are comparatively inaccessible with local trails as the only means of transport. Considering the current situation, it is suggested to improve the existing trails. It is strongly recommended that hiking trails in **the Area** should be constructed in such a way that would cause no damage to the natural environment and the scenery. Damaged trails must be mended through recovery of the local vegetation, and where applicable, implementation of terrain restoration projects using building material compatible with the surroundings. In the course of mending the

local trails, due care should be given to ensuring visitor safety alongside ecological conservation by building stone steps on some parts.

73. Power Supply Planning

- A. The current service-providing villages and sites should be accessible to electricity from larger power grids. Power currents from these grids should be modified to 10 KV at 380V/220V by transformers installed at major towns before electricity could be sent to service sites;
- B. In general service camps should not have access to electricity supply. Where there are villages nearby that are accessible to electricity supply, given service camps are free to take advantage of the electricity supply from the villages;
- C. Aerial power transmission lines should be the main facility to be installed within boundaries of **the Area**, where arrangements of such lines should not bring significant negative impacts on the scenery; and
- D. In some scenic spots located in remote areas where electricity supply is difficult, small-duty generators could be used for power generation.

74. Telecom Facility Planning

As **the Area** is vast in space, telecom facility planning would be focused on the upgrading of the existing telecom centers at the prefecture capitals. At the same time development of telecom facility could be promoted in the county level as well. As there are not many home telephones in **the Area**, public telephones should be installed primarily in 11 scenic resorts designated for tourism services at the initial stage. The telephone lines will all be covered with PVC pipes and laid alongside the electric wires so that a convenient and effective telecom network could be built to meet the tourists' needs. Efforts to upgrade local telecom facility includes:

- A. To build telecom hubs, ground satellite signal receiving stations, long-distance exchange stations and minor local telephone exchange stations to separate long-distance, local and rural telephone services;
- B. To expand the telephone exchange capacity and increase the facilities of local telephone and telecom networks linking the key scenic spots. The telephone capacity at the Tiger Leaping Gorge, Tacheng and Benzilan should be expanded to a volume of 2,000 to 3,000 lines. The

programmed telephone facility should be renovated so that telecom services would reach all the villages in the scenic zones and spots as soon as possible;

- C. To increase the number of GSM stations in the main scenic spots and towns and along main transport routes to ensure a full coverage of the wireless telecommunications; and
- D. To increase long-distance telephone capacity between Kunming, Lijiang, Zhongdian and Gongshan. IC telephone, ATM, ISDN, the Internet and other modern telecom services should be developed in **the Area**.

75. Water Supply Planning

Local water supply systems should be planned independently in different scenic spots, so that they could be linked to the water supply from nearby water sources. Adequate water plants should be built in county towns and villages that provide tourism services. The ways of water supply and the amounts of water supplied could be planned and implemented by individual townships. The water cleaning facilities or storage cisterns should be built in the remote tourism service spots with due consideration to the needs of the nearby communities, where there are no water plants. The tourism service camps could get water from the closest water sources or should build the storage cisterns in the sites. The facilities could be simple so long as they satisfy the local needs.

76. Drainage System Planning

- A. Rainwater and sewage should be treated separately. Rainwater could be discharged to the nearby waters whereas sewage discharge should be treated in different zones after pooling;
- B. Sewage discharge to the local waters from the villages, scenic zone and spots that offer tourism services should be permitted only after a first-grade sedimentation treatment and a second-grade biological treatment to meet the requirements for sewage discharge prescribed by appropriate government authorities;
- C. Where sewage discharge volume is low in certain tourism service camps, which is marked by different levels of discharge in different seasons, first-grade sediment treatment could be made the only means of treatment. In the long run, second-grade biological treatment should be adopted gradually;
- D. Where sewage discharge originates from the tourism service facilities, a third-grade treatment

- must be adopted (i.e. chemical treatment after first and second-grade treatments); and
- E. All water treatment endeavors should be carried out in compliance with the nationally promulgated criteria known as “Water Quality Standards for Domestic Water Discharge”.

77. Disaster Prevention and Abatement Planning

Key to this disaster prevention and abatement planning is environmental protection. A geological disaster prevention system should be created in the protected areas to prevent natural disasters caused by human activity. Specific measures include:

- A. To promote the awareness of ecological and environmental protection among the public, including the local communities, visitors and the management staff alike;
- B. To uphold the principle of ecological conservation alongside compatible economic development as against the damages originating from development projects implementation to the local natural environment;
- C. To ensure tourist arrivals compatible with the carrying capacity of the tourism zones as an underlying principle in the process of environmental protection;
- D. To encourage afforestation as an active measure of the environmental protection against degradation of the local ecologies;
- E. To strengthen protective efforts in the ecologically sensitive areas;
- F. To step up efforts to prevent forest fires; and
- G. To adopt a land use prospecting and evaluation system to ensure all construction projects compatible with local surroundings.

78. Sanitation Facilities Planning

Sanitation facilities in the county towns and townships should be built in compliance with plans. Currently primary pollutants produced in the tourism spots and scenic resorts are human remains and solid garbage. The following effective measures should be taken to minimize pollution from these two types of pollutants.

- A. Garbage collection and treatment grounds will be built in the tourist service villages to treat the garbage collected from the scenic spots;

- B. Garbage collection and transfer stations will be built in the service spots so as to transport the refuse to the county town for treatment;
- C. Refuse collection facilities will be built in the tourism service camps and main sightseeing spots. The management entities of the scenic spots and the resorts will organize regularly the collection and transport of the refuse to the transfer stations;
- D. In the near future, the solid refuse will be burned or land filled. The dumping and landfill places should be far away from the sightseeing spots to prevent secondary pollution from odor, dust and seepage. In the long run, the harmless treatment should be conducted. In the large tourism resorts and scenic spots where tourists are scattering far with each other, garbage bags should be distributed to visitors so they would join in the effort to protect environment;
- E. Public toilets will be built in tourism service villages and scenic spots. They should be up to the second-class standard. The number and functions of them should be set according to the flow of tourists in the days of peak seasons. A public toilet will be installed in each tourism service camp to treat the refuse with biological approaches. Its location should be hidden but convenient to visitors. The fecal should be removed and treated by treatment trucks as much as possible. If local conditions do not permit to do so, the fecal could be oxidized and fermented before being used as fertilizer for nearby farmland.

IX. Conservation and Development Planning in Phases

79. Priority for Project Implementation

Priority should be given to the projects that highlight the unique local scenic resources in **the Area**. Despite their merits, these projects should be developed on a moderate basis, preferably arranged in Qianhu Mountain, Haba Snow Mountain and other appropriate sites.

80. Projects Restricted in the Area

A good ecological environment is the very important precondition of the resource development. The projects, such as higher-grade highway projects that are prone to cause negative impacts on the local ecosystems and normal life of local residents should be restricted.

81. Projects Prohibited in the Area

All projects that would presumably cause damage to local ecosystems and the local residents' well-being must be prohibited.

82. A Phased Local Development

Construction projects should be implemented in a phased manner, as categorized for short-term, midterm and long-term development, in order to achieve the ultimate goals of developing ecotourism that benefit local communities while causing the least negative impacts on local ecological systems and cultural heritage.

83. Short-Term Development

A. In the light of the conditions of **the Area** and relevant overall planning for conservation and development mission, projects involving development of Laojun Mountain, Qianhu Mountain, Hongshan, Pianma and Haba Snow Mountain should be implemented for the initial stage planning (2001-2005), with focus on infrastructure development;

B. Calculated tourist arrivals as forecasts and reception facilities for the short-term

The calculation formula is based on the forecasts of tourist arrivals, and in consideration of the impact of development order within the area and tourist experience. Following formula is used:

$$\text{Beds} = \frac{\text{Annual \# of person/time staying in the area} \times \text{Average days of staying}}{\text{Annual number of service days} \times \text{Bed use rate}}$$

, or $C = R \cdot n / T \cdot k$.

Taking into account the uneven distribution of tourists in different seasons and the existence of the local residential houses, tourist guesthouses will be developed gradually under the guidance of the plan and proper management. In this way, it can avoid the waste due to low guestroom occupancy in low season, and increase the cultural content of the tourism experience. Through camping, tent renting and motel services, the number of the guestrooms need to be built could be minimized. In the short-term future, self-help services will be mainly offered in the village service receptions.

84. Midterm Development

For the mid-term (2006-2010), the basic infrastructure in Laojun Mountain, Qianhu Mountain, Hongshan Mountain, Pianma and Haba Snow Mountain will be further improved. Some development project in Meili Snow Mountain, Julong Lake and Gongshan scenic spots will be initiated. All these development projects should aim to not impose any negative impact on the surrounding natural environments.

85. Long-term Development

For the long-term (2011-2020), the tourism service facilities in Meili Snow Mountain, Julong Lake and Gongshan scenic resort zones will be further improved, and some projects in Laowo Mountain, Yueliang Mountain and Gongshan scenic sports should be initiating gradually.

X. Miscellaneous Provisions

86. Validity of the Master Plan

This master plan consists of the text of the plan, planning drawings and appendixes (i.e., explanatory statement of the plan and collection of the basic information). The text and the drawings are of the same legal effect.

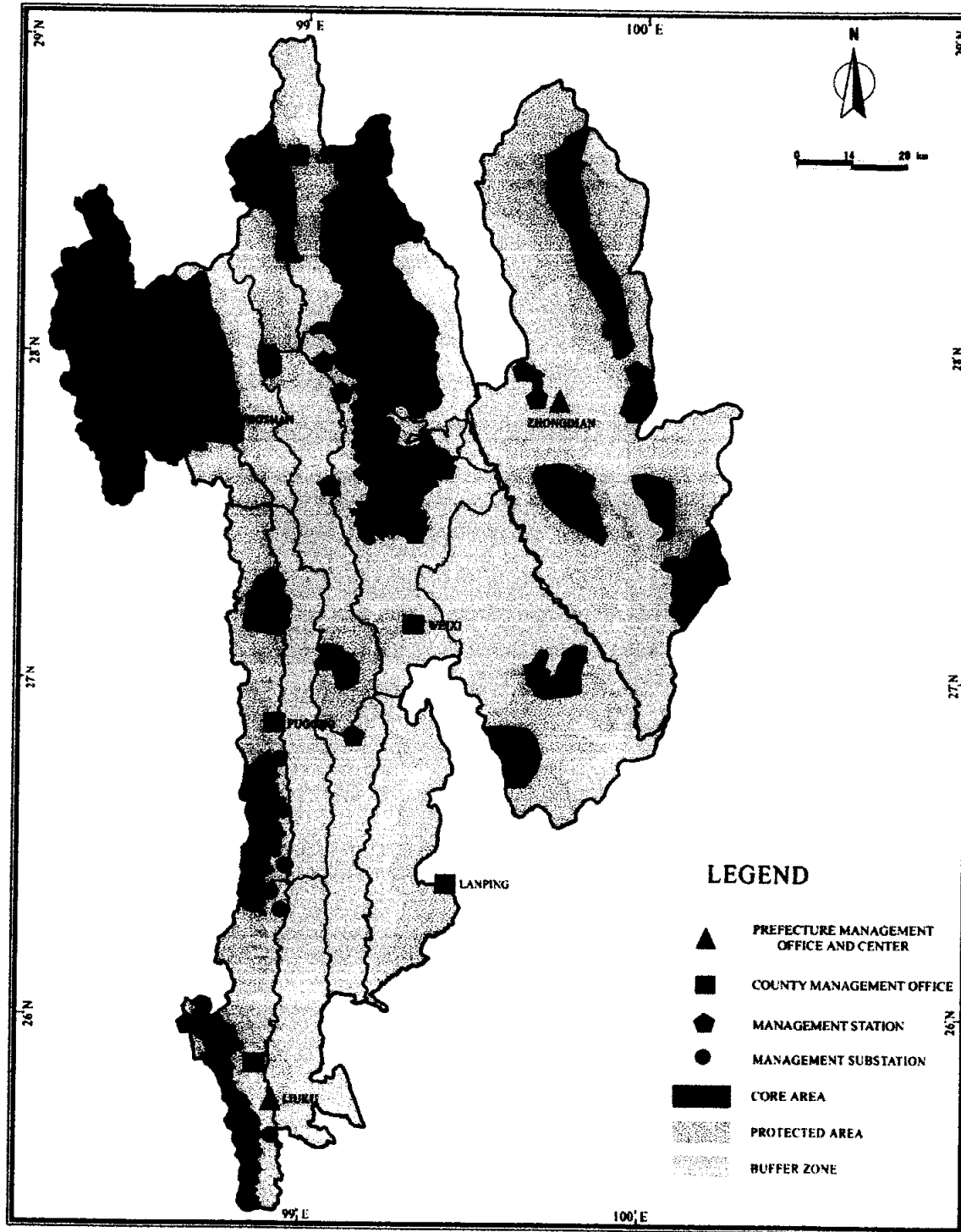
87. Master Plan Interpretation

This master plan shall be interpreted by the Yunnan Provincial Construction Department. Where amendment thereto is needed, such amendment should be effected in accordance with the promulgated laws and regulations.

88. Effective Date

This master plan should become effective as from the date when it is approved by authorized authorities.

DISTRIBUTION OF MANAGEMENT ORGANS OF THE THREE PARALLEL RIVERS NATIONAL PARK



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|---|---|---|------------------------------------|
| ▲ | DIQING PREFECTURE THREE PARALLEL RIVERS MANAGEMENT OFFICE AND CENTER | ● | LAOWOSHAN MANAGEMENT STATION |
| ▲ | NUJIANG PREFECTURE THREE PARALLEL RIVERS MANAGEMENT OFFICE AND CENTER | ● | NIRU MANAGEMENT STATION |
| ■ | GONGSHAN COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | CHUNZONG MANAGEMENT STATION |
| ■ | FUGONG COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | XIAXUE MANAGEMENT STATION |
| ■ | LUSHUI COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | SHUDU LAKE MANAGEMENT STATION |
| ■ | DEQIN COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | SHUANGQIAO MANAGEMENT STATION |
| ■ | WEIXI COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | QIANHUSHAN MANAGEMENT STATION |
| ■ | LANPING COUNTY THREE PARALLEL RIVERS MANAGEMENT OFFICE | ● | YANGJIAHE MANAGEMENT STATION |
| ● | SHIYUELIANG MANAGEMENT STATION | ● | HABA MANAGEMENT STATION |
| ● | PIANMA MANAGEMENT STATION | ● | LIMING MANAGEMENT STATION |
| ● | MEILI SNOW MOUNTAIN MANAGEMENT STATION | ● | BINGZHONGLUO MANAGEMENT STATION |
| ● | YUBENG MANAGEMENT STATION | ● | KONGMU MANAGEMENT SUBSTATION |
| ● | DARI MANAGEMENT STATION | ● | BAPO MANAGEMENT SUBSTATION |
| ● | YERI MANAGEMENT STATION | ● | DULONG RIVER MANAGEMENT SUBSTATION |
| ● | SHOSONG MANAGEMENT STATION | ● | QIQI MANAGEMENT SUBSTATION |
| ● | CIKATONG MANAGEMENT STATION | ● | GAZU MANAGEMENT SUBSTATION |
| ● | XIARU MANAGEMENT STATION | ● | HEIWADI MANAGEMENT SUBSTATION |
| ● | SHIBA MANAGEMENT STATION | ● | JIAKEDI MANAGEMENT SUBSTATION |
| ● | GEMERONG MANAGEMENT STATION | ● | ZILUJIA MANAGEMENT SUBSTATION |
| ● | YEZHI MANAGEMENT STATION | ● | PIHE MANAGEMENT SUBSTATION |
| ● | KANGPU MANAGEMENT STATION | ● | EGA MANAGEMENT SUBSTATION |
| ● | BADI MANAGEMENT STATION | ● | LUOBENZHUO MANAGEMENT SUBSTATION |
| ● | TACHENG MANAGEMENT STATION | ● | WUZHONG MANAGEMENT SUBSTATION |
| ● | PANTIANGE MANAGEMENT STATION | ● | YAOJIAPING MANAGEMENT SUBSTATION |
| | | ● | SHANGJIANG MANAGEMENT SUBSTATION |

NOTE: THE LOCATION OF THE LUJIANG PREFECTURE THREE PARALLEL RIVERS MANAGEMENT OFFICE IS IN LUJIANG COUNTY TOWN

中华人民共和国建设部

建城函[2001]352号

关于“三江并流”风景名胜区 总体规划的复函

云南省建设厅：

你厅关于审批《“三江并流”风景名胜区总体规划》的请示（云建城[2001]1097号）收悉。经研究，现函复如下：

一、原则上同意“三江并流”风景名胜区总体规划。

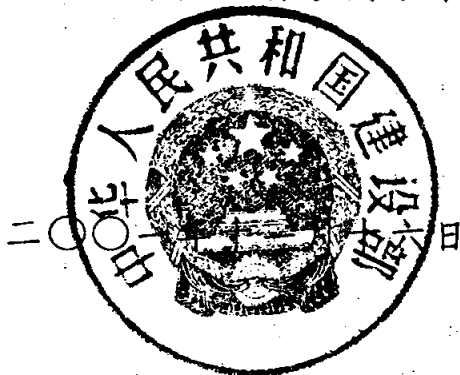
“三江并流”风景名胜区是以怒江、澜沧江、金沙江及高黎贡山、碧罗雪山、云岭等横断山脉为主体，自然景观和生物多样性为特色，具有生态和生物多样性保护、探险旅游、科普、科学考察等多种功能的国家重点风景名胜区。

二、按照《风景名胜区管理暂行条例》及国家有关规定，必须严格保护风景名胜区内的文物古迹、河流水系、森林植被、珍稀动物、地质地貌等风景名胜资源和生态环境。严禁在风景名胜区滥伐林木、乱挖乱采植物、开山挖石、污染水质、随意狩猎、毁坏历史古迹和乱建房屋等违法、违章活动。你们要采取有效措施，确保上述规定的落

实。

三、要按照总体规划要求，抓紧编制各景区的详细规划，按规定程序报批，并按批准后的详细规划进行建设。严格禁止一切违反规划、乱占乱建的活动。在风景名胜区内不准建有损生态环境和文化景观的大型工程。对区内已建和拟建的工程项目要进行认真清理。

四、风景名胜区内各州、县要加强对“三江并流”风景名胜区工作的领导，抓紧制定风景名胜区保护和管理的法规及规章制度，建立统一的风景名胜区管理机构，强化政府管理职能，加强对风景名胜区的统一规划和管理。要提高群众保护意识，建立公众监督机制。风景名胜区内所有单位和个人，都要遵守风景名胜区总体规划，服从风景名胜区管理机构对风景名胜区的统一规划和管理，共同把“三江并流”风景名胜区保护好、管理好。



抄送：云南省人民政府办公厅、怒江州人民政府、迪庆州人民政府、丽江地区人民政府

**THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA
NOMINATION FOR WORLD NATURAL HERITAGE STATUS**

ADDITIONAL INFORMATION

From October 8 to 20, 2002, an assessment team composed of IUCN experts visited the nominated “Three Parallel Rivers of Yunnan Protected Areas”, which is applying for inclusion on the World Natural Heritage List. On November 14, 2002, according to the requirements of the IUCN evaluation and inspection experts, we submitted ‘Supplementary Materials of Application for World Natural Heritage of Three Parallel River’ to the IUCN evaluation and inspection experts at IUCN’s headquarters. This document includes seven parts, as well as relevant descriptions and materials. On December 9, 2002, in response to the request of the World Heritage Center of UNESCO, we revised ‘Supplementary Materials of Application for World Natural Heritage of Three Parallel River’ and confirmed it as follows:

1. Areas Involved

1.1 To avoid confusion over the scope and area resulted from naming, this document refers to the nominated areas as “**THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREAS**”

1.2 The recommendations of the IUCN on the composition of the nominated areas are adopted here. At the same time, the original Haba Snow Mountain is composed of two relatively independent parts, therefore, in order to exercise efficient management and protection, the entire district has been separated into two areas, namely the ‘Haba Snow Mountain Area’ and the ‘Qianhu Mountain Area’. These areas have been readjusted to include Gaoligong Mountains, Baimang-Meili Snow Mountains, Laowo Mountain, Yunling Mountain Mountain, Laojunshan Mountain, Haba Snow Mountain, Qianhushan and Red Mountain. Napa Lake Nature Reserve has been removed from the list. The total area is now 1,698,400 ha.

Table 1 Specific Area and Land Area of the Nominated Area

Watershed	Sub-Area	Nature Reserve Involved	Total Land Coverage (ha)	
Nujiang River (Salween)	Gaoligong Mountain	Gaoligong Mountain Nature Reserve	34,6872.4448	514,022.4448
		Pianma Scenic Area	23,910.0000	
		Moon Mountain Scenic Area	44,550.0000	
		Gongshan Scenic Spot	98,690.0000	
Lancang River (Mekong)	Baimang-Meili Snow Mountain	Baimang Snow Mountain Nature Reserve	245,848.8320	349,018.8320
		Meili Snow Mountain	76,240.0000	
		Julong Lake Scenic Area	26,930.0000	
	Laowoshan	Laowoshan Scenic Area	49,161.1712	49,161.1712
	Yunling Mountain	Yunling Mountain Nature Reserve	89,787.4560	89,787.4560
Laojun Mountain	Laojunshan Scenic Area	131,426.6688	131,426.6688	
Jinsha River	Haba Snow Mountain	Haba Snow Mountain Nature Reserve	171,75.4032	101775.4032

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA

(Yangtze)		Haba Snow Mountain Scenic Area	84,600.0000	
	Qianhu Shan	Qianhushan Scenic Area	98,540.0000	98540.0000
	Red Mountain	Red Mountain Scenic Area	351,315.5464	36,4687.3872
Bitu Lake Nature Reserve		13,371.8408		
Total	8	15	1,698,419.36	

1.3 As an important nature reserve featuring biodiversity within the nominated areas along the Lancang River, Yunling Mountain is designated as a key nature reserve protecting habitats of golden monkey (*rhinppithecus bieti*) and important overall biodiversity. Since 1997, the Yunnan Provincial Government has carried out a series of biodiversity inventories in the area. Significant work has also been done on functional zone classification, institutional setups, and trainings for management staff and patrollers and public awareness building. The formulation of a detailed management plan is underway. The conservation and management of the nature reserve has been carried out smoothly so far. In 2000, the Provincial Forestry committee proposed to the Provincial Government to list Yunling Mountain as a “Provincial Nature Reserve.” To date, the ratification and approval procedures are near the end and it is estimated the area will be formally become a provincial nature reserve in December 2002.

1.4 In order to guarantee the integrity of the natural resources and biodiversity of the nominated areas, initiated by the Yunnan Provincial Government, base inventory and preparatory work on the establishment of the Gaoligong Mountain Biological Corridor and the gorge reserves (the Shangri-la Gorge, Wengshui Gorge and Nujiang Gorge) have commenced. Currently, corridor construction has also been incorporated into the Master Plan of the Gaoligong Mountain Nature Reserve, and Shangri-la Gorge is being inventoried.

Following the recommendations of IUCN experts, and a formal report on the readjustment and extension of the nominated areas will be submitted to IUCN and UNESCO before 2007.

2. ON CLASSIFYING THE SUB-AREAS

2.1 Based on the national criteria as to the definitions of nature reserve and national key scenic areas in China, all the nominated areas will be designated as key protected areas and the adjacent areas will be designated as buffer zones.

2.2 Based on the suggestions of IUCN experts and considering the individual characteristics of the seven regions of the nominated area, the core zones and buffer zones of each region are specified (Figure 1-8), aiming at strengthening the protection of biological, geological and landscape resources. The specific value and resource features of each region of the nominated areas are analyzed in regard to IUCN criterion on nature reserve classification with the results presented as follows (Table 2)

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA

Table 2 Components of “Three Parallel Rivers” and Resource Value Analysis

Specific Region	Land Area (ha)			Value of Resources	Correspondent IUCN Classification		Over view
	Total Area	Area of Functional Zones			Core Area	Buffer Zone	
		Core Area	Buffer Zone				
Gaoligong Mountain	514,022.4	305,306.1	208,716.3	High variety of fauna; It exhibits a complete vertical spectrum of mountain ecosystems; It is a microcosm of biodiversity in China, and the highest biodiversity in the ecoregion.	?	?	? The seven sites of “Three Parallel Rivers Protected Area” are related and complementary to each other and form an integrated unit. The whole nominated area can meet the four criterion on natural heritage, as are specified in <i>World Nature Heritage Convention</i> ? The Core Area of each individual site is in correspondence with Criterion I and II of IUCN on classifying nature reserves And the buffer zone of the each site is in correspondent with Criterion ? ? .
Baimang-Meili Snow Mountain	349,018.8	267,507.8	81,511.0	It represents typical landscape features of the Lancang River; It is a concentrated area of important geological occurrences. It is a major habitat of the Golden Monkey	? ?	?	
Laowoshan	49,161.2	17,426.1	31,735.1	(1) It is protected area preserving the typical ecosystems and biodiversity of the Lancang River Watershed	?	?	
Yunling Mountain	89,787.4	31,346.0	58,441.4	(1) It is a major habitat of the Golden Monkey	?	?	
Laojunshan	131426.7	44,265.7	87,161.0	Typical alpine Danxia (purple sandstone) landform Alpine lakes Important habitats of the Golden Monkey	?	?	

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA

Haba Mountain	Snow 101775.4	28356.3	73419.1	Modern marine glacier with lowest latitude in China; Vertical vegetative spectrum typical of the Jinsha River Germplasm of rare and endangered species and unique landscape features	?	?	
Red Mountain	364687.4	205,603.8	159,083.6	Typical geological landscape and plant diversity region along the Jinsha River Winter habitat for black-necked crane	?	?	
Qianhu Mountain	98540.0	39629.6	58910.4	Alpine lake and Alpine meadow	?	?	
Total	1698419.3	939,441.4	758,977.9				

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA

Table 3 A Detailed Zoning of the Core Area of the Nominated Sites

No.	Area (ha.)	Sub-Area	Corresponding IUCN category
A-1	253,504.6	Gaoligong Mountain Nature Reserve	?
A-2	46,219.9	Gaoligong Mountain Nature Reserve	?
A-3	5,581.6	Gaoligong Mountain Nature Reserve	?
B-1	37,800.4	Meili Snow Mountain Scenic Area in the Baimang - Meili Snow Mountain	?
B-2	18,881.9	Julong Lake Scenic Area in the Baimang -Meili Snow Mountain	?
B-3	41,966.4	Meili Snow Mountain Scenic Area in the Baimang -Meili Snow Mountain	?
B-4	168,859.1	Baimang Snow Mountain Nature Reserve in the Baimang-Meili Snow Mountain	?
C-1	24,204.8	Red Mountain Scenic Area in Red Mountain Sub-Area	?
C-2	71,035.5	Red Mountain Scenic Area in Red Mountain Sub-Area	?
C-3	56,858.9	Red Mountain Scenic Area in Red Mountain Sub-Area	?
C-4	21,411.3	Red Mountain Scenic Area in Red Mountain Sub-Area	?
C-5	32,093.3	Bitu Lake Nature Reserve and Red Mountain Scenic Area in Red Mountain Sub-Area	? ?
D-1	12,938.8	Haba Snow Mountain Scenic Area in Haba Snow Mountain Sub-Area	?
D-2	8,558.5	Haba Snow Mountain Scenic Area in Haba Snow Mountain Sub-Area	?
D-3	6,859.0	Haba Snow Mountain Nature Reserve in Haba Snow Mountain Sub-Area	?
E-1	9,098.3	Laowoshan	?
E-2	8,327.8	Laowoshan	?
F-1	8,724.5	Yunling Mountain	?
F-2	9,706.6	Yunling Mountain	?
F-3	12,914.9	Yunling Mountain	?
G-1	18,072.3	Laojunshan	?
G-2	12,639.4	Laojunshan	?
G-3	13554.0	Laojunshan	?
H-1	39629.6	Qianhu Mountain scenic area in Qianhu Mountain	?

? specific location and boundary of the each region is detailed in Annex (Figure 2-8)

2.3 About the Population in the Nominated Area

2.3.1 Related Data on Population

Table 4 Population of the Nominated Sites

Sub-Area	Population	Population of Core Area
Gaoligong Mountain	17,930	5,166
Baimang-Meili Snow Mountain	89,146	6,303
Laowoshan	147	0
Laojunshan	8,765	575
Yunling Mountain	632	361
Haba Snow Mountain	129,869	18,478
Qianhu Mountain	15762	383
Red Mountain	16,078	5,246
Total	278,329	36,512

2.3.2 Plans and Objectives on Population Control in the Nominated Area

2.3.2.1 The Government of China has taken positive measures to implement effective management and planned relocation on the population living within the nominated area. Since 2000, Yunnan Provincial Government launched the poverty-alleviation program, relocating some people both in the area and to other areas. To date, about 9,000 households (about 36,000 people) have been relocated from within the 7 sites of the nominated area. Of these 9,000 households, 1,500 are from the Core Areas and the rest 7,500 households are from the buffer zones. Most of the households relocated are from high altitude areas with vulnerable ecosystem and poor living conditions of Gaoligong Mountains, Haba Snow Mountain and Red Mountain. The people are mainly relocated to Dali and Simao Prefectures where there is relatively more farmland and population carrying capacity and to areas near the cities in Nujiang and Deqing Prefectures.

2.3.2.2 According to the Yunnan Provincial Poverty Alleviation Program, another 19,500 people will be relocated from the nominated area in the next 5 years. Of these people, about 60% is from the Core Areas.

2.3.2.3 In order to guarantee the permanent protection and maintain sustainable development in the area, the Yunnan Provincial Government, based on the environment, resources, carrying capacity, and current practices of the nominated area's residents, has decided to control, within five years, the population in the area to

remain within 298,000 and the population in the Core Area is strictly controlled to remain within 20,000.

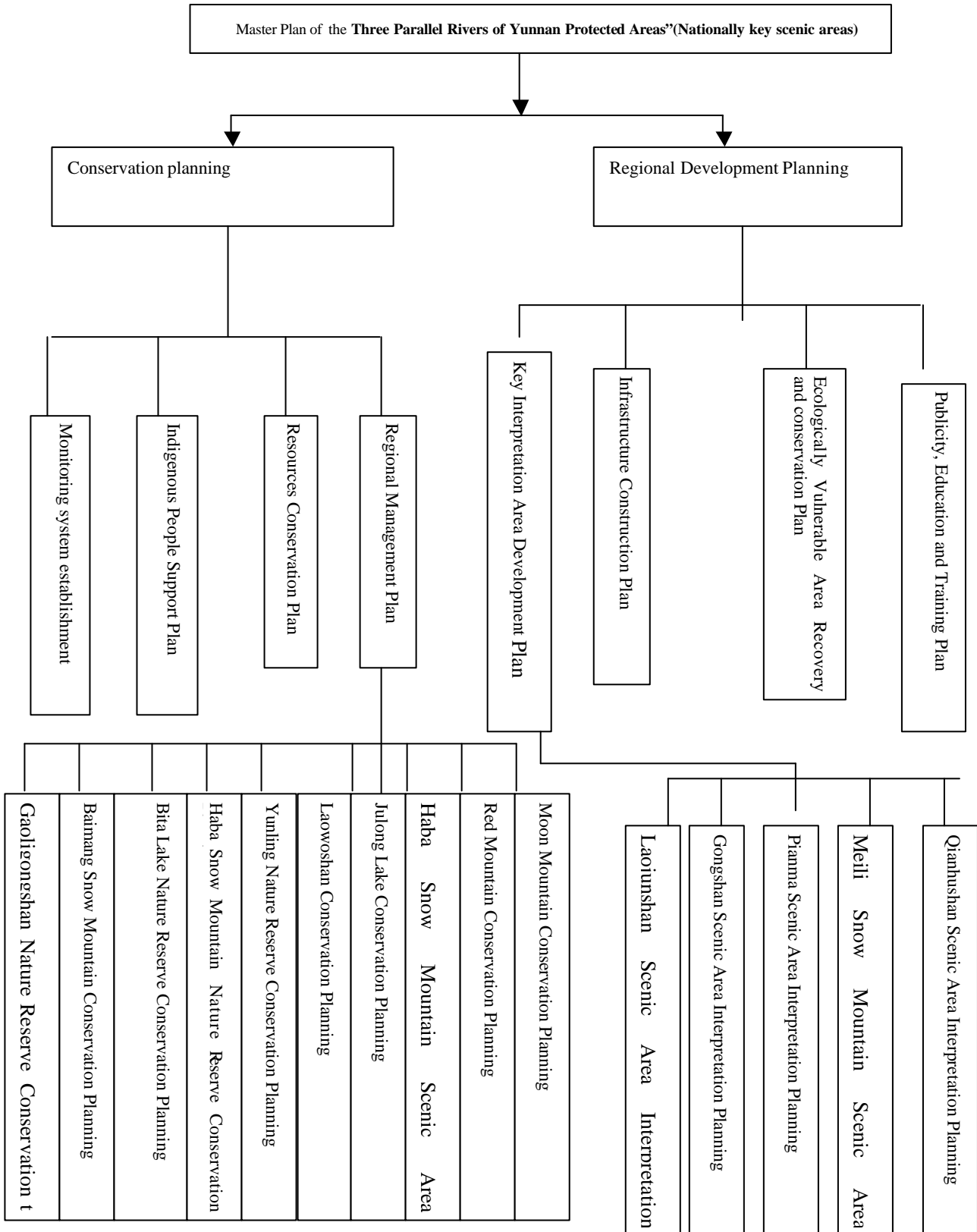
3. CONSERVATION AND MANAGEMENT PLAN

3.1 Conservation and Development Planning System and the Conservation Planning Progress

3.1.1 The Yunnan Provincial Government has formulated detailed plans on the “Three Parallel Rivers of Yunnan Protected Areas,” which will be implemented in stages. Following the suggestions of IUCN experts and the conservation management of the nominated area, the planning is further adjusted (detailed in the following framework. Table 5)

Table 5 Planning system of the “Three Parallel Rivers of Yunnan Protected Areas”

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA



3.1.2 To date, the Master Plan of the “Three Parallel Rivers of Yunnan Protected Area” has been completed and approved by the Ministry of Construction of China and submitted to the Central Government for approval. Since 2000, Yunnan Provincial Government has set a timetable for the formulation and implementation of the specific plans.

3.1.2.1 Up to September 2002, 9 conservation plans have been formulated and approved by the Yunnan Provincial Government for implementation. They are:

- ☞ Gaoligong Mountain Nature Reserve Conservation Plan
- ☞ Baimang Snow Mountain Nature Reserve Conservation Plan
- ☞ Haba Snow Mountain Nature Reserve Conservation Plan
- ☞ Red Mountain Scenic Area (Nature Reserve) Conservation Plan
- ☞ Meili Snow Mountain Scenic Area (Nature Reserve) Conservation and Interpretation Plan
- ☞ Gongshan Scenic Area (Nature Reserve) Conservation and Interpretation Plan
- ☞ Qinahushan Scenic Area (Nature Reserve) Conservation and Interpretation Plan

3.1.2.2 In 6 areas, data collection and inventories are going on and the conservation plans will be formulated and approved for implementation by 2003, namely:

- ☞ Yunling Mountain Nature Reserve Conservation Plan
- ☞ Laowoshan Conservation Plan
- ☞ Julong Lake Conservation Plan
- ☞ Haba Snow Mountain Scenic Area (Nature Reserve) Conservation Plan
- ☞ Yueliangshan (Moon Mountain) Conservation Plan
- ☞ Pianma Scenic Area Conservation plan

3.1.2.3 The Action Plan for Three Parallel Rivers Protected Area formulated by the Management Bureau of the “Three Parallel Rivers of Yunnan Protected Area” has been approved by the Provincial Government and submitted to the IUCN experts. We will soon organize the formulation of the *Monitoring System Establishment Plan, Indigenous People Support Plan, Regional Management Plan, and Publicity and Education Plan*. These plans will formulate and approved for implementation by 2004.

3.1.2.4 In order to strengthen the conservation and management of the core areas of the nominated area, based on the existing conservation and management plans, the Provincial World Heritage Management Committee will organize Yunnan Provincial Forestry committee, “Three Parallel Rivers of Yunnan Protected Area” Management Bureau, Yunnan Provincial Environment Bureau, Yunnan University, Kunming Institute of Zoology, Kunming Institute of Botany, Kunming University of Science and Technology and other related institutes to formulate a feasible *Resources Conservation and Management Plan of Three Parallel Rivers of Yunnan Protected Area*, focusing on the thorough research of biodiversity and geological diversity in the core areas. The plan will be finished before 2004 and implemented afterwards.

3.1.2.5 Governmental support and guarantee for the implementation of the plans.

Upon the approval by the Yunnan Provincial Government, all the conservation plans of the “Three Parallel Rivers Protected Area” will be legally put into effect and implemented the respective management agencies. These plans will serve as the guidance for the management of these areas. “Three Parallel Rivers of Yunnan

Protected Areas” Management Bureau is responsible for formulating and supervising the implementation of these plans. The Yunnan Provincial government will provide support in terms of funding, institutional organization, training and technological cooperation to guarantee the implementation of the plans. Yunnan World Heritage Management Committee will be delegated the tasks of implementing the specific supporting activities.

3.1.2.5.1 Institutional Organization

In order to strengthen the management capacity and technical forces of the nominated area, the present Management Bureau of “Three Parallel Rivers of Yunnan Protected Area” will be enlarged. Before 2004, the full staff members will reach 25. High quality management experts will be introduced, thus strengthening the planning, management, scientific research and monitoring systems. A management network covering all parts of the nominated area will be established as the final goal.

3.1.2.5.2 To increase the financial input in the basic researches, conservation facilities and administration of the nominated area

From 2003, the provincial government will include the management and conservation fund of the nominated area into the provincial annual budget planning, guaranteeing regular funding from the provincial government to implement the management plans. At the same time, the three prefectures where the nominated area is located should allocate fund input on resources management in their respective 5 year and 10 year plans.

From 2003-2008, the provincial government will input no less than 15 million yuan for the daily management, fundamental conservation and researches of the nominated area. And the input for special conservation programs should not be less than 200 million.

3.1.2.5.3 To improve the knowledge structure and overall quality of the grassroots management staff through training workshops and introduction of advanced management and research personnel so as to bring up high quality human resources for the smooth implementation of management plans.

In five years time, all the staff members of the nominated area should have at least vocational school or higher educational background and should attend at least one training workshop on world heritage conservation and management.

3.1.2.5.4 With the assistance of the provincial government, the management institutions should carry out extensive cooperation with international and national counterparts, making use of the rich capacity of these institutions, their advanced technologies to carry out thematic researches and technical proliferation. At present, a series of special technology proliferation programs are under way in the area, including “extending the use of fuel-efficient stoves,” “the information monitoring system for Meili Snow Mountain.” to name only a few.

3.2 THE CONSERVATION OF THE THREE GREAT RIVERS IN THE NOMINATED AREA

3.2.1 “Three Parallel Rivers of Yunnan Protect Areas” lies in the high elevation mountainous region in

western Yunnan. The region is characterized by complicated landscapes, varied climate patterns and sharp elevation differences. The indigenous peoples, as is usually the case, mostly live in the valley areas along the Three Rivers. The biological and geological resources in these areas are very much disturbed by human beings with years of cultivation activities. Considering the diversity and uniqueness of the natural resources of the area, the three rivers and the low elevation areas along the rivers are not included in the nominated area.

3.2.2 As the backbone of the nominated area, the three rivers share an integrated feature and enjoy uniqueness of their own. Over the years, the Chinese government has been taking positive measures to conserve the water resources, geological relics and uniqueness of the three rivers. In recent years, through the initiation of multiple domestic programs such as a logging ban, natural forest protection, erosion control, reforestation and poverty reduction and the active participation in international cooperation programs like 'Mekong River Sub-region Conservation and Development, the government has strengthened its efforts to rehabilitate and conserve the pristine nature of the three great rivers.

3.2.3 Following the suggestions of IUCN evaluation experts, the Management Bureau of the "Three Parallel Rivers of Yunnan Protected Area" will cooperate with Water Conservation Department, Forestry Department and Environment Protection Bureau and other research institutions and consulting firms to work out a comprehensive Conservation Plan of Jinsha River, Lancang River and Nujiang River watersheds. The plan will be finished before 2005.

3.3 THE MAJOR THREATS AND STRATEGIES TO BE DEVELOPED

The nominated area extends over a large area mostly situated in high elevation mountains, the ecological, geological and landscape resources are more or less threatened by natural disasters and human interventions. The Yunnan Provincial government and local management departments have formulated feasible plans to reduce the threats to the least degree.

3.3.1 Threats on Resources of the Nominated Area Imposed by Indigenous Peoples

The threats imposed by the indigenous people involve three aspects: population growth, poor education and relatively primitive production and living methods

3.3.1.1 Population Growth

According to the latest census, the total population of the nominated area is 278,000; the increasing population is imposing certain pressure to the natural resources conservation in the area.

In addition to strictly implementing "Family Planning" Program of the central government, the Provincial Government has taken a series of measures to control the population of the nominated area within the aforesaid objective. These measures include relocation, encouraging off-farm employment, preventing new settlements, and so on.

3.3.1.2 In recent years, in response to occasional occurrences of unauthorized timber harvesting and poaching

activities, the government has strengthened the enforcement of related laws and regulations. The management departments have taken measures to confiscate hunting tools and bring penalties to lawbreakers. Technical training workshops on resources conservation have been organized to improve the capacity and education level of the local people. Efforts have also been made to create employment opportunities so as to fundamentally eliminate cases damaging natural resources.

3.3.1.3 To deal with the threats on natural resources from slash-burn farming and shifting farming, the central and local governments have input funds to carry out special improvement of farming methods, i.e. reforestation of slopes with gradient over 25° and proliferating the practice of raising livestock in fenced dens and establishing seasonal grazing lands. Since 1998, the negative impact of traditional farming method has been reduced effectively to a lesser degree in the nominated area.

3.3.2 Threats from Underdeveloped Local Economy

Nujiang and Diqing Prefectures, the place where the nominated area is mainly located, are underdeveloped regions of Yunnan Province. About 70% of the counties in these two prefectures are among the poorest in China. Poor economic conditions of the local people make them extract their livelihood at the cost of consuming natural resources in unsustainable ways. This imposes a major threat to the biological resources and ecological resources in the nominated area.

To improve the situation, both the central and provincial government have organized and implemented “Poverty Alleviation Programs” in the area over the years. With the guidance of the government, the assistance of the enterprises and the participation of the local people, ecologically sound and technology-based economy has been promoted in the area. The specific measures involve technology, education and industrialization, all aiming at poverty alleviation in the area. To date, there have been satisfactory results in these fields.

3.3.3 Threats from Natural Disasters

The most common natural disasters in the area are mudslides and landslides. The Yunnan Provincial government has studied areas where these disasters occur and has formulated and implemented improvement programs, including relocation, biological or engineering control, water conservancy and erosion control, rescuing geological relics and biological resources and setting up monitoring systems.

In addition, preventive measures have been taken to limit the damage of other types of natural disasters, such as forest fires, pests and diseases, hailstorms and frost.

4. STATISTICS ON TOURISTS VISITING THE NOMINATED AREA

Table 6 Tourists Visiting the Nominated Area from 1999 to 2001

Region	1999 (person)	2000 (person)	2001 (person)	Percentage		Key Area
				Domestic %	International %	
Gaoligong Mountain	103,000	122,000	115,000	85	15	Gongshan County and Pianma
Meili Snow Mountain	23,000	27,000	31,000	90	10	Meili Snow Mountain
Julong Lake scenic area	700	950	1100	100	0	
Laowoshan	1,500	1,570	1,460	95	5	
Laojunshan	8,900	9,300	13,000	85	15	Liming, Jiushijiu Spring
Qianhuashan	7,600	8,700	9,500	95	5	Bigutiandi
Red Mountain	10,500	13,000	17,500	90	5	Shangri-la Gorge, Shudu Lake
Total	155,200	182,520	188,560			

5. MANAGEMENT STAFF AND MANAGERIAL POSTS

Table 7 Management Staff of the Nominated Area

Sub-Area	Total staff (persons)	Types of Managerial Post (persons)			
		Senior management personnel	Forest protection staff	Patrolling staff	Researchers
Gaoligong Mountain	1,226	187	680	298	61
Baimang-Meili Snow Mountain	1,072	201	422	367	82
Laowoshan	147	21	66	43	17
Yunlin	249	32	97	69	51
Haba snow Mountain	138	16	49	64	9
Qianhu Mountain	76	11	25	38	4
Laojunshan	332	31	107	171	23
Red Mountain	419	67	123	187	42
Total	3,659	566	1,569	1,237	289

6. FURTHER ELABORATION ON THE DIVERSITY OF WILDLIFE SPECIES IN THE NOMINATED AREA

6.1 Overview

From valley bottoms to mountain tops, from Dulong River (upper reaches of Irrawaddy) in the west to Jinsha River in the east, the wildlife in the nominated area represent the biodiversity of South Asia tropical, subtropical, temperate, tundra and alpine climate. The composition of fauna in the area is very complicated with frequent occurrences of endemic elements. Mosaic, disjunctive and vicarious distributions of epibiotic species and more recent species, a mix of monotypic genus and species and the presence of a high degree of endemism have made the nominated area especially rich in rare, endangered species, making the area a most

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREA

critical region for biodiversity research in China and even the northern hemisphere.

The biodiversity in the nominated area is exceptionally concentrated. In an area of only 5.5% of the total land area of Yunnan and only 0.2% that of China sees 173 species of mammals, 417 species of birds, 59 species of reptiles, 36 species of amphibians, 76 species of fishes and 31 species of insects and butterflies. With the exception of amphibians, insects and butterflies, the number of the wildlife species found in the area takes up more than half of all the species found in the Hengduan Mountains, with birds and beasts exceeding more than 70%~78%. About half of all the species in Yunnan and 25%~33% in China are found in the area. And some species are endemic to the area.

Table 8 Richness of Wildlife of the Nominated Area

	Mammals		Birds		Reptiles		Amphibians		Freshwater Fishes		Papilionidae-Parnasidae	
	Species	%*	Species	%*	Species	%*	Species	%*	Species	%*	Species	%*
Nominated Area	173		417		59		36		76		31	
Hengduan Mountains	221	78.28	590	70.68	117	50.42	81	44.44	137	55.47	79	39.24
Yunnan	300	57.67	802	52.00	152	38.82	112	32.14	382	19.70	85	36.47
Sichuan	222	77.92	625	60.60	85	69.41	91	39.56	241	31.54		
Tibet	126	137.30	473	88.16	58	101.72	39	92.31				
China	609	25.07	1260	33.10	403	14.64	278	12.95	1010	7.52	129	24.31
Myanmar	300	57.67	967	43.12	241	24.28	75	48.00			68	45.59
India	350	50.28	1200	37.75	453	13.24	182	19.78			77	40.30

*Percentage of species of the nominated area in regard to the areas compared

Table 9 Percentage of Endemic Wildlife Species in the Nominated Area

Category	Number of Wildlife Species in the Three Parallel Rivers Of Yunnan Protected Areas	Endemic Species	%
Beasts	173	81	46.82
Birds	417	22	5.27
Reptiles	59	27	45.76
Amphibians	36	25	69.44
Freshwater Fishes	76	35	46.05
Papilionidae-Parnassidae	27	8	29.62
Total	788	198	25.38

6.2 The Class A National Protected Mammals in the Nominated Area

Table 10 The Class A National Protected Wildlife in the Nominated Area

Name	Population size	Major Distribution Area
<i>Rhinopithecus bieti</i>	1,000—1500	Baimang Snow Mountain, Laojunshan and Yunling Mountain
<i>Trachypithecus pileatus</i>	300	Gaoligong Mountain
<i>Neofelis nebulosa</i>	80	The whole nominated area
<i>Panthera pardus</i>	30	The whole nominated area
<i>Uncia uncia</i>	20	Baimang Snow Mountain, Yunling Mountain, Red Mountain and Haba Snow Mountain
<i>Naemorhedus baileyi</i>	300-400	Gaoligong Mountain (Dulong River)
<i>Budorcas taxicolor</i>	400-500	Gaoligong Mountain
<i>Ciconia nigra</i>	30-50	Gaoligong Mountain and Red Mountain
<i>Aquila chrysaetos</i>	10-20	Baimang Snow Mountain Yunling Mountain, Red Mountain and Haba Snow Mountain
<i>Tetrastes sewerzowi</i>	200-300	Baimang Snow Mountain, Yunling Mountain, Red Mountain and Haba Snow Mountain
<i>Tragopan blythi</i>	10-20	Gaoligong Mountain (Gongshan County)
<i>Lophophorus sclateri</i>	200-250	Gaoligong Mountain(Gongshan, Fugong and Lushui Counties)
<i>Grus nigricollis</i>	30	Red Mountain (Bita Lake)

6.3 Population size and distribution of Yunnan Golden Monkey in “Three Parallel River Protected Area”

As an endemic species to the nominated area, Yunnan Golden Monkey, (altogether 12 groups and about 1,200-1,700 individuals), are found living inside the nominated area. The Golden monkey is the most typical species representing biodiversity in the nominated area. The major distribution areas are Baimang Snow Mountain, Laojunshan and Yunling Mountain. The largest group is found in Baimang Snow Mountain Nature Reserve, with a population of more than 250.

7. COMPARATIVE ANALYSIS ON THE VALUE OF THE RESOURCES BETWEEN THE NOMINATED AREA AND SIMILAR WORLD NATURAL HERITAGE SITES IN CHINA

“Three Parallel Rivers” Protected Area is a typical low latitude, high elevation alpine protected area. Up to 2001, China has three World Natural Heritage sites featuring mountain resources, namely Wuyishan, Wulingyuan, Jiuzhaigou (including Huanglong). In terms of the Danxia (purple sandstone) landform, the nominated area shares certain similar features with Wuyishan; in latitude, elevation and biodiversity, it bears similarities with Jiuzhaigou and Huanglong.

7.1 A Comparison of the Natural Resources Value of the Nominated Area and Jiuzhaigou (including Huanglong)

Comparatively, the uniqueness of the nominated area lies in its large size, great rivers, deep gorges, gigantic mountains and so on as is detailed in the following:

7.1.1 “Three Parallel Rivers Protected Area” has its undisputable geological wonder in that three great rivers runs parallel for more than 170 km, creating one of the peerless wonders in the world.

7.1.2 The nominated area forms the major part of the Hengduan Mountains, the southeastern extension of the Qinghai-Tibet Plateau. The unique geological formation and rich geological relics clearly record the major geological events such as the uplift of the Himalayan Mountains and the collision between Eurasian plate and Indian plate as well as the closure of the ancient Tethys Sea. This makes the nominated area important in displaying the geological history, unmatched by other World Natural Heritage sites in China.

7.1.3 The nominated area is a region with the richest biodiversity and ecosystems in China and even in the whole northern hemisphere. It has been listed on the top of China’s 17 areas with the richest biodiversity. This makes the nominated area the most typical and representative site among all the world natural heritage sites in China in terms of biodiversity.

7.1.4 A complete array of various ancient glacial relics and low latitude glaciers are distributed in Meili Snow Mountain, Baimang Snow Mountain, Haba Snow Mountain and other places of the nominated area. The integrity and diversity of glacial landscape features in the nominated area is more typical than those found in other World Natural Heritage Sites in China such as Jiuzhaigou.

7.1.5 More than 70% of the total population of golden monkey, the first grade national protected wildlife species and one of the most critically endangered species in the world, are distributed in the “Three Parallel Rivers of Yunnan Protected Area. In this respect, the nominated area is also enjoying a status that can not be expected by any other heritage sites in China.

7.1.6 The steepness of the nominated area means that about 90% of the Core Areas undisturbed by human activities. This pristine quality is unique among other heritage sites in China.

7.2 A comparison between the nominated area with Jiuzhaigou and Huanglong in terms of biogeographical units, species diversity and ecosystem diversity

7.2.1 Classification of Biogeographical Units

According to the Chinese bio-geographical division system (see *Overview of Biodiversity Conservation in China*, 1998, China Forestry Press), the nominated area belongs to Hengduan Mountain Unit in Southwest China Region, characterized by mighty mountains and deep gorges. Jiuzhaigou and Honglong belong to Qionglai-Mingshan Units of the same region. Emeishan belongs to Sichuan Basin Unit of the Central China Region.

According to Wu Zhengyi's newest research findings-(1998: *Floristic characteristics and Diversity of East Asian plants*), the Nominated Area, Jiuzhaigou and Huanglong belong to East Asiatic Kingdom, Sino-Himalayan Forest Subkingdom and Hengduan Mountain Region. More specifically, the nominated area belongs to the Three River-Gorges Subregion, while Jiuzhaigou and Huanglong belong to Taohe-Mingshan subregion. Emei Mountain belongs to East Asiatic Kingdom, Sino-Japanese forest subkingdom, Central China region, Sichuan basin subregion

Table 11 Bio-geographical Division of the World Natural Heritage Sites in China (1998)

Area	Bio-geographical Region
Nominated Area	Southwest China Region, Hengduan Mountain Subregion
Jiuzhaigou	Southwest China Region Qionglai-Mingshan Subregion
Huanglong	Southwest China Region, Qionglai-Mingshan Subregion
Emei Mountain	Central China Region, Sichuan Basin Subregion

Table 12 Floral Positions of the World Natural Heritage Sites in China

Place Name	Flora Region
Nominated Area	Sino-Himalayan forest subkingdom, Hengduan Mountain region, three river gorge subregion
Jiuzhaigou	Sino-Himalayan forest subkingdom, Hengduan Mountain region, Taohe-Mingshan subregion
Huanglong	Sino-Himalayan forest subkingdom, Hengduan Mountain region, Taohe-Mingshan subregion
Emeishan	Sino-Japan forest subkingdom, Central China region, Sichuan Basin subregion

7.2.2 Differences in ecosystem diversity between the nominated area and the other world natural heritage sites in China

The nominated area is known for its rich vertical vegetation spectra and distinctive east-west floral and faunal differences. Diverse and characteristic vegetative types such as the sclerophyllous evergreen broad-leaved forests, small-leaved shrub in dry and hot valleys, and *Taiwania flousiana* forests are found in the area. Presented below are the vertical vegetation spectra (from low to high elevation) in some sites of the nominated area:

The west side of the Gaoligong Mountain

Monsoon evergreen broadleaf forest? humid evergreen broadleaf forest? mid-montane humid evergreen broadleaf forest? mixed forests of coniferous and broadleaf species/deciduous broadleaf forests? spruce forests and *Abies* spp. forests? alpine meadow.

The east side of the Gaoligong Mountain

Yunnan pine forests? *Taiwania flousiana*/humid evergreen broadleaf forests? mid-montane humid evergreen broadleaf forest? mixed forests of broadleaf and coniferous forests(forests of deciduous species) ? spruce forests and *Abies* forests? alpine meadow.

The west side of the Biluoxueshan

Yunnan pine forest? humid evergreen broadleaf forests? mid-montane humid evergreen broadleaf forests? mixed forests of broadleaf and coniferous species/deciduous broadleaf forests? spruce forests and *Abies* forest? alpine meadow.

The east side of the Biluo Snow Mountain

Yunnan pine forest? *Pinus densata*/ sclerophyllous evergreen broadleaf forests? mixed forests of broadleaf and coniferous species/deciduous broadleaf forests? spruce forests and *Abies* forest? alpine meadow? alpine screes.

The west side of the Yunling Mountain Mountain

Small-leaved shrubs in the dry and hot valleys? *P. densata* forests/sclerophyllous evergreen broadleaf forests ? mixed forests of conifers and broadleaved species/deciduous broadleaved forests? forests of spruce, firs(*Abies* spp.) and larches? alpine meadows/alpine scrubs? alpine screes.

The east side of the Yunling Mountain Mountains

Small-leaved shrubs in the dry and hot valleys? *P. densata* forests/sclerophyllous evergreen broadleaf forests ? mixed forests of conifers and broadleaved species/deciduous broadleaved forests? forests of spruce, firs(*Abies* spp.) and larches? alpine meadows/alpine scrubs? alpine screes.

In comparison, systems existing in the nominated area like the monsoon broadleaf evergreen forests, sclerophyllous evergreen broadleaf forests, small-leaved shrubs in dry and hot valleys, *Taiwania flousiana* forests, alpine meadows, scrubs and screes are not found in Emeishan, the nearest natural heritage site in China from the nominated area.

In Jiuzhaigou and Huanglong, monsoon evergreen broadleaved forests, humid evergreen broadleaved forests, mid-montane humid evergreen broadleaf forests, sclerophyllous evergreen broadleaf forests, small-leaved shrub in dry and hot valleys and forests of *Taiwania flousiana* do not exist.

In all the other places, the vertical spectra of vegetation are not as rich as this nominated area.

To sum up, the nominated area has the most vegetation types in the world and the same is true with its uniqueness of vegetation types. The most unique vegetation types in the area are: sclerophyllous evergreen broadleaf forests, dry and hot valley small-leaved shrubs and forests of *Tawainia flousiana*. .

Table 13 Comparison between the Nominated Area and Jiuzhaigou, Huanglong and Emei Mountain in terms of Ecosystem Diversity

Vegetation Type	Nominated Area	Jiuzhaigou	Huanglong	Emei Mountain
Monsoon evergreen broadleaf forests	Yes	No	No	No
Humid evergreen broadleaf forests	Yes	No	No	Yes
mid-montane humid evergreen broadleaf forests	Yes	No	No	Yes
Mixed coniferous and broadleaf forest	Yes	Yes	Yes	Yes
Deciduous broadleaf forests	Yes	Yes	Yes	Yes
Forests of <i>Taiwania flousiana</i>	Yes	No	No	No
Yunnan pine forests	Yes	No	No	No
<i>Pinus densata</i> forests	Yes	Yes	Yes	No
Spruce forest	Yes	Yes	Yes	No
Fir forest (<i>Abies</i> spp.)	Yes	Yes	Yes	Yes
Larch forests	Yes	Yes	Yes	No
Alpine meadow	Yes	Yes	Yes	No
Sclerophyllous evergreen broadleaf forests	Yes	No	No	No
Alpine screes	Yes	Yes	Yes	Yes
Dry and hot valley small-leaved shrubs	Yes	No	No	No

7.2.3 Differences in the species diversity between the nominated area and the other natural heritage sites of China

The Nominated Area lies in the heartlands of Northwest Yunnan, one of the three biodiversity centers in China. In the area, there are 210 families, 1,200 genera and 6,000 species of vascular plants. Of these, 600 species are endemic to the “Three Parallel Rivers Region”. The rich endemic species of the area makes it top the list of the 17 “Key Protected Biodiversity Regions in China”. Biodiversity declines the farther it is from the nominated area.

Presented below are some of the endemic species of the nominated area:

Pteridophyta

Phlegmariurus yunnanensis (*Huperziaceae*), *Angiopteris esculenta* (*Angiopteridaceae*), *Phymatopteris*

chrysotricha (Polypodiaceae), *Sorolepidium glaciale* (Dryopteridaceae).

Gymnospermae

Abies ferreana (Pinaceae), *Abies ernestii* (Pinaceae), *Abies georgei* (Pinaceae), *Abies nukiangensis* (Pinaceae), *Larix speciosa* (Pinaceae), *Torreya yunnanensis* (Taxaceae).

Angiospermae

Aeschynanthus lasianthus, *Betula gynoterminalis*, *Codolopsis cordifolioides*, *Codolopsis gombalana*, *Corylopsis glaucescens*, *Corylus wangii*, *Euonymus fugongensis*, *Euonymus gongshanensis*, *Gentiana asparagoides*, *Gentiana forrestii*, *Impatiens lecomtei*, *Impatiens Microcentra*, *Lilium henricii*, *Lysionotus sessilifolius*, *Machilus gongshanensis*, *Manglietia kungshanensis*, *Monocladus macrophyllus*, *Mussaenda gongshanensis*, *Myricaria laxa*, *Pedicularis lamioides*, *Pedicularis yui*, *Polygonum unbrosium*, *Rhododendron albertsenianum*, *Rhododendron bijiangense*, *Rhododendron cilipes*, *Rhododendron codonanthum*, *Rhododendron flaviflorum*, *Rhododendron gongshanense*, *Rhododendron leptopeplum*, *Rhododendron nakotiltum*, *Rhododendron protistum*, *Rhododendron protistum var. giganteum*, *Rhododendron rhombifolium*, *Rhododendron rothschildii*, *Rhododendron rude*, *Rhododendron sinonuttallii*, *Saussurea picridifolia*, *Schefflera tenuis*.

Families endemic to the Southeast Asia found distributed in the nominated area mainly include *Circaeasteraceae*, *Eupteleaceae*, *Tetracentraceae*, *Dipentodontaceae*, *Kingdoniaceae*, *Stachyuraceae*, *Helwingiaceae*, *Toricelliaceae*, *Sladeniaceae*, *Eucommiaceae*, *Davidiaceae* and so on.

More than 1,500 species are first found and with the prototype specimen collected from the nominated area, for example, *Abies georgei* (Pinaceae), *Pseudotsuga forrestii* (Pinaceae), *Tsuga forrestii* (Pinaceae), *Acer forrestii* (Aceraceae), *Rhododendron wardii* (Ericaceae).

This diversity of species in the nominated area can not be compared to by the other places like the Emeishan and the Jiuzhaigou though more than 2,000 vascular plants are found in the Taohe-Mingshan Subregion where Jiuzhaigou and Huanglong are located and certain endemic species such as *Larix mastersiana* and *Cupressus chengiana* do exist in that region.

Table 14 Comparison of the Nominated Area, Jiuzhaigou, Huanglong and Emei Mountain in terms of Biodiversity

Plan Type	Nominated Area	Jiuzhaigou	Huanglong	Emei Mountain
Pteridophyta	500	100	100	200
Gymnospermae	40	20	20	20
Angiospermae	5,500	2,000	2,000	2,500

7.3 Comparison of the Danxia (purple sandstone) landform between Wuyishan and the nominated area

Laojunshan Nature Reserve is a part of the nominated area established, inter alia, to protect the Danxia

(purple sandstone) landform resources. According to Professor Huangjing, a professor with the Zhongshan University, the Danxia (purple sandstone) landform of Laojunshan is different from those of the other regions, particularly Wuyishan, in the following aspects.

7.3.1 Land Area: Danxia (purple sandstone) landform is widely distributed in southern China with more than 300 sites being reported. The most famous ones are: Daxiashan in Renhua, Guangdong Province, Wuyishan in Fujian Province and Longhushan in Jiangxi Province. But the area of these sites is most under 10,000 ha with only two sites exceeding this figure—Danxiashan (18,000 ha) and Zixin Basin (31,000 ha) in the bordering areas of Guangxi and Hunan Provinces.

The total land area of Danxia (purple sandstone) landform in Laojunshan and the adjacent area is 150,000ha, the largest ever known.

7.3.2 Elevation: The elevation (2,300m—4,200m) of the Danxia (purple sandstone) landform in the nominated area is much higher than that of other areas in China.

7.3.3 Origin: in addition to rain washing, weathering and dissolution processes, the Danxia (purple sandstone) landform in the nominated area is also a result of frozen - thaw due to the high elevation.

7.3.4 Surface Shape: Under the effect of argillaceous formation, diagonal bedding and declining bedding, spherical weathering make the surface of the rock forming tortoise shell like patterns, which is a unique landscape wonder.

7.3.5 Geological Formation: in association with the Danxia landform are some intrusive igneous rocks of Tertiary period due to the Himalayan mountain building. In the Danxia (purple sandstone) landform, there are amphibololite pinnacles. There are also jointing formations shown on the steep cliffs. These features form the most diversified geological landscape in the area.

7.3.6 Rock: The rock forming the Laojunshan Danxia (purple sandstone) landform is the relatively young sandstone developed in inland lakes and rivers in the Tertiary period. This rock layer overlying directly the oldest rock layer in Yunnan, Shigu Formation, formed in the Proterozoic era. These two layers of rock have an age difference of over 1.3 billion years, the most unique features of all the Danxia (purple sandstone) landform.

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREAS

CHINA



WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

THREE PARALLEL RIVERS OF YUNNAN PROTECTED AREAS (CHINA) ID N° 1083

1. DOCUMENTATION

- i) **IUCN/WCMC Data Sheet:** 10 references
- ii) **Additional Literature Consulted:** IUCN/WWF.1995. **Centres of Plant Diversity**. Vol. 2; Mittermeier, R. et.al., 2000. **Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions**. Cons. Intl.; Myers, N. et al, 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403,853-8; WWF/ICIMOD. 2001. **Ecoregion-Based Conservation in the Eastern Himalaya**; Thorsell, J. and L.Hamilton. 2002. **A Global Overview of Mountain Protected Areas on the World Heritage List**. Working Paper 6. IUCN; Gurung. H.1999. **Mountains of Asia**. ICIMOD; **China's Biodiversity: A Country Study**. 1998. China Environ. Science Press; Mackinnon, J. et.al. 1996. **A Biodiversity Review of China**. WWF; Birdlife Intl. 1992. **Putting Biodiversity on the Map**; Kingdon- Ward, F. 1985 (reprint); **The Mystery Rivers of Tibet**. Asian Publications; Wilkes, A. et.al. eds. **Links Between Cultures and Biodiversity**; Congress Proceedings. Yunnan Science and Technology Press.1033p. Fisher R.D. 1995. **Earth's Mystical Canyons** . Sunracer Publications Tucson. 152 p
- iii) **Consultations:** 8 external reviewers contacted. Various government officials from Yunnan Construction Bureau and relevant Provincial and Prefecture contacts as coordinated by WH Management Committee Office; representatives from Yunnan and Tsinghua Universities and Chinese Academy of Sciences; The Nature Conservancy China Programme.
- iv) **Field Visit:** Jim Thorsell and Les Molloy. October, 2002.

2. SUMMARY OF NATURAL VALUES

The Three Parallel Rivers nomination (1.7 mil.ha. in extent) consists of 15 protected areas in seven geographic clusters in the mountainous northwest of Yunnan Province. The 7 clusters are contained within a larger geographic unit of 3.4 mil. ha. administratively referred to as the Three Parallel Rivers National Park (IUCN Category VI) . The northern and western boundaries of the nomination abut Tibet and Myanmar respectively. The site name relates to the inclusion of sections of the upper reaches of three of the great rivers of Asia -the Yangtze (Jinsha), Mekong (Lancang) and Salween (Nu Jiang). Here the three rivers run roughly parallel, north to south, through steep gorges which in places are 3,000 m deep. At their closest, the three gorges are only 18 and 66 km apart, and for 70 km a fourth parallel river, the Dulong Jiang, flows along the western margin before entering Myanmar as one of the headwaters of the Irrawaddy River system.

The 1.7 million hectare site consists of a large portion of the Hengduan Shan, the major arc of mountains curving into Indochina from the eastern end of the Himalayas. The extent of the site is 310km from north to south (29° to 25° 30' N) and 180km from east to west (98° to 100° 30' E). More than 100 peaks in the Yunling, Gaoligong, Haba, and Baimang ranges are over 5000 m, while the

Meili Snow Mountains on the Tibetan AR border contain an impressive range of glaciated peaks over 6000 m. The highest peak is Mt Kawagebo (6740 m), from which the southernmost glacier in China, Mingyongqia, descends to an altitude of 2700 m.

The nominated area lies within an orogenic belt, where the edge of the Eurasian plate is being compressed by the underlying Indian plate as it is subducted along the line of the Lancang River fault. As the Hengduan Mountains were uplifted and intensely sheared, the pre-existing rivers continued to downcut, resulting in the extreme vertical relief of the mountains and gorges. Four types of igneous rock are evident: ultrabasic, basic, intermediate acid and alkali rock, as well as ophiolites (assemblages of igneous rocks that were once sea floor crust). The wide range of rock types throughout the site provide ample evidence of marine evolution under the Tethys seas (the shallow sea that existed during the early Mesozoic Era and separated the landmass of Laurasia in the north from Gondwanaland in the south).

The site also contains an outstanding variety of landforms, especially those in the alpine landscapes. There are more than 400 glacial lakes, each surrounded by moraines and other glacial landforms. A variety of spectacular alpine karst features include karst caves, calcareous tuff deposits and alpine karst peak clusters. There are also large areas of granite peaks and sandstone monoliths, the most impressive of the latter being the alpine *Danxia* landforms (old Tertiary red calcareous sandstone eroded by wind and water). Such varied terrain gives the region great scenic and geological interest.

The climate variety within the site is as outstanding as its topography, varying from subtropical in the valleys to frigid on the snow-covered mountain peaks. In the west, the south-western monsoon from the Indian Ocean brings an annual rainfall of up to 4,600 mm and creates a permanent snow-cover on peaks over 5,000m. The effect of this moist airstream drops off sharply as it moves eastwards, so that, at the other extreme, is in a rain-shadow and receives only 300 mm of rainfall annually. The Pacific Ocean monsoon affects the southeast of the site less strongly but does create humid, subtropical conditions in the valleys. Persistent fog limits human settlement above 2,500m.

The Three Parallel Rivers site is an epicentre of Chinese biodiversity. The southern part of the Hengduan Shan is considered by the Chinese Academy of Sciences to be the foremost of China's 11 terrestrial 'critical regions for biodiversity conservation'. It is also recognized as one of the world's 25 major biodiversity 'hotspots'. The reasons for the region's outstanding biodiversity are fourfold:

- The N-S river valleys have provided a corridor for the movement of biota for a long period. The Hengduan Mountains are a boundary 'mixing zone' for three of the world's major bio-geographical realms --East Asia, Southeast Asia and the Tibetan Plateau. The WWF consider this part of NW Yunnan to lie at the juncture of five of their 'Ecoregions'.
- The remarkable altitudinal gradients within the area, with mountain summits reaching 5000-6500 m while the riverbanks in the gorges below are around 1500-2000 m.
- The monsoonal climate (wet summers) affecting most of the area
- The ice-free status of most of NW Yunnan during the Pleistocene glaciations, allowing a variety of plants and animals to remain relatively undisturbed in refugia.

The site supports the richest diversity of higher plants in China as well as a remarkable range of fungi and lichens. Over 6000 plant species are listed and distributed within 22 recognised vegetation types, which range from the savannah shrublands of the hot, dry valley floors, through both evergreen and deciduous forests, and a wide variety of coniferous forests, to alpine meadows. These diverse vegetation communities contain over 20% of China's higher plants and 2,700 of the site's plants are endemic to China (distributed within 45 endemic

genera), while 600 of them are endemic to NW Yunnan; the Three Parallel Rivers Protected Areas contains the type locality for 1,500 of these plants. The history of the site has resulted in marked species differentiation from relict and primitive to highly evolved species, and 8.5% of China's rare and endangered species have been recorded in the area.

The site contains more than 200 species of rhododendrons, over 100 species each for gentians and primulas, and many species of lily and orchid, as well as many of the most noted Chinese endemic ornamental plants: ginkgo, the dove tree, four species of the blue poppy and two species of *Cycas*. The site is famous in European plant-collecting history because of the work of the Rev. Jean Marie Delavay, George Forrest, and Frank Kingdon-Ward (among many others) who made these plants known to Western horticulturalists. The diversity of conifers is outstanding; in addition to dozens of the main mountain forest trees (*Abies*, *Picea*, *Pinus*, *Cupressus* and *Larix*), there are many endemic or rare conifers. There are also around 20 rare and endangered plants which are relict species and survived the Pleistocene glaciations, including the Yunnan yew.

The area is the most outstanding region for animal diversity in China, and likely in the Northern Hemisphere. Two-thirds of the fauna within the nominated site are either endemic, or are of Himalayan-Hengduan Mountain types. The area is believed to support over 25% of China's animal species, many being relict and endangered. Many of China's rare and endangered animals are within the nominated area: 80 are listed in the Red Book of Chinese animals, 20 of which are considered endangered; 79 animals are listed on the CITES 1997 appendices; 57 are listed in the IUCN Red List of the World's Threatened Animals. Being near the boundaries of the East Asian, Southeast Asian and Tibetan biogeographic realms, the site also acts as a corridor where many species from each realm meet and reach their limits of distribution. Most of the rarer and endangered animals lie in the western part of the site, especially the long, narrow Gaoligong Shan border with Myanmar and the Yunling Mountains between the Lancang and Jinsha Rivers.

Approximately 40% of the protected areas in the nominated site are inhabited by some 278,000 people while 36,000 inhabitants reside in the core zones (mostly engaged in subsistence agriculture).

3. COMPARISONS WITH OTHER AREAS

Currently (Thorsell and Hamilton, 2002), 55 sites in the mountain biome have been inscribed on the World Heritage List, 16 of which are in the same biogeographic realm (Palearctic), two of which are in the Himalayan region (Sagarmatha and Nanda Devi) and three in China's eastern Himalaya. The Three Parallel Rivers area is distinct from all of these particularly for its high level of bio/geodiversity and due to the geographical feature of 4 major parallel rivers. Although the summits of its mountain peaks do not reach those of Sagarmatha (8848m) or Nanda Devi (7800m), the nominated area contains 118 peaks over 5000m elevation. The 1.7 mil. ha. extent of the nomination is much greater than the median size for other World Heritage mountain sites (285,000ha) and it would rank in the top 10 of the 55 existing sites in terms of size. Other major mountains in the eastern Himalaya – Hengduan Mountain system, such as in the Gongga Shan (Minya Konka), are also of high natural value but do not contain the exceptional bio/geodiversity of the Three Parallel Rivers area.

The Three Parallel Rivers of Yunnan Protected Areas site includes several of the 110 protected areas listed in the WCMC database for Udvardy's 'Sichuan Highlands' Biogeographic Province (BP). Its area of almost 1.7 million ha is not matched by any of the other protected areas in this BP. Three other protected areas within the 'Sichuan Highlands' are listed as natural World Heritage sites -the two natural sites, Jiuzhaigou (72,000 ha) and Huanglong (70,000 ha), both within the Min Shan in northern Sichuan, and a third mixed site,

Emei Shan, on the eastern margin of the Daxue Shan above the Chengdu Basin. Other mountainous forested nature reserves previously nominated within this province are Wolong and Longxi-Hongkou (the latter as part of the Mt Qingcheng nomination); both were deferred for further consideration by Chinese authorities as part of a future giant panda habitat nomination.

Jiuzhaigou and Huanglong are primarily listed because of their geochemical phenomena, especially their travertine terraces and pools. They are high altitude sites with none of the topographic complexity of the Three Parallel Rivers. They share some of the alpine and higher altitude coniferous and deciduous broadleaf forests, but have none of the humid or schlerophyllous evergreen broadleaf forests nor the *Taiwania* forests or the shrublands of the dry, hot river valleys. In terms of plant diversity, the proposed Three Parallel Rivers site is much richer than Jiuzhaigou, Huanglong, and Emei Shan (see Table 1 below).

Table 1: Numbers of plant species in World Heritage sites in ‘Sichuan Highlands’

Plant Type	3 Parallel Rivers	Jiuzhaigou	Huanglong	Emei Shan
Pteridophyta	500	100	100	200
Gymnospermae	40	20	20	20
Angiospermae	5,500	2,000	2,000	2,500

North-west Yunnan and the Hengduan Mountains have always been ranked very highly because of their biodiversity in all major international studies comparing the world's remaining natural habitats and their priorities for conservation. These global studies include: the *Global 200* of WWF, the 25 'hot spots' as defined by in Conservation International and Birdlife International priority bird areas. The Three Parallel Rivers site encompasses a large proportion of the Hengduan Mountains, and can therefore be considered to equate to a large extent with this global priority area for biodiversity.

The site covers less than 3% of the area of Yunnan (and only 0.2% of that of China) yet it contains an extraordinary concentration of animal biodiversity: 173 mammals (81 endemic), 414 birds (22 endemic), 59 reptiles (27 endemic), 36 amphibians (25 endemic), and 76 fish (35 endemic). When the diverse animal life within the nominated site is compared with the full Hengduan Mountains (see Table 2, below), it can be seen that the Three Parallel Rivers site contains 70-78% of the mammal and bird species, and 45-55% of the reptile, amphibian and fish species. This table also compares the animal diversity of the nominated site with that of the large neighbouring provinces of Tibet and Sichuan, and indeed, all of China, Myanmar or India. In all of these comparisons, the Three Parallel Rivers of Yunnan site stands out as an area of outstanding universal value in terms of its animal biodiversity.

Table 2: Richness of Wildlife in Three Parallel Rivers compared with neighbouring areas

Area	Mammals		Birds		Reptiles		Amphibians		Freshwater Fishes	
	Species	%*	Species	%*	Species	%*	Species	%*	Species	%*
3 Par. River	173		414		59		36		76	
Hengduan	221	78.3	590	70.7	117	50.4	81	44.4	137	55.5
Yunnan	300	57.7	802	52.0	152	38.8	112	32.1	382	19.7
Sichuan	222	77.9	625	60.6	85	69.4	91	39.6	241	31.5
Tibet	126	137	473	88.2	58	101.7	39	92.3		
China	609	25.1	1260	33.1	403	14.6	278	12.9	1010	7.5
Myanmar	300	57.7	967	43.1	241	24.3	75	48.0		
India	350	50.3	1200	37.7	453	13.2	182	19.8		

*species in the Three Parallel Rivers site as % of species in the area being compared

In landform terms, the extreme differences in altitude between the mountains and gorges within the site is matched elsewhere within the Himalaya-Karakoram mountain chain, especially the gorge of the Yarlung Tsangpo in Tibet, Kali Gandaki between Annapurna and Dhaulagiri in Nepal, and the Indus Gorge beneath Nanga Parbat in Pakistan (each of which exhibit an altitudinal difference of more than 5000 m). However, the proximity of the parallel gorges of four major rivers is unique in Asia and elsewhere. For comparative purposes, Fisher (1995) lists the depth at their narrowest point of some of the world's most dramatic canyons:

Table 3: The depth at their narrowest point of some of the world's most dramatic canyons

Yarlung Tsangpo, Tibet	5045 m
Kali Gandaki, Nepal	4375 m
Colca Canyon, Peru	3670 m
Tiger Leaping Gorge, China	3640 m
*Salween Canyon, China	3046 m
Pilaya Canyon, Bolivia	3030 m
*Mekong Canyon, China	2500 m
Urique Canyon, Mexico	1860 m
Sinforosa Canyon, Mexico	1818 m
Batopilas Canyon, Mexico	1790 m
Copper Canyon, Mexico	1750 m
Grand Canyon, USA	1416 m

* Part of nominated site

The assemblage of ophiolite rocks associated with the mountain uplift and folding in this vast orogenic belt also occurs in the Karakoram Mountains of northern Pakistan. The mountains of NW Yunnan and the Karakoram have both resulted from the collision of the Indian Plate with the Eurasian Plate. Consequently, there are many similarities between the diverse deep ocean floor and 'island arc' rocks of both areas, each squeezed to the east and west, respectively, of the main collision uplands -the Himalaya Range and Tibet-Qinghai Plateau. The Karakoram ophiolite sequences are a key geological feature of the Central Karakoram National Park, an extremely mountainous area of more than 1,000,000 ha that has been nominated for World Heritage status by Pakistan (but subsequently withdrawn after objections relating to the unresolved Kashmir sovereignty issue were raised by India).

The Danxia (red/purple sandstone) within the Laojun Shan portion of the Three Parallel Rivers site is outstanding in terms of its high elevation (up to 4200 m), which results in extreme 'freeze-thaw' weathering and contributes to some remarkable Danxia landform features, including the 'tortoise shell' surface pattern. The Danxia rocks in the site are also outstanding in that they overlie directly rocks which are considered to be 1.3 billion years older. Danxia landforms are found at similar latitudes in southern China and are a major landscape feature of another World Heritage site -Wuyi Shan in Fujian Province. However, the Danxia in Wuyi is at much lower altitude and smaller in extent (less than 10,000 ha) compared with the Danxia in Laojun Shan (150,000 ha).

In summary, the Three Parallel Rivers site has an exceptionally wide range of natural features ranging from distinctive topography and varied geology to particularly high levels of biodiversity. All this is set within the spectacular setting of glaciated peaks rising from 760m in the depth of river gorges to 6740m. As one reviewer noted, "it would be difficult to find an area in any other mountainous region that would surpass the ecological and topographical diversity of this proposed site".

4. INTEGRITY

4.1. Legal Status

The 15 different protected areas that make up the nomination have a range of legal designations including national and provincial level Nature Reserves, national Scenic Areas as well as small areas administered by two Prefectures and one County. A further complication is the division of the area into core areas totalling about 60% of the nominated site (corresponding to IUCN Category I and II) and Buffer Zones (corresponding to IUCN Category IV). Another 1.7 million hectares envelope the entire unit and serves as an additional de facto buffer. This multiple-use buffer zone (IUCN Category VI) includes most of the lower altitude lands in the Jinsha, Lancang and Nu Jiang river valleys, -- more accessible localities which for the most part are used for agriculture, settlement (800,000 human residents), transportation and industry. All land within the nominated area is thus under some form of protection but the level varies considerably from strict protection (ie. no human use) to areas where human settlement and subsistence agriculture occurs. One of the 15 areas (Yunling Nature Reserve) was approved for provincial Nature Reserve status in December, 2002. It is also be noted that a UNESCO Biosphere Reserve exists in part of the Gaoligong Nature Reserve which may (or should) be expanded in future.

If it were not for the establishment of the Yunnan Three Parallel Rivers Management Committee as the coordinating and management body for the site, IUCN would have greater concerns over the mix of legal designations, the overlap between the various administrative agencies and the balance between the core and buffer zones. On the broader issue of protected area legislation in China, IUCN also would suggest this may be in need of review in order to rationalise procedures but this is a separate issue from this evaluation. At this point in time the legal status is considered adequate but may prove difficult and require reassessment in future.

4.2. Boundaries and rationale for serial nomination

As noted in section 2, this is a serial nomination comprising 7 separate clusters. Each unit in the cluster is intended to add "a piece of the puzzle" and a representative sample of the range of the biogeodiversity of the Hengduan Mountains. One cluster highlights the glaciers of the high peaks, another is important for habitat of endangered species such as the Golden Monkey, while others incorporate the Danxia landforms, alpine lakes or other natural features. Such an approach in an area that has been modified by human activities over thousands of years is similar to that in other serial sites, such as the Central Eastern Rainforests of Australia where intervening areas have transformed the natural landscape. In the case of the Three Parallel Rivers site, several of the units are proximal but others are separated by a distance of 15 km. with little opportunity for corridors to link them. The boundary/area ratio is extremely high. Spaces between the units occur due to their separation by precipitous river gorges, high mountain glacial divides and/or human settlement. Such a condition will result in a certain biological isolation which the authorities are aware of and are studying options for linking the units via protected area 'corridors' (eg. in the Gaoligong Mountains corridor and in several of the gorge reserves). This initiative is strongly supported by IUCN as it would help considerably to enhance the integrity of the overall site.

Along with consideration of corridors, continuing inventory and research is leading to identification of additional areas that merit protection to more fully provide coverage to the range of natural values found in the region. For instance, it has been suggested that the Meili Snow Mt. reserve might be extended into the Tibetan Autonomous Region. Yulong Xue Shan is another area which is a sacred mountain of the Naxi and has high biological values on its western slopes. Tiger Leap Gorge (Jinsha Jiang) is adjacent to the Haba Snow Mt. reserve and, as one of the most dramatic expressions of an incised canyon, would also add to the

overall justification for the nominated area. Finally, as more information on existing reserves is obtained, an expansion of the core zones within the total area is expected over the next few years.

In light of these ongoing initiatives, IUCN suggested to the Chinese authorities during the field mission that a review of a revised protected area system in the Hengduan be presented in 3 years time. Such a recommendation from the Committee has been made in other cases and, although the delineation of the 7 clusters is considered adequate at this time, it is clear that potential for improvements exists.

Finally, it is noted that the Hengduan mountain area extends partially into Myanmar as well as into the neighbouring province of Sichuan. Discussions with nature conservation agencies in those jurisdictions should be held with a view to potential transboundary cooperation. One existing mechanism to do this is through the “Greater Mekong Subregion Programme”.

4.3. Management Planning

Substantial planning effort for the area has been conducted both at the regional level and site level. On the regional scale, the Yunnan Three Parallel Rivers Management Committee has prepared a “General Management Plan for the Three Parallel Rivers NP” as well as an “Action Plan on Protection of Three Parallel Rivers Area” and has begun a separate plan for resource conservation and monitoring. Nine of the 15 separate protected areas within the nominated site have approved management plans and the remaining 6 are underway with completion dates set for 2003. Additional support for the preparation of these plans has been contributed by the GEF and The Nature Conservancy (who also have prepared an ecoregion conservation plan and action plan for the area).

IUCN has not had the opportunity to review all the plans but several samples were seen during the field mission and were very well prepared (especially those prepared with the assistance of Tsinghua University). The General Management Plan, however, was of concern because it currently has a much greater emphasis on development (especially through tourism) than on nature conservation. The Plan mentions increases in the use of hydro power which, at the micro level can provide clean energy, but at more extensive levels could be potentially damaging to the natural values of the main rivers. This General Plan is due to be revised over the next few years and this imbalance between development and conservation should be corrected.

Planning documents thus abound, and implementation is now the key challenge. An impressive start has been made with visitor centres, boundary signs and field offices as visible examples of a conservation management presence. The Yunnan provincial government has budgeted 15 million yuan for each of the next 5 years for management and administration and an additional 200 million yuan for field conservation projects. The staffing of the World Heritage Management Bureau will grow to 25 by 2004. While all the signs for establishing an effective management regime are positive and government commitment is clearly behind conservation of the site IUCN has suggested to the authorities that a mission to review progress (along with expanded boundaries) should be conducted in 3-4 years time.

4.4. Human Activities

The nominated site is occupied by some 315,000 human residents (including 36,500 in the core zones) and has partially been modified by grazing, forestry, roads and settlement. For example, there are 27 villages in the Meili Snow Mts. reserve with 15 human economic activities recorded (mostly subsistence uses). This number of people within a World Heritage natural site is substantially higher than any other site (Lake Baikal in Russia has some 50,000 residents). Fortunately, much of the site is still relatively undisturbed and continues to

perform its ecosystem functions. This is partially explained by the inaccessibility of the higher slopes and the relatively light impact of the subsistence activities of the resident populations. Nevertheless, the “naturalness” of the nominated area, mostly at the lower elevations and plateaus, has been reduced by several thousand years of human use.

To partially address the problem, particularly on steep slopes where farming is unsustainable, the Chinese authorities have had a poverty alleviation programme in place for some years to provide alternate lands outside the protected areas. The policy is to aim for a reduction of an additional 16,000 people from the core zones and a limit placed of 298,000 in the buffer zone. In any case, the management of the site is certainly complicated by the presence of the human population (most of whom are ethnic minorities) and principles of consultation and participation must necessarily follow.

4.5 Tourism

Despite the remoteness of the area and the difficulty of access, the natural and cultural attractions of the region drew an estimated 188,500 visitors in 2001. About 90% of these were domestic in origin. Most of the tourism is concentrated in the peripheral areas of Gaoligong Mt. where hotels are available. Secondary sites are at the Meili Snow Mt. viewpoint and at the Shudu Lake. There are plans to develop driving, hiking, boating and riding opportunities; accommodation will be based in the main six (and 17 smaller) towns and the recreational use will be concentrated at the margins of the nominated site. Nevertheless, the General Management Plan forecasts that tourism growth will increase at least five-fold. Core areas do not allow entry to visitors.

From experience IUCN has gained with the inability of some World Heritage site managements to handle the pressures of rapidly-increasing numbers of tourists in other natural World Heritage sites in China, IUCN registers concern over future rapid tourist growth in the Three Parallel Rivers site. Although there is obvious potential for expansion of visitor facilities and attendant economic benefits to local communities, large scale mass tourism with its tendency to introduce inappropriate facilities is likely to cause damage to the intrinsic values of the site, and to the cultural stability of the minority peoples. Tourism development thus should be carefully planned in advance and its impacts closely monitored.

4.6 Involvement of NGO's and donors

Not surprisingly, the area has gained the attention of several international conservation groups who are supporting projects in the area, primarily TNC but also WWF and CI. The National Science Foundation (USA) has done resource inventory studies. The Government of the Netherlands is supporting community projects and the GEF has provided funds for management plans. Additional support from all these groups for the efforts of the Chinese authorities is an indication of the wide interest and concern about conservation in the area.

5. ADDITIONAL COMMENTS

5.1 Cultural values

Similar to many other countries in Asia, nature and culture are seen as inseparable in China. This is especially the case in the nominated area where the Tibetan, Lisu, Nu, Dulong, Bai, Pumi and Naxi minority peoples have been residing in the area and utilising its accessible resources (mostly on a subsistence basis) for thousands of years. The linkage of their rich cultures to the land are evident in many ways -through their religion and their mythology, art, dance, music, poetry and songs. The local status of the Meili Snow Mountain as a sacred area, off-limits to mountaineers, is one reflection of their reverence for wild nature and the vigour

of the local culture. The continued existence of the cultural heritage of the area is well-recognised and supported in the management plans and in the slogan and logo of the site.

5.2 Name of site

As the term "Three Parallel Rivers National Park" used in the original nomination document covers a much larger area than the nominated site (including lands which were not protected areas), a more accurate name for the site was requested. During the field inspection a technical group discussion on the issue suggested the alternative name: "Three Parallel Rivers Protected Areas". The name "Three Parallel Rivers of Yunnan Protected Areas" has been proposed by the Chinese authorities in a supplementary information report. Confirmation of this revised name is required.

6. APPLICATION OF WORLD HERITAGE CRITERIA

The Three Parallel Rivers of Yunnan Protected Areas have been nominated under all four natural criteria.

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

The site is of outstanding value for displaying the geological history of the last 50 million years associated with the collision of the Indian Plate with the Eurasian Plate, the closure of the ancient Tethys Sea, and the uplifting of the Himalaya Range and the Tibetan Plateau. These were major geological events in the evolution of the land surface of Asia and they are on-going. The diverse rock types within the site record this history and, in addition, the range of karst, granite monolith, and *Danxia* sandstone landforms in the alpine zone include some of the best of their type in the mountains of the world. *IUCN considers that the nominated site meets this criterion.*

Criterion (ii): Ecological processes

The dramatic expression of ecological processes in the Three Parallel Rivers site has resulted from a mix of geological, climatic and topographical effects. First, the location of the area within an active orographic belt has resulted in a wide range of rock substrates from igneous (four types) through to various sedimentary types including limestones, sandstones and conglomerates. An exceptional range of topographical features - from gorges to karst to glaciated peaks -- is associated with the site being at a "collision point" of tectonic plates. Add the fact that the area was a Pleistocene refugium and is located at a biogeographical convergence zone (ie. with temperate and tropical elements) and the physical foundations for evolution of its high biodiversity are all present. Along with the landscape diversity with a steep gradient of almost 6000m vertical, a monsoon climate affects most of the area and provides another favourable ecological stimulus that has allowed the full range of temperate Palearctic biomes to develop.

IUCN considers that the nominated site meets this criterion.

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

The deep, parallel gorges of the Jinsha, Lancang and Nu Jiang are the outstanding natural feature of the site; while large sections of the three rivers lie just outside the site boundaries, the river gorges are nevertheless the dominant scenic element in the area. High mountains are everywhere, with the glaciated peaks of the Meili, Baima and Haba Snow Mountains providing a spectacular scenic skyline. The Mingyongqia Glacier is a notable natural

phenomenon, descending to 2700 m altitude from Mt Kawagebo (6740 m), and is claimed to be the glacier descending to the lowest altitude for such a low latitude (28° N) in the northern hemisphere. Other outstanding scenic landforms are the alpine karst (especially the 'stone moon' in the Moon Mountain Scenic Area above the Nu Jiang Gorge) and the 'tortoise shell' weathering of the alpine Danxia.

IUCN considers that the nominated site meets this criterion.

Criterion (iv): Biodiversity and threatened species

Northwest Yunnan is the area of richest biodiversity in China and may be the most biologically diverse temperate region on earth. The site encompasses most of the natural habitats in the Hengduan Mountains, one of the world's most important remaining areas for the conservation of the earth's biodiversity. The outstanding topographic and climatic diversity of the site, coupled with its location at the juncture of the East Asia, Southeast Asia, and Tibetan Plateau biogeographical realms and its function as a N-S corridor for the movement of plants and animals (especially during the ice ages), marks it as a truly unique landscape, which still retains a high degree of natural character despite thousands of years of human habitation. As the last remaining stronghold for an extensive suite of rare and endangered plants and animals, the site is of outstanding universal value.

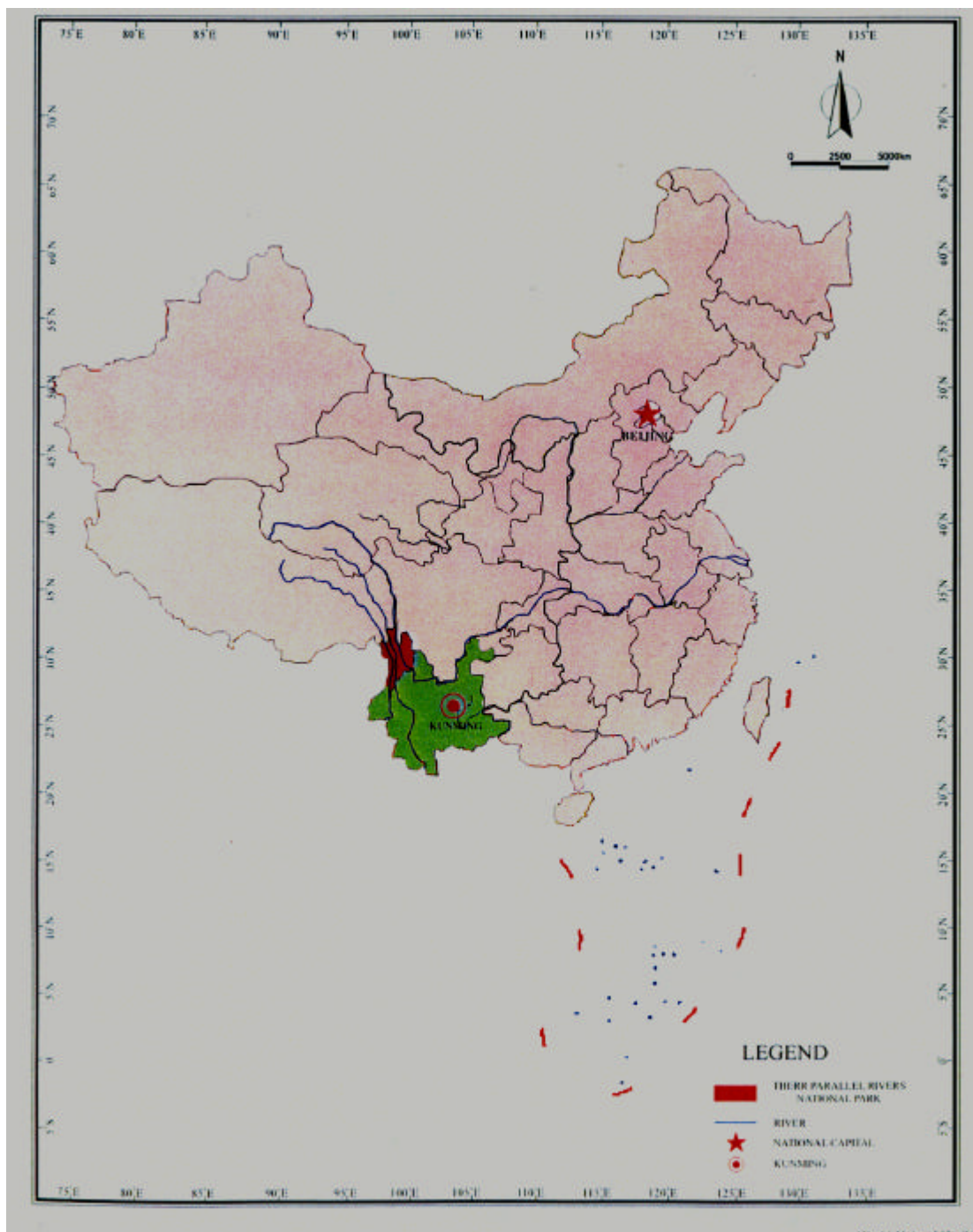
IUCN considers that the nominated site meets this criterion.

7. RECOMMENDATIONS

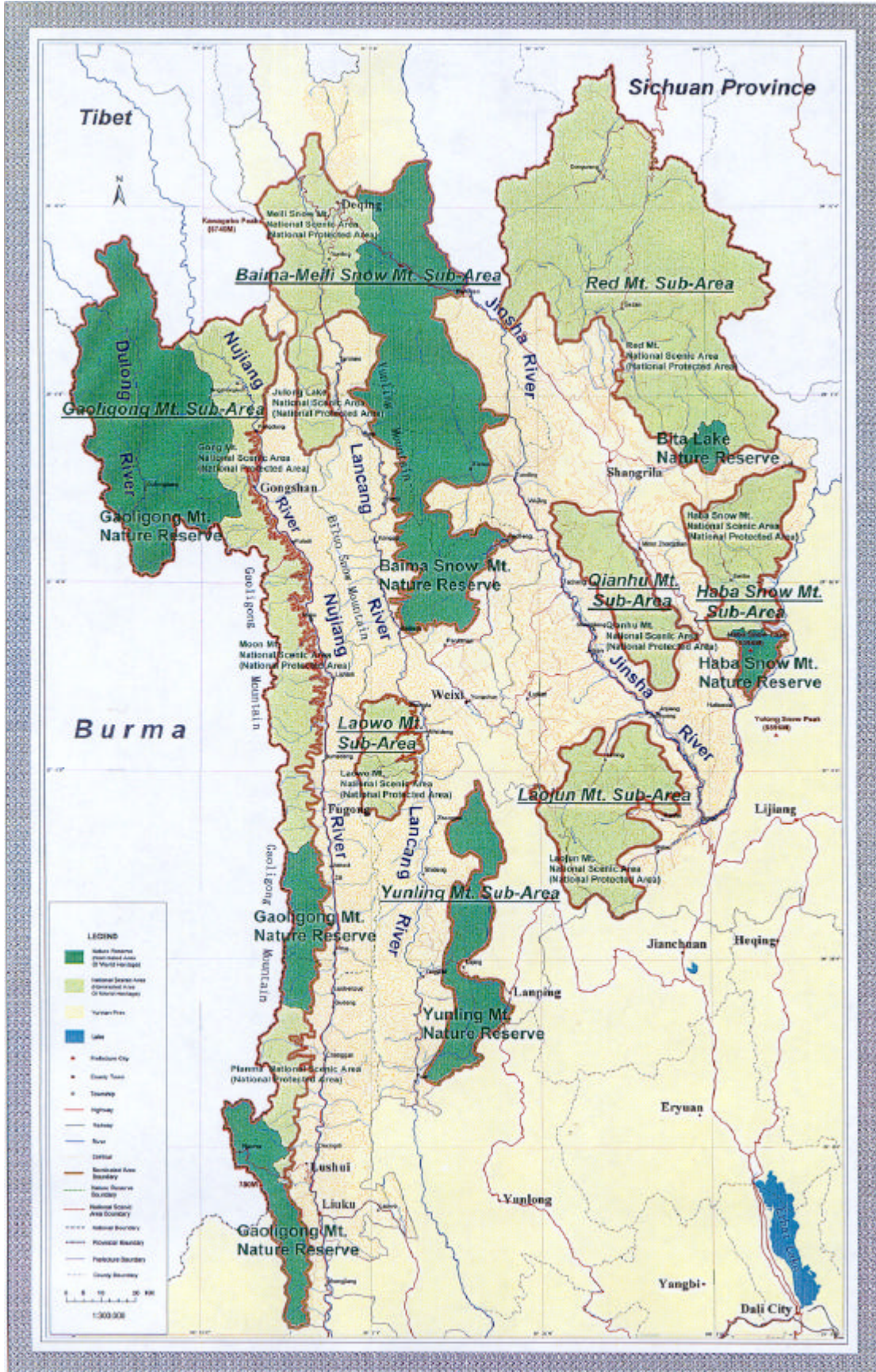
IUCN recommends that the Committee **inscribe** the Three Parallel Rivers of Yunnan Protected Areas on the World Heritage List on the basis of natural criteria (i), (ii), (iii) and (iv). The Committee is also advised, based on the above discussion on integrity issues, to make the following recommendations:

- Commend the authorities for the planning initiatives made to date and encourage completion of the remaining six protected area management plans and a revision of the General Management Plan,
- Note concerns over the nature and extent of future tourism (section 4.5 above), resident human population (section 4.4 above) and hydro development (section 4.3 above) that may affect the nominated site.
- Encourage the continued refinement of the boundaries of the site, including the addition of other areas of equally high natural value, expansion of core zones, controls over extent of resident populations and discussion of transboundary issues with neighbouring jurisdictions,
- Request the Chinese authorities to invite a mission in 3-4 years time to: (1) review progress with implementation of management plans and, (2) to assess revisions to the boundaries of the site.
- Confirm the revised name of the site with the Chinese authorities,
- Commend the cooperative efforts of The Nature Conservancy, WWF, the GEF and others for their assistance in strengthening the efforts of the Chinese authorities,

Map 1: General Location of Site



Map 2: Detailed Map of Site



CANDIDATURE AU PATRIMOINE MONDIAL - ÉVALUATION TECHNIQUE DE
L'UICN

AIRES PROTÉGÉES DES TROIS FLEUVES PARALLÈLES AU YUNNAN
(CHINE) ID N° 1083

1. DOCUMENTATION

- i) **Fiches techniques UICN/WCMC** : 10 références
- ii) **Littérature consultée** : IUCN/WWF.1995.**Centres of Plant Diversity**. Vol. 2; Mittermeier, R. et.al., 2000. **Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions**. Cons. Intl.; Myers, N. et al, 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403,853-8; WWF/ICIMOD. 2001. **Ecoregion-Based Conservation in the Eastern Himalaya**; Thorsell, J. and L.Hamilton. 2002. **A Global Overview of Mountain Protected Areas on the World Heritage List**. Working Paper 6. IUCN; Gurung. H.1999. **Mountains of Asia**. ICIMOD; **China's Biodiversity: A Country Study**. 1998. China Environ. Science Press; Mackinnon, J. et.al. 1996. **A Biodiversity Review of China**. WWF; Birdlife Intl. 1992. **Putting Biodiversity on the Map**; Kingdon-Ward, F. 1985 (reprint); **The Mystery Rivers of Tibet**. Asian Publications; Wilkes, A. et.al. eds. **Links Between Cultures and Biodiversity**: Congress Proceedings. Yunnan Science and Technology Press.1033p. Fisher R.D. 1995. **Earth's Mystical Canyons**. Sunracer Publications Tucson. 152 p
- iii) **Consultations** : huit évaluateurs indépendants. Différents fonctionnaires du Bureau de la construction du Yunnan et correspondants pertinents au niveau provincial et de la préfecture, selon les dispositions prises par le bureau du Comité de gestion du patrimoine mondial; représentants des universités du Yunnan et de Tsinghua et de l'Académie des sciences de Chine; programme Chine de The Nature Conservancy.
- iv) **Visite du site** : Jim Thorsell et Les Molloy. Octobre 2002.

2. RÉSUMÉ DES CARACTÉRISTIQUES NATURELLES

Le site proposé, les Aires protégées des trois fleuves parallèles au Yunnan (1,7 million d'hectares) se compose de 15 aires protégées réparties en sept groupes géographiques dans le nord-ouest montagneux de la province du Yunnan. Les sept groupes sont eux-mêmes contenus dans une plus grande unité géographique qui couvre 3,4 millions d'hectares et porte le nom administratif de « Parc national des trois fleuves parallèles » (Catégorie VI de l'UICN). Les limites septentrionales et occidentales du site touchent respectivement au Tibet et au Myanmar. Le nom du site évoque le fait que l'on y trouve des secteurs du cours supérieur de trois des grands fleuves d'Asie – le Yangtze (Jinsha), le Mékong (Lancang) et le Salween (Nu Jiang). Dans cette région, les trois fleuves coulent pratiquement en parallèle, du nord vers le sud, s'enfonçant dans des gorges vertigineuses qui atteignent, par endroit, 3000 m de profondeur. Là où elles se rapprochent le plus, les trois gorges ne sont qu'à 18 et 66 km de distance et sur 70 km le long du versant occidental, un quatrième fleuve, le Dulong Jiang, coule en parallèle avant de pénétrer au Myanmar où il devient une des sources de l'Irrawaddy.

Le site de 1,7 million d'hectares comprend une grande partie du Hengduan Shan, le principal arc montagneux qui pénètre en Indochine en s'arc-boutant depuis l'extrémité orientale de

l'Himalaya. Le site mesure 310 km du nord au sud (29° à 25°30' N) et 180 km de l'est à l'ouest (98° à 100°30' E). Plus de 100 sommets, dans les chaînes de Yunling, Gaoligong, Haba et Baimang, dépassent 5000 m, tandis que les montagnes des neiges du Meili, à la frontière tibétaine, contiennent un ensemble impressionnant de pics glacés dépassant 6000 m. Du pic le plus élevé, le mont Kawagebo (6740 m), descend, jusqu'à 2700m, le glacier le plus méridional de Chine, le Mingyongqia.

Le site proposé se trouve dans une ceinture orogénique, à l'endroit où les bords de la plaque eurasienne sont comprimés par la plaque indienne sous-jacente qui s'enfonce le long de la faille du fleuve Lancang. Tandis que la chaîne du Hengduan était relevée et intensément cisailée, les fleuves préexistants continuaient de s'encaisser, façonnant un relief extrêmement vertical et des gorges vertigineuses. On peut mettre en évidence quatre types de roches magmatiques : ultrabasiques, basiques, médio-acides et alcalines, ainsi que des ophiolites (assemblages de roches magmatiques qui formaient jadis la croûte océanique). La vaste gamme de types rocheux que l'on trouve dans tout le site illustre amplement l'évolution marine à l'époque où la région était recouverte par la Tethys (mer peu profonde du début de l'ère mésozoïque qui séparait les masses terrestres de *Laurasia*, au nord, de celles du *Gondwana*, au sud).

Le site contient aussi une variété exceptionnelle de formes de reliefs, en particulier dans les paysages alpins. Il y a plus de 400 lacs glaciaires, chacun étant entouré de moraines et d'autres formes de reliefs glaciaires. Parmi la grande variété de caractéristiques karstiques alpines spectaculaires, on trouve des grottes karstiques, des dépôts de tuf calcaire et des groupes de pics alpins karstiques. Il y a aussi de vastes zones de pics granitiques et des monolithes gréseux, dont le plus impressionnant est le relief alpin *Danxia* (un grès rouge calcaire ancien datant du Tertiaire, érodé par le vent et l'eau). Une topographie aussi variée apporte à cette région un immense intérêt esthétique et géologique.

La diversité du climat du site – de subtropical dans les vallées à glacial sur les cimes montagneuses couronnées de neige – est aussi extraordinaire que sa topographie. À l'ouest, la mousson du sud-ouest qui vient de l'océan Indien apporte des pluies annuelles qui atteignent 4600 mm et crée des neiges éternelles au-dessus de 5000 m. L'effet des courants humides diminue brutalement vers l'est, de sorte que l'autre extrémité, située dans l'ombre pluviométrique et abritée des pluies, ne reçoit que 300 mm par an. La mousson de l'océan Pacifique touche moins fortement le sud-est du site mais crée, néanmoins, des conditions humides et subtropicales dans les vallées. Le brouillard persistant limite l'établissement humain au-dessus de 2500 m.

Le site des trois fleuves parallèles est un épicode de la diversité biologique chinoise. La partie méridionale du Hengduan Shan est considérée, par l'Académie des sciences de Chine, comme la plus importante des 11 régions terrestres chinoises d'importance critique pour la conservation de la biodiversité. Elle est aussi reconnue comme un des 25 principaux «points chauds» de la biodiversité dans le monde. Les raisons qui expliquent la diversité biologique exceptionnelle de la région sont au nombre de quatre:

- Les vallées fluviales, de direction nord-sud, qui servent depuis fort longtemps de couloir de migration du biote. La chaîne du Hengduan est une «zone de mélange» à la frontière de trois des principaux domaines biogéographiques du monde – Asie de l'Est, Asie du Sud-Est et Plateau tibétain. Le WWF considère que ce secteur nord-ouest du Yunnan est à la jonction de cinq de ses «écorégions».
- Les gradients altitudinaux remarquables de la région, avec des sommets qui atteignent 5000 à 6500 m, tandis que les berges des fleuves, dans les gorges, en bas, sont à environ 1500 à 2000 m.
- Le climat de mousson (étés humides) qui touche la majeure partie de la région.

- Le fait que l'essentiel du nord-ouest du Yunnan soit resté libre de glaces durant les glaciations du pléistocène a permis à une diversité de plantes et d'animaux de survivre dans des refuges en étant relativement peu perturbés.

Le site possède la plus grande diversité de plantes supérieures de Chine ainsi qu'un éventail remarquable de champignons et de lichens. Plus de 6000 espèces de plantes sont décrites et distribuées en 22 types de végétation reconnus qui vont de la savane arbustive des sols chauds et secs des vallées aux prairies alpines en passant par des forêts sempervirentes et décidues et par une grande diversité de forêts de conifères. Ces communautés végétales diverses contiennent plus de 20% des plantes supérieures de Chine et 2700 des plantes du site sont endémiques de la Chine (distribuées en 45 genres endémiques), tandis que 600 d'entre elles sont endémiques du nord-ouest du Yunnan; les Aires protégées des trois fleuves parallèles au Yunnan contiennent la localité type de 1500 de ces plantes. L'histoire du site a contribué à une différenciation marquée des espèces entre plantes reliques et primitives et plantes extrêmement évoluées et 8,5% des espèces rares et en danger de Chine sont décrites dans la région.

Le site contient plus de 200 espèces de rhododendrons, plus de 100 espèces de gentianes et plus de 100 espèces de primulacées, ainsi que de nombreuses espèces de lys et d'orchidées et bien des plantes ornementales endémiques de Chine les plus remarquables: le ginkgo, la davidée involuquée, quatre espèces de pavots bleus et deux espèces de cycas. Le site est célèbre dans l'histoire de la botanique européenne grâce aux travaux du révérend Jean-Marie Delavay, de George Forrest et de Frank Kingdon-Ward (parmi beaucoup d'autres) qui ont fait connaître ces plantes aux horticulteurs occidentaux. La diversité des conifères est époustouflante; outre quelques dizaines des principaux arbres des forêts de montagne (*Abies*, *Picea*, *Pinus*, *Cupressus* et *Larix*), il y a de nombreux conifères endémiques ou rares. On y trouve aussi environ 20 plantes rares et en danger qui sont des plantes reliques ayant survécu aux glaciations du pléistocène, notamment l'if du Yunnan.

Il s'agit de la région la plus exceptionnelle de la Chine, et probablement de l'hémisphère nord, pour la diversité animale. Les deux tiers de la faune du site proposé sont soit endémiques, soit des types montagnards de l'Himalaya-Hengduan. On pense que la région entretient plus de 25% des espèces animales de Chine dont beaucoup sont des espèces reliques et en danger. Beaucoup d'animaux rares et en danger de Chine se trouvent dans le site proposé: 80 sont inscrits dans le Livre rouge des animaux chinois, et parmi eux 20 sont considérés en danger; 79 animaux étaient inscrits aux annexes de la CITES en 1997; 57 sont inscrits dans la Liste rouge de l'UICN des animaux menacés. Étant situé à proximité des limites des domaines biogéographiques d'Asie de l'Est, d'Asie du Sud-Est et du Tibet, le site sert aussi de corridor où de nombreuses espèces de chacun des domaines atteignent les limites de leur distribution. La plupart des animaux les plus rares et en danger se trouvent dans le secteur occidental du site, en particulier le long de la frontière étroite du Gaoligong Shan avec le Myanmar et les montagnes du Yunling, entre les fleuves Lancang et Jinsha.

Environ 40% des aires protégées du site proposé sont occupées par quelque 278 000 personnes tandis que 36 000 habitants résident dans les zones centrales (et pratiquent surtout une agriculture de subsistance).

3. COMPARAISON AVEC D'AUTRES SITES

Actuellement (Thorsell et Hamilton, 2002), 55 sites du biome montagnard ont été inscrits sur la Liste du patrimoine mondial; 16 se trouvent dans le même domaine biogéographique (Paléarctique), deux dans la région himalayenne (Sagamartha et Nanda Devi) et trois dans l'Himalaya chinoise orientale. Le site des trois fleuves parallèles se distingue de tous les autres pour son haut niveau de biogéodiversité et en raison des caractéristiques géographiques de quatre grands fleuves parallèles. Bien que l'altitude n'atteigne pas celle du Sagamartha

(8848 m) ou du Nanda Devi (7800 m), le site proposé contient 118 pics qui culminent à plus de 5000 m. La superficie (1,7 million ha) est beaucoup plus grande que la taille moyenne des autres sites de montagne du patrimoine mondial (285 000 ha) et se rangerait dans les 10 premiers des 55 biens inscrits du point de vue de ses dimensions. D'autres grandes montagnes du système Himalaya orientale-Hengduan, telles que le Gongga Shan (Minya Konka), ont aussi une grande valeur naturelle mais ne contiennent pas la biogéodiversité exceptionnelle de la région des trois fleuves parallèles.

Les Aires protégées des trois fleuves parallèles au Yunnan comprennent plusieurs des 110 aires protégées inscrites dans la base des données du WCMC pour la Province biogéographique Udvardy des «hautes terres du Sichuan». Cette superficie de près de 1,7 million d'hectares n'est égalée par aucune autre aire protégée de cette Province biogéographique. Trois autres aires protégées des «hautes terres du Sichuan» sont inscrites en tant que Biens naturels du patrimoine mondial – les deux sites naturels, Jiuzhaigou (72 000 ha) et Huanglong (70 000 ha), tous deux situés dans le Min Shan, au nord du Sichuan, et le site mixte, Emei Shan, à la lisière orientale du Daxue Shan, au-dessus du bassin de Chengdu. D'autres réserves naturelles montagnardes boisées ont déjà été proposées dans cette province : Wolong et Longxi-Hongkou (ce dernier dans le cadre du site proposé du mont Qingcheng); toutes deux ont été différées et renvoyées pour examen aux autorités chinoises dans le cadre de la future proposition concernant l'habitat du grand panda.

Jiuzhaigou et Huanglong sont surtout inscrits pour leurs phénomènes géochimiques, en particulier leurs terrasses et leurs bassins de travertin. Il s'agit de sites de haute altitude qui ne présentent pas la complexité topographique des trois fleuves parallèles. Ils partagent certaines des forêts de conifères et des forêts de feuillus décidues, alpines et de plus haute altitude, mais ne présentent aucune des forêts de feuillus sempervirentes, humides ou sclérophylles ni des forêts de *Taiwania* ou des buissons des vallées arides et chaudes. Du point de vue de la diversité des plantes, le site proposé des trois fleuves parallèles est beaucoup plus riche que Jiuzhaigou, Huanglong et Emei Shan (voir tableau 1 ci-dessous).

Tableau 1: Nombre d'espèces de plantes dans les biens du patrimoine mondial des «hautes terres du Sichuan»

Type de plante	Trois fleuves parallèles	Jiuzhaigou	Huanglong	Emei Shan
Pteridophyta	500	100	100	200
Gymnospermae	40	20	20	20
Angiospermae	5500	2000	2000	2500

Dans toutes les grandes études internationales qui comparent les derniers habitats naturels de la planète et leur priorité du point de vue de la conservation, les montagnes du nord-ouest du Yunnan et du Hengduan ont toujours été extrêmement bien placées pour leur diversité biologique. Ces études comprennent: *Global 200* du WWF, les 25 «points chauds» définis par de Conservation International et les zones prioritaires pour les oiseaux de BirdLife International. Le site des trois fleuves parallèles comprend une bonne proportion du Hengduan Shan et peut donc être considéré comme l'égal, dans une large mesure, de cette zone prioritaire au niveau mondial pour la biodiversité.

Bien que le site couvre moins de 3% de la superficie du Yunnan (et seulement 0,2% de celle de la Chine), il présente une concentration extraordinaire de biodiversité animale: 173 mammifères (81 endémiques), 414 oiseaux (22 endémiques), 59 reptiles (27 endémiques) 36 amphibiens (25 endémiques) et 76 poissons (35 endémiques). Lorsqu'on compare la vie animale diverse du site proposé avec celle de l'ensemble du Hengduan Shan (voir tableau 2, ci-après), on peut constater que le site des trois fleuves parallèles contient 70 à 78% des espèces de mammifères et d'oiseaux et 45 à 55% des espèces de reptiles, d'amphibiens et de

poissons. Ce tableau fait également une comparaison entre la diversité animale du site proposé et celle des grandes provinces voisines du Tibet et du Sichuan et, en réalité, de toute la Chine, du Myanmar ou de l'Inde. Dans toutes ces comparaisons, le site des trois fleuves parallèles au Yunnan se distingue par sa valeur universelle exceptionnelle du point de vue de la biodiversité animale.

Tableau 2: Richesse de la faune sauvage dans le site des trois fleuves parallèles par comparaison avec les régions voisines

Région	Mammifères		Oiseaux		Reptiles		Amphibiens		Poissons d'eau douce	
	Espèces	%*	Espèces	%*	Espèces	%*	Espèces	%*	Espèces	%*
Trois fleuves parallèles	173		414		59		36		76	
Hengduan	221	78,3	590	70,7	117	50,4	81	44,4	137	55,5
Yunnan	300	57,7	802	52,0	152	38,8	112	32,1	382	19,7
Sichuan	222	77,9	625	60,6	85	69,4	91	39,6	241	31,5
Tibet	126	137	473	88,2	58	101,7	39	92,3		
Chine	609	25,1	1260	33,1	403	14,6	278	12,9	1010	7,5
Myanmar	300	57,7	967	43,1	241	24,3	75	48,0		
Inde	350	50,3	1200	37,7	453	13,2	182	19,8		

* espèces dans le site des trois fleuves parallèles en % du nombre d'espèces de la région comparée.

Du point de vue topographique, les différences extrêmes d'altitude entre les montagnes et les gorges du site ont leur égal dans la chaîne de l'Himalaya-Karakoram, notamment la gorge de Yarlung Tsangpo au Tibet, Kali Gandaki entre l'Annapurna et le Dhaulagiri au Népal, la gorge de l'Indus au-dessous du Nanga Parbat, au Pakistan (chacune présente une différence altitudinale de plus de 5000 m). Toutefois, la proximité des gorges parallèles de quatre grands fleuves est unique en Asie et dans le monde. Aux fins de comparaison, Fisher (1995) énumère les profondeurs, en leur point le plus étroit, de certains des canyons les plus spectaculaires du monde:

Tableau 3: La profondeur au point le plus étroit de certains des canyons les plus spectaculaires du monde

Yarlung Tsangpo, Tibet	5045 m
Kali Gandaki, Népal	4375 m
Canyon de Colca, Pérou	3670 m
Gorge du saut du Tigre, Chine	3640 m
*Canyon du Salween, Chine	3046 m
Canyon de Pilaya, Bolivie	3030 m
*Canyon du Mékong, Chine	2500 m
Canyon Urique, Mexique	1860 m
Canyon Sinforosa, Mexique	1818 m
Canyon Batopilas, Mexique	1790 m
Copper Canyon, Mexique	1750 m
Grand Canyon, É.-U.	1416 m

* Fait partie du site proposé.

L'assemblage d'ophiolites associé au relèvement et au plissement des montagnes, dans cette vaste ceinture orogénique, est également présent dans le Karakoram, au nord du Pakistan. Les montagnes du nord-ouest du Yunnan et du Karakoram résultent de la collision entre la plaque indienne et la plaque eurasiennne. En conséquence, il y a de nombreuses similitudes entre les

roches diverses du lit océanique profond et les roches de «l'arc insulaire» des deux régions, chacune étant compressée à l'est et à l'ouest, respectivement, des principales hautes terres nées de la collision – la chaîne de l'Himalaya et le plateau du Tibet-Qinghai. Les séquences d'ophiolites du Karakoram sont une caractéristique géologique clé du Parc national du Karakoram central, une zone extrêmement montagneuse de plus de 1 000 000 ha qui a été proposée par le Pakistan pour inscription sur la Liste du patrimoine mondial (par la suite, l'Inde ayant émis des objections en raison de la question non résolue de la souveraineté sur le Cachemire, la proposition a été retirée).

Le *Danxia* (grès rouge/pourpre) que l'on trouve dans le secteur du Laojun Shan du site des trois fleuves parallèles est exceptionnel pour son altitude élevée (jusqu'à 4200 m) à laquelle les conditions de «gel-dégel» favorisent une érosion extrême et la présence de quelques caractéristiques topographiques remarquables telles que le modelé «écaille de tortue». Les roches *Danxia* du site sont également exceptionnelles parce qu'elles recouvrent directement des roches qui auraient 1,3 milliard d'années. On trouve un relief de *Danxia* à des latitudes semblables, dans le sud de la Chine et c'est une caractéristique essentielle du paysage d'un autre Bien du patrimoine mondial – Wuyi Shan, dans la province de Fujian. Toutefois, le *Danxia* de Wuyi est à plus basse altitude et plus petit en étendue (moins de 10 000 ha), que celui de Laojun Shan qui couvre 150 000 ha.

En résumé, le site des trois fleuves parallèles présente une gamme exceptionnellement vaste de caractéristiques naturelles qui vont d'une topographie distincte et d'une géologie variée à une biodiversité particulièrement élevée. Tout cela se trouve enchâssé dans un écrin spectaculaire de pics glacés s'élevant de 760 m dans la profondeur des gorges des fleuves à 6740 m. Un évaluateur a noté: «Il serait difficile de trouver un endroit, dans une autre région montagneuse du monde quelle qu'elle soit, qui puisse surpasser le site proposé dans sa diversité écologique et topographique.»

4. INTÉGRITÉ

4.1 Statut juridique

Les 15 aires protégées qui forment le site proposé ont reçu différentes appellations juridiques, y compris celles de réserve naturelle nationale et provinciale et de zone panoramique nationale ou sont de petites zones administrées par deux préfectures et un comté. Autre complication, la division de la région en zones centrales constituant au total environ 60% du site proposé (correspondant aux Catégories I et II de l'UICN) et en zones tampons (correspondant à la Catégorie IV de l'UICN). En outre, 1,7 million d'hectares enveloppe toute l'unité et sert, de facto, de zone tampon additionnelle. La zone tampon à utilisation multiple (Catégorie VI de l'UICN) comprend une bonne partie des terres de plus basse altitude, dans les vallées du Jinsha, Lancang et Nu Jiang – ce sont des localités plus accessibles qui, pour l'essentiel, servent à l'agriculture, aux établissements (800 000 résidents), au transport et à l'industrie. Toutes les terres du site proposé sont donc protégées d'une manière ou d'une autre mais le niveau varie considérablement de la protection intégrale (c'est-à-dire pas d'utilisation humaine) à des régions où l'on trouve des établissements et une agriculture de subsistance. Une des 15 aires (la Réserve naturelle de Yunling) a été dotée du statut de réserve naturelle provinciale adopté en décembre 2002. Il faut aussi noter qu'il existe une réserve de la biosphère de l'UNESCO dans une partie de la Réserve naturelle de Gaoligong qui pourrait (ou devrait) être agrandie à l'avenir.

S'il n'y avait pas de comité de gestion des trois fleuves parallèles au Yunnan faisant office d'organe de coordination et de gestion pour le site, l'UICN serait beaucoup plus préoccupée par ce mélange d'appellations juridiques, le chevauchement entre les divers organes administratifs et l'équilibre entre les zones centrales et tampons. Sur un plan plus général,

l'UICN proposerait aussi que la législation chinoise sur les aires protégées soit révisée afin de rationaliser les procédures mais cette question ne relève pas de la présente évaluation. Actuellement, le statut juridique est considéré suffisant mais pourrait être difficile à appliquer et nécessiter une réévaluation future.

4.2 Limites et justification de la proposition sérielle

Comme nous l'avons mentionné au paragraphe 2, il s'agit d'une proposition sérielle qui concerne sept groupes séparés. Chaque unité du groupe est censée ajouter «une pièce au puzzle» et servir d'échantillon représentatif de toute la gamme de la biogéodiversité du Hengduan. Un groupe met en valeur les glaciers des hauts sommets, un autre est important comme habitat d'espèces en danger telles que le singe doré, d'autres contiennent des reliefs de *Danxia*, des lacs alpins ou d'autres caractéristiques naturelles. Cette approche, dans une région qui a été modifiée par l'activité de l'homme au fil de millénaires est semblable à celle qui a été adoptée pour d'autres sites sériels tels que les forêts pluviales du centre-est de l'Australie où des zones d'intervention ont transformé le paysage naturel. Dans le cas du site des trois fleuves parallèles, plusieurs des unités sont proches les unes des autres mais d'autres sont séparées par une distance de 15 km avec peu de possibilités de créer des corridors pour les relier. Le rapport limites/superficie est extrêmement élevé. Il y a des espaces entre les unités parce qu'elles sont séparées par des gorges fluviales vertigineuses, des lignes de partage des eaux glaciaires de haute montagne et/ou des établissements humains. Tout cela entraîne un certain isolement biologique dont les autorités sont conscientes: elles étudient des possibilités de relier les unités par des corridors d'aires protégées (p. ex. dans le corridor des montagnes Gaoligong et dans plusieurs réserves de gorges). Cette initiative est vivement encouragée par l'UICN et serait extrêmement utile pour améliorer l'intégrité de tout le site.

Outre les corridors, les travaux permanents d'inventaire et de recherche amènent à identifier des zones supplémentaires qui méritent d'être protégées dans le but d'obtenir une couverture beaucoup plus complète de toute la gamme des valeurs naturelles de la région. Il a, par exemple, été proposé de prolonger la Réserve des montagnes des neiges de Meili dans la Région autonome tibétaine. Le Yulong Xue Shan est une montagne sacrée du Naxi et présente de grandes valeurs biologiques sur ses pentes occidentales. La gorge du saut du Tigre (Jinsha Jiang) est adjacente à la Réserve de la montagne des neiges du Haba et, en tant qu'expression la plus spectaculaire d'un canyon incisé, apporterait un élément de plus à la justification globale du site proposé. Enfin, au fur et à mesure de l'acquisition de données nouvelles sur les réserves existantes, il devrait y avoir une expansion des zones centrales au sein de la superficie totale, dans les prochaines années.

À la lumière de toutes ces initiatives en cours, l'UICN a proposé aux autorités chinoises, durant la mission de terrain, de présenter dans trois ans, une étude révisant le réseau d'aires protégées du Hengduan Shan. Le Comité a déjà fait des recommandations semblables dans d'autres cas et bien que la délimitation des sept groupes soit considérée suffisante pour l'instant, il est clair qu'il est possible de l'améliorer.

Enfin, il est noté que la région du Hengduan Shan se prolonge partiellement à l'intérieur du Myanmar ainsi que dans la province voisine du Sichuan. Il serait bon de discuter avec les organismes de conservation de la nature de ces régions afin de mettre en place une éventuelle coopération transfrontière. Il existe un mécanisme permettant de le faire: le «Programme pour la sous-région du Mékong».

4.3 Plans de gestion

Des efforts de planification importants ont été réalisés, tant au niveau de la région que du site. À l'échelle régionale, le Comité de gestion des trois fleuves parallèles au Yunnan a préparé un «Plan de gestion général pour le Parc national des trois fleuves parallèles» ainsi qu'un «Plan

d'action pour la protection du site des trois fleuves parallèles» et a entamé un plan distinct pour la conservation et le suivi des ressources. Neuf des 15 aires protégées du site proposé ont approuvé des plans de gestion et les six autres devraient le faire en 2003. Un appui supplémentaire à la préparation de ces plans a été apporté par le FEM et The Nature Conservancy (qui ont aussi préparé un plan de conservation de l'écorégion et un plan d'action pour la région).

L'UICN n'a pas encore eu l'occasion d'examiner tous les plans mais a vu plusieurs exemplaires durant la mission de terrain et constaté qu'ils étaient très bien préparés (en particulier ceux qui ont été préparés avec l'aide de l'Université Tsinghua). Le Plan de gestion général, toutefois, est préoccupant car il met actuellement beaucoup plus d'emphase sur le développement (notamment par le tourisme) que sur la conservation de la nature. Il mentionne une utilisation accrue de l'énergie hydroélectrique qui, au microniveau peut fournir une énergie propre mais à plus grande échelle pourrait détruire les valeurs naturelles des fleuves principaux. Ce Plan général devrait être révisé dans les prochaines années et ce déséquilibre entre le développement et la conservation devrait être corrigé.

Il y a donc abondance de documents de planification, de sorte que la mise en œuvre est aujourd'hui le défi principal. Un début impressionnant a été fait avec la construction de centres de visiteurs, le marquage des limites et la construction de bureaux de terrain comme exemples visibles d'une présence de gestion pour la conservation. Le gouvernement provincial du Yunnan a prévu 15 millions de yuan pour la gestion et l'administration, pour chacune des cinq prochaines années, et 200 millions de yuan supplémentaires pour les projets de conservation pratiques. Le personnel du Bureau de gestion du patrimoine mondial passera à 25 en 2004. Bien que tous les signaux indiquant la mise en place d'un régime de gestion efficace soient positifs et que l'engagement du gouvernement soit clairement celui de conserver le site, l'UICN a proposé aux autorités d'organiser une mission d'étude des progrès (ainsi que de l'extension des zones) dans trois à quatre ans.

4.4 Activités anthropiques

Le site proposé est occupé par environ 315 000 résidents (y compris 36 500 dans les zones centrales) et a été partiellement modifié par le pâturage, la sylviculture, la construction de routes et d'établissements. Il y a par exemple 27 villages dans la Réserve des montagnes des neiges de Meili, avec 15 activités économiques humaines enregistrées (surtout de subsistance). Ce nombre de personnes, à l'intérieur d'un bien du patrimoine mondial, est considérablement plus élevé qu'ailleurs (le lac Baïkal, en Russie, compte environ 50 000 résidents). Heureusement, une bonne partie du site est encore relativement non perturbée et les fonctions des écosystèmes perdurent grâce, en partie, au caractère inaccessible des pentes élevées et à l'incidence relativement légère des activités de subsistance des populations résidentes. Néanmoins, après plusieurs milliers d'années d'utilisation par l'homme, le site proposé a perdu de son caractère naturel, surtout dans les zones de faible altitude et sur les plateaux.

Afin de résoudre en partie le problème, notamment sur les fortes pentes où l'agriculture n'est pas durable, les autorités chinoises ont mis en place, depuis quelques années, un programme d'allègement de la pauvreté dont le but est de fournir des terres de substitution en dehors des aires protégées. Il s'agit de réduire la population dans les zones centrales de 16 000 personnes supplémentaires et de mettre une limite à 298 000 habitants dans la zone tampon. Quoi qu'il en soit, la gestion du site est certainement compliquée par la présence d'une population humaine (pour l'essentiel des minorités ethniques) et les principes de consultation et de participation doivent nécessairement être appliqués.

4.5 Tourisme

Malgré l'éloignement de la région et la difficulté d'accès, les attraits naturels et culturels ont attiré environ 188 500 visiteurs en 2001. Environ 90% d'entre eux étaient des Chinois. La majeure partie du tourisme est concentrée dans les zones périphériques du mont Gaoligong où il y a des hôtels. Il y a aussi des sites secondaires tels que le point de vue sur la montagne des neiges de Meili et le lac Shudu. Il existe des plans d'amélioration des possibilités de conduite automobile, de randonnée, de plaisance et d'équitation; les logements seront situés dans les six villes principales (et les 17 villages), tandis que les usages récréatifs seront concentrés sur les marges du site proposé. Néanmoins, le Plan de gestion général prévoit que le tourisme sera au moins multiplié par cinq. Dans les zones centrales, les visiteurs ne sont pas admis.

Sachant par expérience que certains organes de gestion de biens du patrimoine mondial chinois sont incapables de répondre aux pressions d'un nombre de touristes en augmentation rapide, l'UICN exprime sa préoccupation devant la croissance rapide du tourisme dans le site des trois fleuves parallèles. Bien qu'il y ait un potentiel évident pour agrandir les aménagements réservés aux visiteurs et que cela ne manquera pas d'avoir des retombées économiques pour les communautés locales, un tourisme à grande échelle, avec la tendance à créer des aménagements inappropriés risque de porter préjudice aux valeurs intrinsèques du site et à la stabilité culturelle des minorités locales. Le développement du tourisme doit donc être soigneusement planifié à l'avance et ses incidences doivent être étroitement surveillées.

4.6 Engagement des ONG et des donateurs

Il n'est guère surprenant que cette région ait retenu l'attention de plusieurs groupes de conservation internationaux qui y financent des projets, principalement The Nature Conservancy mais aussi le WWF et Conservation International. La National Science Foundation (É.-U.) a conduit des études d'inventaire des ressources. Le gouvernement des Pays-Bas soutient des projets communautaires et le FEM fournit des fonds pour les plans de gestion. L'appui supplémentaire de tous ces groupes pour les efforts des autorités chinoises témoigne de l'immense intérêt soulevé par la conservation de la région.

5. AUTRES COMMENTAIRES

5.1 Valeurs culturelles

Comme d'autres pays d'Asie, la Chine considère que la nature et la culture sont inséparables. C'est tout particulièrement le cas dans le site proposé où des minorités tibétaines Lisu, Nu, Dulong, Bai, Pumi et Naxi résident dans la région et utilisent les ressources accessibles (essentiellement pour la subsistance) depuis des milliers d'années. Les liens entre leur riche culture et la terre sont évidents à bien des égards – à travers leur religion et leur mythologie, l'art, la danse, la musique, la poésie et le chant. Le statut local de la montagne des neiges Meili en tant que zone sacrée interdite aux montagnards reflète le respect de ces populations pour la nature sauvage et la vigueur de la culture locale. L'existence continue du patrimoine culturel de la région est reconnue et soutenue dans les plans de gestion ainsi que dans les slogans et emblèmes du site.

5.2 Nom du site

Étant donné que l'expression «Parc national des trois fleuves parallèles» employée dans le document de proposition original couvre une bien plus grande région que le site proposé (y compris des terres qui ne sont pas des aires protégées), un nom plus approprié a été demandé pour le site. Durant l'inspection de terrain, un groupe de discussion technique sur la question a proposé le nom: «Aires protégées des trois fleuves parallèles». Le nom «Aires protégées des

trois fleuves parallèles au Yunnan» a été proposé par les autorités chinoises dans un rapport d'information supplémentaire. Une confirmation de ce nom révisé est requise.

6. APPLICATION DES CRITÈRES DU PATRIMOINE MONDIAL

Les Aires protégées des trois fleuves parallèles au Yunnan sont proposées au titre des quatre critères naturels.

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

Le site a une valeur exceptionnelle du point de vue de l'histoire géologique des derniers 50 millions d'années, associée à la collision entre la plaque indienne et la plaque eurasiennne, la fermeture de l'ancienne Tethys et le relèvement de la chaîne de l'Himalaya et du Plateau tibétain. Ces événements géologiques ont joué un rôle majeur dans l'évolution des terres de l'Asie et ils se poursuivent. Les divers types de roches du site rappellent cette histoire. En outre, les formes de relief de karst, de monolithes granitiques et de grès *Danxia* de la zone alpine sont parmi les meilleurs exemples de reliefs de ce type au monde. L'UICN considère que le site proposé remplit ce critère.

Critère (ii) : processus écologiques

L'expression spectaculaire des processus écologiques dans le site des trois fleuves parallèles provient d'un mélange d'effets géologiques, climatiques et topographiques. Premièrement, l'emplacement du site dans une ceinture orographique active est à l'origine de la vaste gamme de substrats rocheux – des roches magmatiques (quatre types) aux divers types sédimentaires, y compris les calcaires, les grès et les conglomérats. Une gamme exceptionnelle de caractéristiques topographiques – des gorges aux pics couverts de glace en passant par le karst – est associée au site car il se trouve au point de collision entre les plaques tectoniques. Si l'on ajoute à cela que la région était un refuge du pléistocène et se trouve dans une zone de convergence biogéographique (c'est-à-dire avec des éléments tempérés et tropicaux), les fondations physiques de l'évolution de sa riche biodiversité sont toutes présentes. Parallèlement à la diversité du paysage présentant un gradient vertigineux de près de 6000 m vertical, un climat de mousson affecte la majeure partie de la région et fournit un autre stimulus écologique favorable qui a permis à toute la gamme des biomes tempérés du Paléarctique de se développer. L'UICN considère que le site proposé remplit ce critère.

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

Les gorges profondes et parallèles du Jinsha, du Lancang et du Nu Jiang sont les caractéristiques naturelles exceptionnelles du site; de vastes secteurs des trois fleuves se trouvent juste en dehors des limites du site mais les gorges des fleuves sont cependant l'élément panoramique dominant. Les hautes montagnes sont partout avec les pics glacés du Meili, du Baima et du Haba qui offrent un panorama spectaculaire. Le glacier du Mingyongqia est un phénomène naturel remarquable qui descend jusqu'à 2700 m d'altitude depuis le mont Kawagebo (6740 m) et serait le glacier descendant le plus bas à cette latitude (28° N) dans l'hémisphère nord. D'autres formes de relief exceptionnelles sont le karst alpin (en particulier la «pierre de lune» dans la zone panoramique de la montagne de la Lune au-dessus de la gorge du Nu Jiang) et le modelé érodé en «écaille de tortue» du *Danxia* alpin. L'UICN considère que le site proposé remplit ce critère.

Critère (iv) : diversité biologique et espèces menacées

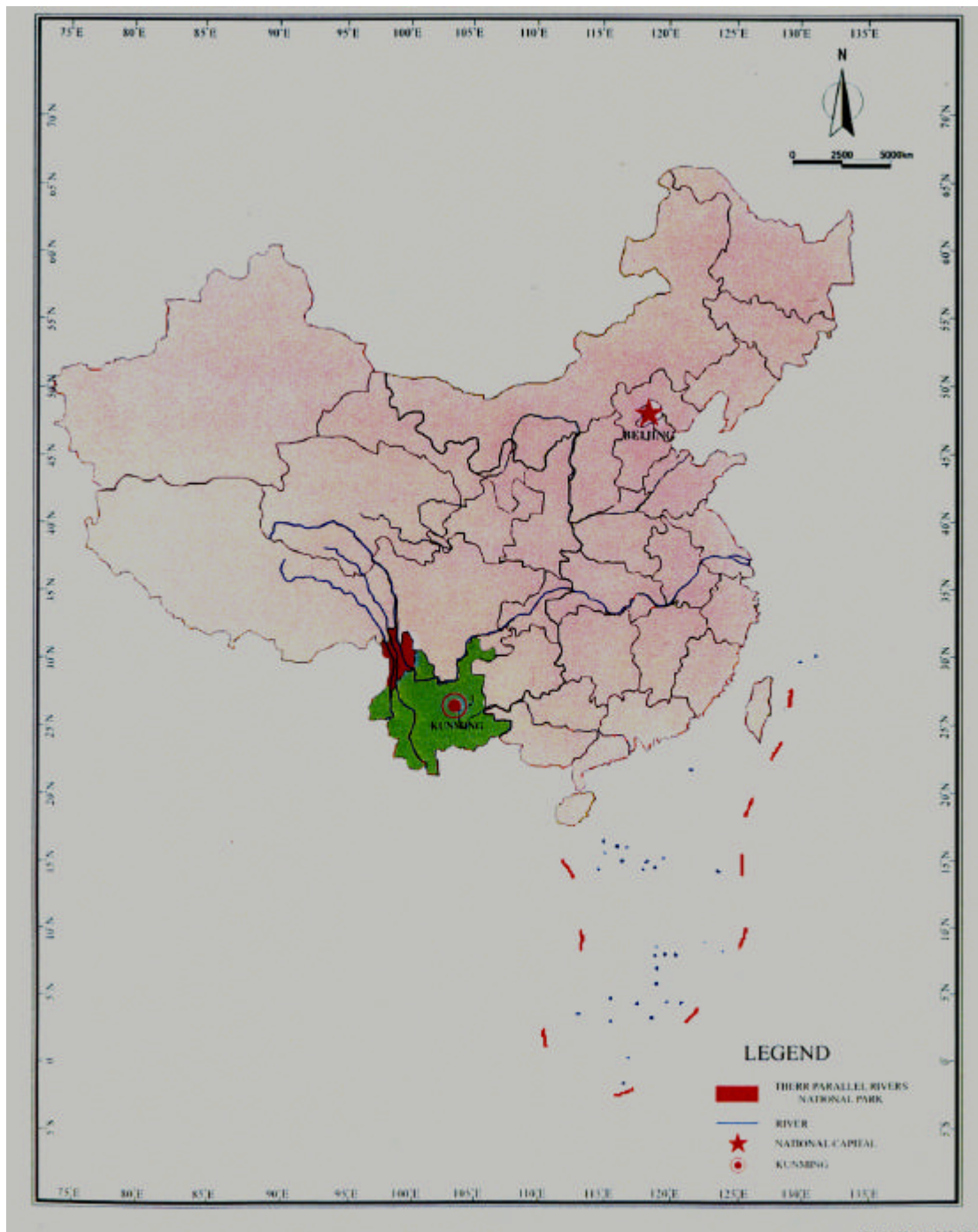
Le nord-ouest du Yunnan est la région de Chine présentant la plus riche biodiversité et c'est peut-être la région tempérée la plus diverse de la terre sur le plan biologique. Ce site comprend la plupart des habitats naturels de la chaîne du Hengduan, une des dernières régions du monde les plus importantes pour la conservation de la biodiversité terrestre. La diversité topographique et climatique extraordinaire du site, associée à son emplacement à la jonction des domaines biogéographiques d'Asie de l'Est, d'Asie du Sud-Est et du Plateau tibétain et sa fonction de corridor nord-sud pour le mouvement des plantes et des animaux (en particulier durant les âges glaciaires) en fait un paysage réellement unique qui conserve encore beaucoup de caractéristiques naturelles malgré des milliers d'années d'occupation par l'homme. En tant que dernier bastion d'un assemblage énorme de plantes et d'animaux rares et en danger, le site a une valeur universelle exceptionnelle. L'UICN considère que le site proposé remplit ce critère.

7. RECOMMANDATIONS

L'UICN recommande que le Comité **inscrive** les Aires protégées des trois fleuves parallèles au Yunnan sur la Liste du patrimoine mondial, au titre des critères naturels (i), (ii), (iii) et (iv). Le Comité est également prié, selon les discussions présentées ci-dessus concernant les questions d'intégrité de faire les recommandations suivantes:

- féliciter les autorités pour leurs initiatives de planification et les encourager à terminer les six derniers plans de gestion des aires protégées et à mener une révision du Plan de gestion général;
- noter les préoccupations concernant la nature et l'étendue du tourisme futur (section 4.5 ci-dessus), la population humaine résidente (section 4.4 ci-dessus) et le développement hydroélectrique (section 4.3 ci-dessus) qui pourraient affecter le site proposé;
- encourager à poursuivre l'amélioration des limites du site, y compris en ajoutant d'autres régions dont la qualité naturelle est également élevée, par l'expansion des zones centrales, le contrôle sur les importantes populations résidentes et la discussion des questions de limites avec les juridictions voisines;
- demander aux autorités chinoises d'inviter une mission dans trois à quatre ans afin, d'une part, de réviser les progrès d'application des plans de gestion et d'autre part, d'évaluer les révisions apportées aux limites du site;
- demander aux autorités chinoises de confirmer le nom révisé du site;
- féliciter The Nature Conservancy, le WWF, le FEM, entre autres, pour leur collaboration ainsi que pour leur appui aux efforts déployés par les autorités chinoises.

Carte 1: Localisation Générale du Site



Carte 2 : Détail du Site

