

WORLD HERITAGE NOMINATION -- IUCN SUMMARY

409: HAWAII VOLCANOES NATIONAL PARK (USA)

Summary prepared by IUCN (April 1987) based on the original nomination submitted by USA. This original and all documents presented in support of this nomination will be available for consultation at the meetings of the Bureau and the Committee.

1. LOCATION:

Lies in the south-east part of the island of Hawaii, the eastern-most island of the State of Hawaii, and includes the summit and south-east slope of Mauna Loa and the summit and south-western, southern and south-eastern slopes of the Kilauea volcano. The core of the park lies at 19°11'-19°33'N, 155°01'-155°39'W.

2. JURIDICAL DATA:

The national park was created in 1916 by Act of the U.S. Congress. The area of the park was more than doubled as a result of Congressional authorizations in 1922, in 1928 and in 1938. The 'Ola'a Forest Tract was donated in 1951 and 1953. The 'Ola'a Forest Tract, being separated from the core by parcels of private land is, according to Executive Order 1640, not technically part of the national park. The park was accepted as part of the Hawaii Islands Biosphere Reserve in 1980. The national park now covers 87,940ha.

3. IDENTIFICATION:

The park extends from the southern coast, with its volcanic sea cliff headlands to the summit calderas of Kilauea (the most active volcano in the world, with more than 50 recorded eruptions in the last 33 years up to 1985) and Mauna Loa volcanoes. The latter is a massive, flat-domed shield volcano built by lava flow layers and is considered to be the best example of its type in the world extending from 5,581m below sea level to 4,169m above. The climatic gradient is abrupt from east to west resulting in the climate varying with altitude from tropical humid to alpine desert with average temperatures ranging from 22°C at sea level to 7°C at 3,400m and cooler still on the summit of Mauna Loa.

Twenty-three distinct vegetation types have been described for the park, ranging from the very diverse tropical rainforest of 'Ola'a to the scrub and grassland of Ka'u and the alpine tundra of Mauna Loa, grouped into five major ecosystems namely, subalpine, montane seasonal, montane rainforest, submontane seasonal and coastal lowlands. The 'Ola'a Forest tract, over 4,000 ha in size, is probably the largest remaining tract of virgin ohia and fern forest in the Hawaiian Islands. The park also contains remnants of a variety of upland native plant communities, characteristic of pre-18th century colonization habitats. Some of the endemic plant species are confined to a single valley or mountain slope, with native flora numbering 41 species, with a further 40 listed as rare and warranting special attention.

A number of vulnerable, endangered, and rare endemic bird species are present including nene goose, Hawaiian hawk, Hawaiian crow, and three members of the honeycreeper family. Endemic birds recorded from the park include the common 'apane', the scarce 'amakihi', the endangered Hawaiian creeper, the short-eared owl and the Hawaiian thrush.

The park is rich in archeological remains particularly along the coast with native villages, temples, graves, paved trails, canoe landings, petroglyphs, shelter caves, agricultural areas and two major archeological sites.

4. STATE OF PRESERVATION/CONSERVATION:

Management is carried out in accordance with a master plan and a natural resources management plan. The park is divided into three land-use zones: primary use zone for concentrated visitor use, wilderness threshold zone, and back country zone, the largest and least-used zone. Hunting of wild pigs (and goats) by local residents is permitted and control methods including fencing, baiting, trapping, snaring and hunting have resulted in reduced foraging impacts in a 4,000 ha area of the park. Mongooses, cats, dogs, and several species of alien birds and insects continue to disrupt native ecosystems. Heavy browsing by goats still denudes the landscape of shrubs and prevents regeneration of many native plant species.

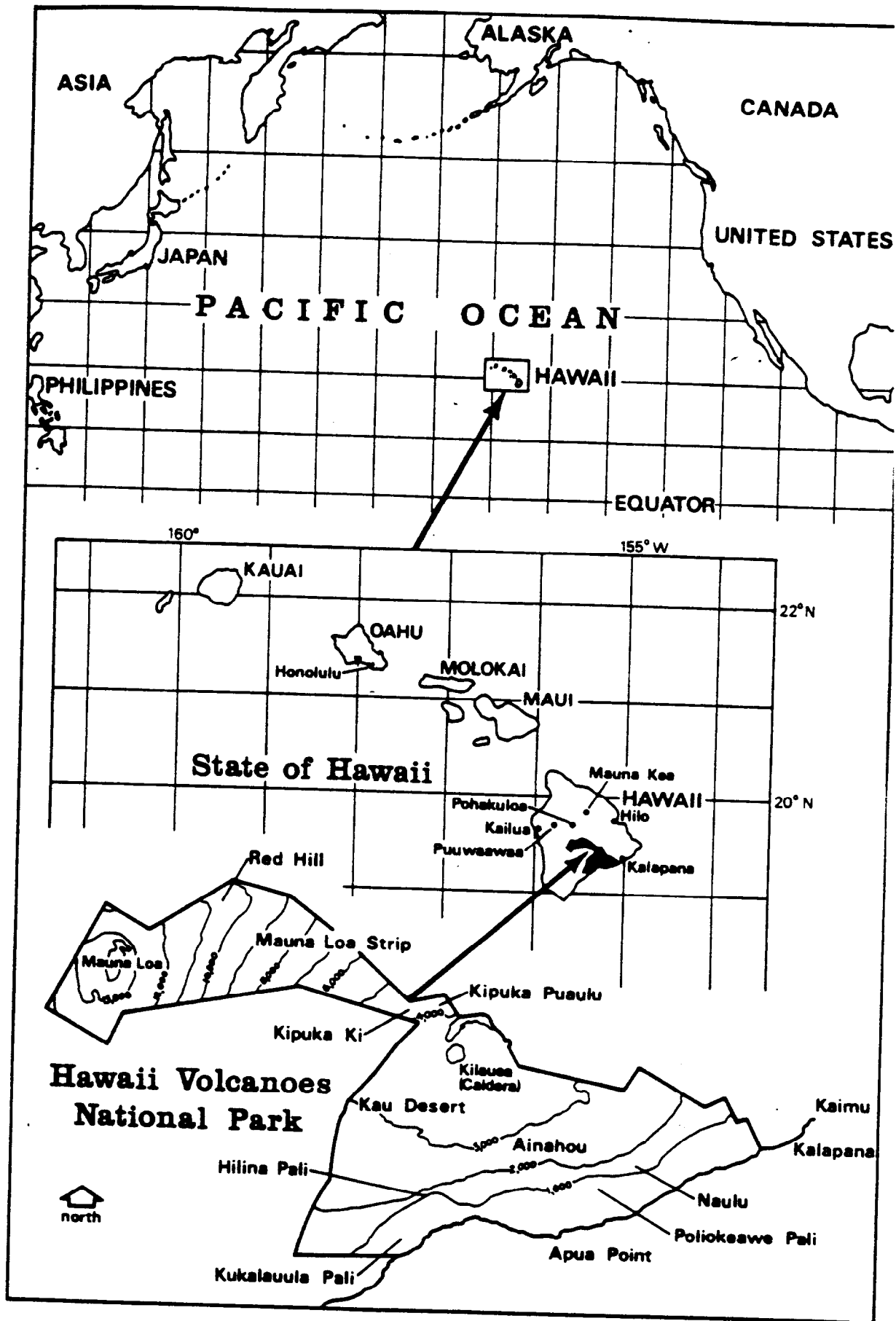
There is a volcanic geological research programme, directed by US Geological Survey scientists based at the Hawaiian volcano Observatory which was founded in 1912 on the rim of the Kilauea Caldera. Mauna Loa and Kilauea are the most studied and best understood volcanoes in the world. Staff positions include Management Ecologist, Park Interpreter, Research Scientist and Archeologist.

5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST:

The Hawaii Volcanoes National Park nomination, as presented by the Government of USA provides the following justification for designation as a World Heritage property:

a) Natural property

- (i) Earth's Evolutionary History. The site is a unique example of island building through on-going volcanic processes. It also contains excellent examples of biotic successional stages following volcanic activity.
- (iii) Exceptional Natural Beauty. The park's landscape contains dramatic volcanic sea cliffs, a huge summit caldera plus a range of volcanic features such as lava tubes, pit craters, and caves.
- (iv) Habitat of Rare and Endangered Species. The park has a small area of some of the most pristine dry forest remaining in the Hawaiian Islands. There are several endangered birds and rare plant species.



The location of Hawaii Volcanoes National Park in reference to the State of Hawaii

409 HAWAII VOLCANOES NATIONAL PARK (USA)

1. DOCUMENTATION

- (i) IUCN Data Sheet
- (ii) Consultations: B. Cahn, G. Stankey, A. Holt, R. Dasmann, L. Hamilton, O. Hamann
- (iii) Additional Literature Consulted: C.P. Stone and J.M. Scott, 1985, Hawaii's Terrestrial Ecosystems: Preservation and Management
- (iv) Site visit: 1984

2. COMPARISON WITH OTHER SITES

There are 6 protected areas in the Hawaiian Islands over 10,000 ha. in size. The Hawaii Volcanoes National Park is by far the largest and has the most volcanic features. The Kilauea crater in the Park is one of the most studied volcanic sites in the world having a Geological Station since 1912. Kilauea is also the most active large volcano in the world erupting more than 50 times in the last 34 years. Mauna Loa is in fact the greatest volcanic mass on earth rising from the ocean floor with a relief 600m. higher than Mt. Everest. Additionally, Mauna Loa is recognised as one of the best examples of a shield volcano in the world.

Most of the Park's volcanic features (sea cliffs, calderas, lava tubes, etc.) are also found on other volcanic islands such as the Canaries or Iceland. The biological succession processes are similar to other sites as well except for the many endemic Hawaiian species that are found in the Park.

In summary, the Hawaii Volcanoes National Park is the most exceptional protected area in the Hawaiian Islands both in terms of its volcanic display and its species assemblage. Scenically, it is less spectacular than a number of other volcanoes and it is primarily distinguished by its size and level of activity.

3. INTEGRITY

Like all natural areas in Hawaii the Park has been subject to considerable biological alteration since man's arrival so that it displays numerous evidence of human disturbance. Direct removal or alteration of native forest for growing sugar, pineapple plantations, ranching and logging, has altered the native biota of the forest habitats, particularly at low and middle elevations. Ranching activities and the introduction of species such as the pig Sus scrofa (4,000 at a density of 30-50 pigs per square kilometre), goat Capra hircus (previously 15,000-20,000 now 10 individuals within marked areas) and mongoose Herpestes auropunctatus have had serious biological consequences, including destruction of native ecosystems and widespread extinction of endemic species. Pockets of standing water, created by the wallowing of the feral pigs, provide breeding places for mosquitos, resulting in serious avian malaria. The spread of non-native plant species is also attributed to dispersion by the feral pigs. Mongooses, cats, dogs and several species of alien birds and insects continue to disrupt native ecosystems. Heavy browsing by goats still denudes the landscape of shrubs and prevents regeneration of many native plant species.

All of these problems are being addressed in the context of the national resources management plan. The control programs undertaken on the basis of solid scientific research have been a model for removal of alien animals and plants (including illegal narcotics) on oceanic islands. Threats from geothermal development on adjacent lands and the intrusiveness of helicopter overflight have also been reduced through political action. A land exchange has now been authorized that will add 2,300 ha. to the Park.

4. ADDITIONAL COMMENTS

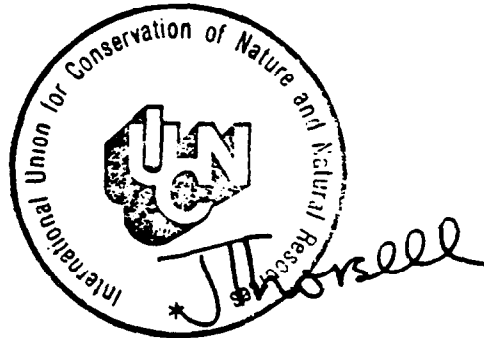
The cultural milieu in which the 'goddess of the volcano' plays an important spiritual part in the legends of the local people, is a strong component in management of the Park.

5. EVALUATION

What is most outstanding about the Hawaii Volcanoes National Park is the significance of the on-going geological processes that are so easily observed there. As one of the world's most active volcanoes it serves as an excellent example of island building through volcanic processes. It has been an exceptionally productive area for science and has developed research procedures that are now standard world-wide. It, therefore, clearly meets Criteria (ii) of the Convention. The Park's values on the basis of Criteria (i) and (iii) are less evident and its biological values, though significant, are secondary to its overall theme of active vulcanism.

6. RECOMMENDATION

The Hawaii Volcanoes National Park should be added to the World Heritage List. The Park authorities should be encouraged to continue their commendable work in geological research and control of exotic species.



UNITED STATES OF AMERICA-Hawaii Volcanoes National Park

UNITED STATES OF AMERICA - Hawaii

NAME Hawaii Volcanoes National Park

IUCN MANAGEMENT CATEGORY II (National Park)
IX (Biosphere Reserve)
X (World Heritage Site)

BIOGEOGRAPHICAL PROVINCE 5.03.13 (Hawaiian)

GEOGRAPHICAL LOCATION Lies in the south-east part of the island of Hawaii (Big Island), the easternmost island of the State of Hawaii, and includes the summit and south-east slope of Mauna Loa and the summit and south-western, southern, and south-eastern slopes of the Kilauea Volcano. The core of the park lies at 19°11'-19°33'N, 155°01'-155°39'W; the 'Ola'a Tract, to the north-east is centered on 19°29'N, 155°15'W.

DATE AND HISTORY OF ESTABLISHMENT Hawaii National Park, created on 1 August 1916 by Act of the US Congress (39 Stat. 432), consisted of two units each on different islands, one on Hawaii Island and the other on Maui Island. The area of the park was more than doubled as a result of Congressional authorisation in 1922 (45 Stat. 503), in 1928 (45 Stat. 424) and in 1938 (52 Stat. 781). The 'Ola'a Forest Tract was donated in 1951 and 1953 (Executive Order #1640). The park was split into Hawaii Volcanoes National Park (on Hawaii Island) and Haleakala National Park (on Maui Island) in 1961 (75 Stat. 577). Hawaii Volcanoes National Park is protected under 16 U.S.C. 1 (National Park Service Organic Act) and under the terms establishing the park as set out in 16 U.S.C. 395b, and under several sections of 16 U.S.C. 391-396a. Hawaii Volcanoes and Haleakala national parks were accepted as MAB Biosphere Reserves in 1980, and combined to form one cluster, Hawaiian Islands Biosphere Reserve, in April 1983. Hawaii Volcanoes National Park is under consideration for inscription on the World Heritage list.

AREA 92,964ha (June 1987). The biosphere reserve designation covers 92,934 ha.

LAND TENURE The park was created from federally-owned land donated by the State of Hawaii, while the Congressional Act of 1930 (46 Stat. 227) gave exclusive legal jurisdiction to the Federal government. The Act of 1920 (41 Stat. 452) authorised the acquisition of privately-owned land and rights of way. The owner is the United States Department of the Interior, Washington, DC and protective custody remains with the National Park Service (NPS). The 'Ola'a Forest Tract, being separated from the core by parcels of private land, is, according to Executive Order #1640, not technically part of the national park. A land exchange, authorised by Congress and now in progress, will add 2,300 ha to the national park. This covers the private land tract. The 'Ola'a Forest Tract is now apparently out of private ownership.

ALTITUDE From sea level to 4,170m

PHYSICAL FEATURES The park extends from the southern coast to the summit calderas of Kilauea and Mauna Loa volcanoes. Mauna Loa is a massive, flat-domed shield volcano built by lava flow layers and is considered to be the best example of its type in the world. It extends from 6,096m below sea level to 4,103m above. These are among the world's most active volcanoes and exhibit constantly changing features especially from the two principal rift zones featuring extensive recent flows. Since 1969 new flows have spread to 78 sq. km of the park and added more than 81ha of new land to the island.

This activity continues. An unusual feature in the park is an area which has sunk 3.4m into the sea as a result of an earthquake several years ago. The Halemaumau fire pit was a continuously active lava lake into the early 1900s and others existed along the East Rift. Eruptive activity, which began in January 1983 in the East Rift Zone, continues at frequent intervals and has produced extensive new lava flows and a 300m high cinder cone.

CLIMATE The weather is dominated by north-east trade winds. Windward mid-slopes receive a mean annual rainfall of 3810mm, and leeward areas receive only 10% of that amount. Such extremes of annual average precipitation produces dramatic climatic and life-zone gradients. Annual average temperatures range from 22°C at sea level to 7°C at 3,400 m. The summit of Mauna Loa is cooler still.

VEGETATION The park contains a high diversity of plant communities with striking life-form and physiognomic differences. Doty and Mueller-Dombois (1966) have identified 23 distinct vegetation types in 5 major ecological zones, varying from rain forest to desert scrub and coastal strand to alpine. The spectrum of environments occurring in the tropics, from persistently to seasonably wet, to dry are found in Hawaii, and account for the vegetative diversity. The range of environments results from temperature and moisture gradients associated with elevation and exposure differences. Volcanism enhances vegetative diversity, resulting in a mosaic of successional and climax stages in all park environments.

Endemism rates in flowering plants are extraordinarily high (95%) because of geographic isolation. Characteristic of islands, the flora is impoverished relative to continental areas, with greatest diversity in rain forest and lowest diversity in desert or alpine scrub. Similar to other islands, ferns constitute a significant portion of the native flora, with tree fern-dominated rain forest reaching its highest development in Hawaii in and adjacent to the park. With imperfect isolation mechanisms and active speciation, species lines within many genera are difficult to draw, presenting challenges for evolutionary biologists and systematists in Hawaii.

Introduced plants, stimulated and dispersed by introduced ungulates, have invaded all plant communities. The park's flora contains nearly twice as many non-native flowering plants as native ones. Although some plant communities, especially those below 600m have been significantly impacted

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by introduced plants, others, particularly those above 1,500m, are essentially native. A significant portion of the park's flora is threatened by ungulates, introduced plants and wildfire. There are 41 candidate endangered species, with an additional 40 species considered to be rare, comprising 30% of the flowering plant flora of the park. Although several introduced plant species threaten to seriously disrupt native plant communities, control programs are underway throughout the park for 41 localised species and in selected areas for five widespread species.

A checklist of vascular plants has been compiled (Higashino, et al., 1988).

FAUNA Animal life is characterised by paucity of forms and by scarcity of native species. Except for a single species of bat Hawaiian hoary bat Lasiurus cinereus semotus (I), native mammalian forms are absent. Little is known to date about invertebrate forms. Avian forms present interesting and significant examples of adaptive radiation and of extinction. Most endemic avian species are rare or endangered. Species which are formally listed in the US as threatened include Hawaiian goose (nene) Branta sandwichensis (V), a terrestrial non-migratory goose; Hawaiian hawk, (io) Buteo solitarius (R); four honeycreepers; the akepa Loxops coccinea (R); the akiapola'au Hemignathus munroi (V); the o'u Psittirostra psittacea (E); and Hawaiian creeper Oreomystis mana; Hawaiian dark-rumped petrel Pterodroma phaeopygia sandwichensis (R); and short-eared owl (pueo) Asio flammeus sandwichensis. Other endemic species include Hawaiian thrush (omao) Phaeornis obscurus; and four honeycreepers, the apapane Himatione sanguinea, elepaio Chasiempis sandwichensis, amakihi Hemignathus virens and iiwi Vestiaria coccinea. Introduced pigs, cats, mongooses, dogs, birds, and innumerable invertebrates have colonized parts of the park environment.

CULTURAL HERITAGE The park is rich in remains (88,654ha are included in Puna-Ka'u Historic District) and particularly so along the coast with native villages, heiaus (temples), graves, paved trails, canoe landings, petroglyphs, shelter caves, agricultural areas and two major archeological sites: Waha'ula Heiau ruins (constructed in 1275) and the Pu'u Loa Petroglyph Field, at 0.2 ha being the largest concentration of "rock carvings" in the park and representing early Hawaiian culture. Following the arrival of Captain James Cook in 1778-79, Christian influences started in or around 1823, with churches and schools built and the introduction of cattle, goat, and pulu (tree-fern product) harvesting and the encouragement of visitors. Extensive ruins of stone structures dating back to the time of Pa'ao (a high priest) in 1275 are present.

LOCAL HUMAN POPULATION No information

VISITORS AND VISITOR FACILITIES Mauna Loa was first climbed in 1794 and as a result of descriptions written in 1823, Kilauea Volcano had by 1840 become a tourist attraction. The first Volcano House was constructed in 1866 and successive structures were built in 1877, 1893, and 1941 to serve volcano watching visitors. The 1877 construction is now used as the Volcano Art Center, the 1941 construction is the park's only hotel. Present day facilities include the Volcano House and two campgrounds.

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Hiking and fishing are two of the major activities.

SCIENTIFIC RESEARCH AND FACILITIES The park was previously used as a natural arboretum and a centre for developing both native plant and tree nurseries and native seed sources, but the present policy is for a reduction in threats from non-native elements and unaided natural processes, and in fact there has been intensive study of native recolonisation and successions following eruptions.

There are programmes for the monitoring of feral goat, feral pig, and native Hawaiian goose movement through the use of radio transmission collars and radio telemetry. The US Fish and Wildlife Service is studying limiting factors for endangered birds. Birds are reared and released from pens outside the park, a program undertaken in cooperation with the Hawaii Department of Land and Natural Resources. In addition, there are several vegetation plots with transects and three quality monitoring stations. The University of Hawaii, together with park staff, are studying non-native plants and animals, methods of their control and the restoration of native species. The next three five-year research programmes will concentrate on the integration of herbicidal and other control methods, long-term monitoring of effects on native plant species (and alien communities) and new herbicidal testing.

The US Fish and Wildlife Service, the US Forest Service, and the NPS are studying endangered birds, and there is a proposal to translocate the akiapola'au into the koaohia forest of the Mauna Loa section of the park. The University of Hawaii, together with park staff, are studying exotic plants and animals and methods of their reduction and the restoration of native species and many of the International Biological Program island ecosystem studies were based here.

The US Geological Survey's Hawaiian Volcano Observatory, founded in 1912 on the rim of the Kilauea Caldera, and the Hawaii Field Research Center, which includes the University of Hawaii, the National Park Service, the US Fish and Wildlife Service, and the US Forest Service programs, are situated in the park. There is a volcanic geological research program and Mauna Loa and Kilauea are the most studied and best understood volcanoes in the world. The observatory has trained most of the volcanic scientists in the world and developed research techniques that are now standard procedure. Research conducted here has contributed to understanding of island building through volcanic processes.

The park maintains six weather stations which measure air temperature, rainfall, wind speed, wind direction, and relative humidity, and six other stations monitoring rainfall.

CONSERVATION VALUE The park is managed to preserve its outstanding scenic, geological, and biological values and to ensure its availability for public use and enjoyment.

CONSERVATION MANAGEMENT The construction of goat and pig fencing, control of feral pigs in newly fenced units and the maintenance of these structures

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are the top three priorities. Feral pig control is conducted in 140ha to 1,900ha fenced units in 1989, 8,000ha of closed canopy rain forest and montane woodlands had been cleared of pigs. The other important management goal is controlling non-native species and active management to reduce the negative effects of invasions by feral ungulates and alien plants, especially in relatively intact ecosystems. Taking of wild pigs and goats by local residents is permitted and control methods including fencing, baiting, trapping, snaring and hunting have resulted in improved conditions in 4,000ha of the park. There are mammal control efforts in the petrel colonies in the park. Widespread alien species control is, however, restricted by current or expected staffing and funding levels. A modest plant control research programme has produced safe, cost-effective herbicidal control methods for five alien species in near-native ecosystems.

For administrative purposes the park is divided into two segments; the summits and parts of the flanks of volcanoes Mauna Loa and Kilauea covering 84,033ha; and the 'Ola'a Forest Tract, containing 3,907ha, the latter separated from the major sector by several small parcels of private land, although a land exchange has been authorised by Congress and is in progress. The tract is managed for conservation and its protection status is enhanced under the auspices of the Department of Natural Resources. Act of Congress formally designated 57% as Wilderness lands (P.L. 95-625). The park is divided into three land use zones: primary use zone for concentrated visitor use, interpretive programmes such as the Crater Rim Summit loop drive, the Chain of Craters Road corridor, and the Waha'ula Visitor Centre areas; wilderness threshold zone, comprising a self-guiding nature area used almost exclusively by local island residents and off-island visitors who rent vehicles; and backcountry zone, the largest and least used zone. Commercial development, resources exploitation, hunting, gathering, off-road moterized vehicles, burning, etc. are prohibited. There is a special emphasis on the delineation, study and management of Special Ecological Areas. These are areas largely intact, representing important ecosystems, containing rare and/or diverse components, which are manageable and are of educational potential.

Threats from geothermal development on adjacent lands and the intrusiveness of helicopter overflights have been reduced through political pressure.

MANAGEMENT CONSTRAINTS Introduced plants and animals have affected all sections of the park. Most severe disturbance has been in the semi-arid lowland and mid-elevation areas; least impact has been in the uplands. Introduced pigs and goats stimulated massive disruptions and removal of natural vegetation. Direct removal or alteration of native forest for sugar and pineapple plantations, ranching and logging have altered the native biota of the forest habitats, particularly at low and middle elevations of the Hawaiian Islands. These have been most impacted and the prospects for restoration are least encouraging. However, other areas are recovering and studies show that exotics can be controlled and biological integrity restored. Ranching activities and the introduction of species such as the pig Sus scrofa (4,000 at a density of 30-50 pigs per sq. km) and goat Capra hircus have been largely eliminated from the park's lowlands.

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by fencing park boundaries, construction of barrier fences and by organising hunts. Heavy browsing by goats denuding the landscape of shrubs and preventing regeneration of many native plant species was particularly serious in the early 1970s when high population had built up in the drier coastal and high mountain sections despite long-term reduction efforts. Goats then numbered between 15,000 and 20,000 but are now limited to only 10 individuals within marked areas and a total of 100 animals residing in the park. Exotic mongoose Herpestes auropunctatus has had a serious biological impact, including destruction of native ecosystems and widespread extinction of endemic species. Argentine ant Iridomyrmex humilis is a pest (especially around human settlements) and is spreading in native ecosystems. Black rat Rattus rattus and Norway rat R. norvegicus are also found in the park.

Pox and malaria disease reservoirs in domestic birds is an added threat. Pockets of standing water, created by the wallowing of feral pigs, provide breeding places for mosquitos, resulting in serious avian malaria.

All major ecological zones have alien plant problems. Approximately 600 non-native plant species occur in the park and at least 40 of these are known to invade native ecosystems. The spread of non-native plant species is also attributed to dispersion by feral pigs, and to cohort die-back in which large areas of dead trees are subject to invasion by alien species, a situation particular to 'ohi'a. Those species currently being controlled in special ecological areas include Psidium cattleianum, Hedychium gardnerianum, Linociera ligustrina, and Tropaeolum majus. Other ubiquitous aliens include Pennisetum setaceum and Myrica faya.

STAFF In 1987 there were 10 permanent staff on resource management/research and about 20 permanent less than full time, 39 seasonal and 50 members from the Young Adult Conservation Corps (YACC). Individual positions include Management Ecologist, Chief Park Interpreter, Research Scientist, and Pacific Area Archaeologist.

BUDGET The park received an annual base budget of US\$ 2.5 million in 1991. Additional biological research programme was about US\$ 500,000 (1990) and cultural research programme was US\$ 110,000 (1990).

LOCAL ADDRESSES

Superintendent, Hawaii Volcanoes National Park, P O Box 52, Hawaii National Park, Hawaii 96718

REFERENCES

There are some 63 main references, 8 management plans, and 3 maps, the most significant being:

Anon. (1970). Hawaii Volcanoes National Park Master Plan. US Department of

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DATE 1980, revised August 1986, February 1987, June and November 1987, February 1991

DOCUMENT 0005U

409. PARC NATIONAL DES VOLCANS DE HAWAÏ (ETATS-UNIS)

Résumé préparé par l'UICN (avril 1987) d'après la désignation d'origine soumise par les Etats-Unis. L'original et tous les documents présentés à l'appui de cette désignation seront disponibles pour consultation aux réunions du bureau et du comité.

1. SITUATION:

Situé au sud-est de l'île d'Hawaï, qui est l'île la plus orientale de l'Etat d'Hawaï, le parc comprend le sommet et le versant sud-est du Mauna Loa, et le sommet et les versants sud-ouest, sud et sud-est du volcan Kilauea. Le centre du parc se situe à 19°11'-19°33'N, 155°01'-155°39'O.

2. DONNEES JURIDIQUES:

Le parc national a été créé en 1916 par une loi du Congrès américain. Sa superficie a plus que doublé par suite d'autorisations du Congrès datant de 1922, 1928 et 1938. La forêt de 'Ola'a fut acquise par des dons faits en 1951 et 1953. Séparée du coeur du parc par des zones privées, elle ne fait techniquement pas partie du parc national, comme le stipule l'ordre exécutif (Executive Order) 1640. Le parc a été accepté en 1980 comme réserve de la biosphère. Il couvre actuellement 87 940 ha.

3. IDENTIFICATION:

Le parc s'étend des falaises de la côte sud aux caldérans du Kilauea (volcan le plus actif du monde avec plus de 50 éruptions de 1952 à 1985), et au Mauna Loa. Ce dernier est un immense dôme de lave aplati construit sur des couches de lave successives, c'est le meilleur exemple au monde de ce type de volcan - il s'enracine à 5581 m sous le niveau de la mer et s'élève à 4169 m au-dessus. Avec un gradient climatique abrupt d'est en ouest, le climat varie en altitude du climat tropical humide au désert alpin, avec des températures moyennes de 22° au niveau de la mer à 7° à 3400 m, et plus fraîches encore au sommet de Mauna Loa.

Vingt-trois types de végétation distincts ont été décrits dans le parc, de la forêt tropicale humide très diverse de 'Ola'a, à la broussaille et aux prairies de Ka'u, ou la toundra alpine de Mauna Loa. L'on y distingue ainsi cinq grands écosystèmes, à savoir subalpin, saisonnier montagnard, forêt humide de montagne, saisonnier submontagnard, et plaine côtière. La forêt d'Ola'a, de plus de 4000 ha, est la plus grande forêt vierge d'ohias et de fougères des îles Hawaï. Il y a également dans le parc plusieurs communautés indigènes de plantes d'altitude caractéristiques des habitats d'avant la colonisation de l'île au 18e siècle. Certaines plantes endémiques n'existent que dans une seule vallée ou sur un seul versant. On dénombre 41 espèces indigènes, tandis que 40 autres sont considérées comme rares ou nécessitant une attention particulière.

On rencontre dans le parc plusieurs espèces aviennes rares, menacées ou vulnérables, dont l'oie néné, le faucon d'Hawaï, le corbeau d'Hawaï, et trois espèces de la famille des oiseaux-sucriers. Parmi les oiseaux endémiques du parc, il y a l'"apane" commun, et le rare "amakihi", oiseau-sucrier d'Hawaï, le hibou à oreilles courtes et la grive d'Hawaï.

Le parc est riche en ruines archéologiques, notamment le long de la côte où se trouvent des villages indigènes, des temples, des tombes, des sentiers pavés, des débarcadères pour canoes, des pétroglyphes, des grottes, des zones agricoles et deux grands sites archéologiques.

4. ETAT DE PRESERVATION/CONSERVATION:

La gestion s'appuie sur un plan de gestion général et un plan de gestion des ressources naturelles. Le parc est divisé en trois zones selon l'utilisation: Une zone axée sur le tourisme, une zone tampon sauvage, et une zone d'arrière-pays, la plus vaste et la moins utilisée. La chasse aux cochons sauvages et aux chèvres est autorisée pour les résidents, la chasse, la mise en place de barrières, la pose d'appâts, de pièges et de collets ont permis de réduire la destruction du couvert végétal sur 4000 ha du parc. Mangoustes, chats, chiens, et plusieurs espèces d'oiseaux et d'insectes continuent de perturber les écosystèmes indigènes. Les chèvres continuent de dénuder le paysage de broussaille et empêchent la régénération de nombreuses plantes indigènes.

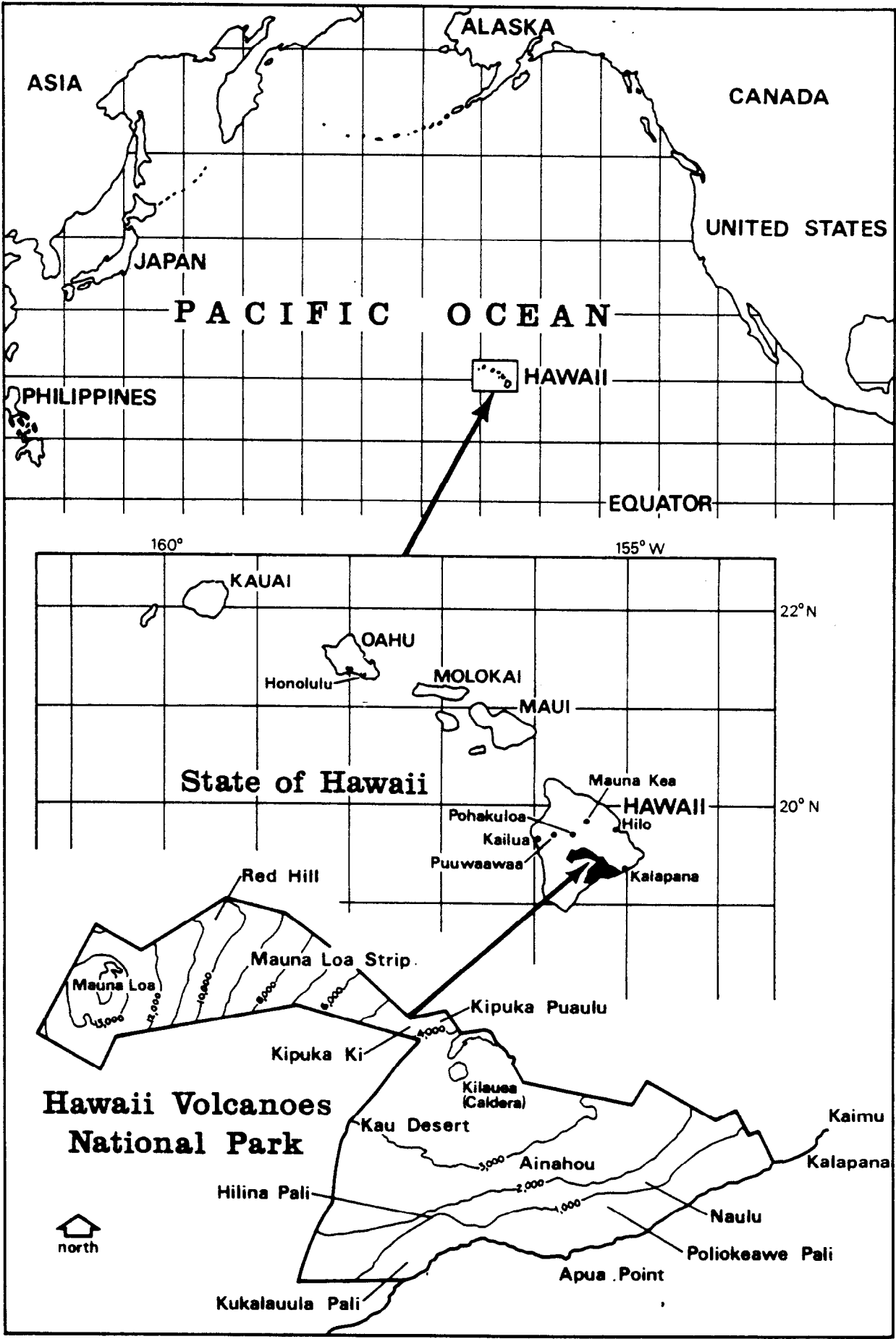
Des scientifiques effectuent un programme de recherche en géologie volcanique dans le cadre de l'Etude géologique américaine (US Geological Survey), à l'observatoire des volcans d'Hawaï fondé en 1912 au bord de la caldera du Kilauea. Les volcans de Mauna Loa et Kilauea sont les mieux étudiés et les mieux connus du monde. Un écologiste gestionnaire, un guide-interprète, un chercheur et un archéologue font partie du personnel du parc.

5. RAISONS JUSTIFIANT LA DESIGNATION POUR LA LISTE DU PATRIMOINE MONDIAL:

Pour justifier la désignation du Parc national des volcans de Hawaï (Etats-Unis) en tant que bien du patrimoine mondial, le Gouvernement américain a donné les raisons suivantes:

a) Bien naturel

- (i) Evolution géologique de la Terre. Ce site est un exemple unique de formation de l'île par un processus volcanique en cours. Il contient d'excellents exemples de stades biotiques successifs suivant l'activité volcanique.
- (iii) Nature d'une beauté exceptionnelle. Le parc offre un paysage grandiose de falaises volcaniques, d'énormes calderas et divers traits volcaniques tels que des orgues, des cratères et des grottes.
- (iv) Habitat d'espèces rares ou menacées. Il y a dans le parc une petite région de forêt sèche primaire parmi les dernières des îles Hawaï. Il y a plusieurs oiseaux menacés et plantes rares.



The location of Hawaii Volcanoes National Park in reference to the State of Hawaii

409 PARC NATIONAL DES VOLCANS D'HAWAÏ (ETATS-UNIS)

1. DOCUMENTATION:

- (i) Fiches de données de l'UICN
- (ii) Consultations: B. Cahn, G. Stankey, A. Holt, R. Dasmann, L. Hamilton, O. Hamann
- (iii) Littérature consultée: C.P. Stone and J.M. Scott, 1985, Hawaii's Terrestrial Ecosystem: Preservation and Management
- (iv) Visite du site: 1984.

2. COMPARAISON AVEC D'AUTRES AIRES:

Il y a six aires protégées de plus de 10 000 ha aux îles Hawaï. Le Parc national des Volcans d'Hawaï est de loin le plus vaste et le plus volcanique. Le cratère du Kilauea, dans le parc, est l'un des sites volcaniques parmi les plus étudiés du monde; une station géologique s'y trouve depuis 1912. Le Kilauea est le plus grand volcan actif du monde, avec plus de 50 éruptions en 34 ans. Le Mauna Loa est en fait la plus énorme masse volcanique qui soit: sa hauteur totale, en partant du fond de l'océan, dépasse de 600 m celle de l'Everest. Le Mauna Loa est un des meilleurs exemples de volcan bouclier.

La plupart des traits volcaniques du parc (falaises, calderas, orgues, etc.) se retrouvent dans d'autres îles volcaniques telles que les Canaries ou l'Islande. Les phénomènes de successions biologiques sont les mêmes qu'ailleurs, mais le parc compte de nombreuses espèces endémiques d'Hawaï.

En résumé, le Parc national des Volcans d'Hawaï est l'aire protégée la plus exceptionnelle d'Hawaï, tant par son volcanisme que par sa faune. Son paysage est moins spectaculaire que celui qu'offrent d'autres volcans, dont il se distingue surtout par la taille et l'activité.

3. INTEGRITE:

Comme toutes les régions naturelles d'Hawaï, le parc a subi une altération biologique considérable depuis l'arrivée de l'homme et il porte de nombreuses marques de perturbations. A basse et moyenne altitudes notamment, la flore originales des biotopes forestiers a été modifiée par le défrichement ou par des plantations de canne à sucre et d'ananas, par l'abattage et l'élevage en ranchs. L'élevage et l'introduction d'espèces telles que le porc Sus scrofa (400 têtes, avec une densité de 30 à 50 bêtes au km²), la chèvre Capra hircus (autrefois 15 000 à 20 000, maintenant 10 animaux dans des zones marquées) et la mangouste Herpestes auropunctatus, ont des conséquences biologiques graves, notamment la destruction des écosystèmes originaux et l'extinction des espèces endémiques. Des flaques d'eau croupissante, qui servent de bauges aux cochons sauvages, permettent le développement des moustiques vecteurs de la malaria avienne. Les porcs sont également à l'origine de la dispersion d'espèces végétales non natives. Les mangoustes, les chats, les chiens et plusieurs espèces d'oiseaux et d'insectes étrangers continuent de perturber les écosystèmes indigènes. Les chèvres, par leur broutage, continuent de dépouiller la région de sa végétation de buissons, et empêchent la régénération de bon nombre d'espèces végétales indigènes.

Le plan national de gestion des ressources tente de résoudre tous ces problèmes. Les programmes de lutte contre les animaux et les plantes non indiennes (y compris les plantes narcotiques illégales) dans les îles

océaniques, entrepris sur la base de solides études scientifiques, sont un modèle du genre. L'action politique a permis de réduire les menaces que faisaient courir le développement thermique sur les terres voisines du parc, et les vols par hélicoptère. Un échange de terres a été autorisé, qui ajoutera 2300 ha au parc.

4. COMMENTAIRES ADDITIONNELS:

Le milieu naturel dans lequel la "déesse du volcan" joue un rôle spirituel important dans les légendes locales, est un important élément de la gestion du parc.

5. EVALUATION:

Ce qu'il y a de plus remarquable dans le Parc national du Volcan d'Hawaï, est l'importance des phénomènes géologiques qui s'y déroulent, et que l'on peut si facilement observer. Comme le volcanisme y est extrêmement actif, c'est un excellent exemple d'île édiflée par le volcanisme. C'est une région exceptionnelle pour la science; l'on y a mis au point des méthodes de recherche qui sont maintenant classiques. L'aire satisfait donc au Critère (ii) de la convention. L'intérêt du parc selon les Critères (i) et (ii) est moins évident; sa valeur biologique, quoiqu'importante, passe après le volcanisme actif.

6. RECOMMANDATIONS:

Le Parc national des Volcans d'Hawaï devrait être inscrit sur la Liste du patrimoine mondial. Il convient de féliciter les autorités du parc pour leur travail de recherche géologique et de lutte contre les espèces exotiques, et de les encourager à le poursuivre.