WORLD HERITAGE NOMINATION - IUCN SUMMARY

VOLCANOES OF KAMCHATKA (RUSSIA)

Summary prepared by IUCN/WCMC (April 1996) based on the original nomination submitted by the Government of the Russian Federation. 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

Comprises five disjunct sites on the Kamchatka Peninsula, in the Russian Far East. The sites variously occupy locations in the central mountainous spine of the Peninsula (Bystrinsky Nature Park), coastal locations facing east towards the Bering Sea (Koronotsky Zapovednik, Nalychevo Nature Park and the contiguous Southern Kamchatka Nature Park and Southern Kamchatka State Nature Reserve).

2. JURIDICAL DATA

The entire nominated property is in state ownership, comprising five legally gazetted protected areas, two of them under the overall legal administrative control of the federal Ministry for the Protection of the Environment and Natural Resources. In addition, the regional government of the Kamchatka Oblast has responsibility for the Bystrinsky, Nalychevo and Southern Kamchatka nature parks. Koronotsky Zapovednik was recognised under the UNESCO Man and the Biosphere Programme in 1984. The legally gazetted protected areas cover a combined area of 3.3 mil. ha.

3. IDENTIFICATION

The property represents the most pristine parts of the Kamchatka Peninsula and a remarkable collection of volcanic areas, characteristic of the 'Pacific Volcanic Ring'. This is the surface expression of the subduction of the Pacific Ocean Continental Plate under the Eurasia Plate at aerate of 10cm annually. More than 300 volcanoes are found in Kamchatka, 29 being currently active (19 of these are included in the nomination), including caldera, strato-volcano, somma-volcano and mixed types, the largest included in the nomination being Kronotskaya Sopka (3528m).

In addition there is a multitude of thermal and mineral springs, geysers and other phenomena of active vulcanism.

Surrounded by sea the Peninsula enjoys a moist and relatively mild climate leading to a lush vegetation cover. With an only modest history of human exploitation, the vegetation is in largely pristine condition, and includes mountain valley taiga forest of birch, larch and spruce, extensive 'stone birch' forest, riparian forest on alluvial soil of poplars, aspen, alder and willow; peat wetland and extensive coastal wetlands of up to 50km width; and sub-alpine shrub and mountain tundra.

The faunal complement is relatively low in diversity, Kamchatka Peninsula exhibiting some of the biogeographical qualities of an island. Nevertheless, a number of species are found in abundance, including bears, snow ram, northern deer, sable and wolverine and there is a high level of endemism. Noteworthy birds include white-shouldered sea-eagle, golden eagle and gyrfalcon. There are numerous seabird colonies and 50% of the global population of Aleutian tern nest on the Peninsula. Nearly all

rivers, noted for being exceptionally un-polluted, serve as salmon spawning grounds, a key food chain species for predatory birds and mammals.

4. STATE OF PRESERVATION/CONSERVATION

The nominated property has experienced only minimal evidence of human impact and there are extensive tracts of pristine habitat. There is limited evidence of geological prospecting and forest fires in the Bystrinsky Nature Park. Industrial gold production may commence near this park in future although it is hoped that World Heritage status will affect a decision on this. The principal environmental impact of such development is likely to be pollution of salmon spawning grounds. Hunting, fishing, and the gathering of mushrooms and berries occurs, for example in Nalychevo Nature Park, and management plans are being developed to accommodate and regulate these activities. Extremely limited winter hunting of fur animals takes place and there is deer raising in Bystrinsky Nature Park. Land has been legally set aside in the Southern Kamchatka Nature Park and in the Bystrinsky Nature Park specifically for the protection of the traditional lifestyle of the indigenous Eveni people.

The five gazetted protected areas have been selected for nomination as characteristic of the Peninsula. However, it is planned that in due course other associated properties will also be nominated.

5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST

The Government of the Russian Federation has presented the following justification for designation as a World Heritage natural property:

(i) **Contains examples of the major stages of earth's history and outstanding geological features**. Represents the most volcanically active region in the world, with an extremely diverse range of volcanic features.

(ii) **Contains examples of on-going ecological and biological processes**. The Peninsula is analogous to an island and thus displays a marked level of endemism. Volcanic activity creates new areas for natural colonisation. Such natural processes occur undisturbed. There are extensive pristine habitats.

(iii) **Contains superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance**. The landscape, formed by dramatic tectonic and volcanic activity, is of outstanding natural beauty, and includes geysers, mudholes, hot springs and other features. In addition there are diverse coastal landscapes and seascapes, and often spectacular gatherings of wildlife occur.

WHC/JWT/amb
October 1996

WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

VOLCANOES OF KAMCHATKA (RUSSIA)

1. DOCUMENTATION

(i) IUCN/WCMC Data Sheet (3 references)

(ii) Additional Literature Consulted: Simkin T. et.al. 1981. **Volcanoes of the World**, Smithsonian; Decker R. and B. **Volcanoes** Freeman; Francis P. 1993. **Volcanoes: A Planetary Perspective**. OUP; Bullard, F.M. 1973. **Volcanoes**. University Texas, Decker R. and B. 1991. **Mountains of Fire**. CUP; Krever V. et.al. 1994. **Conserving Russia's Biodiversity**. WWF; Stewart J.M. 1992. **The Nature of Russia**. Boxtree; Kirby E.S. 1971. **The Soviet Far East**. Macmillan; Berg L.S. 1950. **Natural Regions of Russia**. Macmillan; Newell J. and E. Wilson. 1996. **The Russian Far East.** FoE-Japan; Nechayev A. 1995. **Kamchatka**. Disentis; Morrow P. and B. 1994. Playing with Fire. **Equinox**. February.

(iii) Consultations: Regional Administration officials, Kamchatka Association of Greens, Institute of Volcanology, Institute of Ecology and Nature Management, Tourism and Park Development Project staff, park staff

(iv) Field Visit: September, 1996. Jim Thorsell, J. Cassils

2. COMPARISON WITH OTHER AREAS

There are a number of volcanoes on the World Heritage List and the question has been rightly asked by a previous Committee "how many volcanoes should there be on the World Heritage List?" Existing World Heritage sites with active volcanoes include Tongariro, Hawaiian Volcanoes, Ujung Kulong (Krakatoa), Sangay, Galapagos, Kilimanjaro and Virunga. Three more have been nominated for review in 1997 and others are certain to come in future. As "only a selected list of the most outstanding from an international viewpoint" (Operational Guideline 6) are given a favourable evaluation, comparisons here are essential.

By various counting methods there are at least 454 active volcanoes in the world (Bullard, 1973) or as many as 1343 (over the past 10,000 years) as tallied by the Smithsonian Institution (Simkin, 1981). The list and map provided by Simkin (1981) are included in this evaluation for background.

The majority of the world's active volcanoes are found in the "Pacific Rim of Fire" that extends around the Pacific Ocean. The most active portion of this rim is the section between Japan and Kamchatka with some 111 active volcanoes (Kamchatka itself has 29 of which 19 are included in the nominated area). Most of Japan's volcanoes, however, have been substantially modified and none exist in as natural a state as the ones on Kamchatka. Kamchatka's volcanoes are certainly the most regularly

active and the most concentrated in area. As stated by the explorer Krasheninnikov in 1755:
"Perhaps there is no other region in the world where so many volcanoes and hot springs are to be found within so small a space as here on Kamchatka"

Geologists classify volcanoes by form and by eruptive habits and once again Kamchatka stands out as having the greatest variety of types, more so than any other area and than in any other existing World Heritage site. So, in addition to the density of volcanoes the area contains all volcano types and a very diverse set of associated volcanic phenomena - geysers, hot springs, mud pools and calderas

Comparisons on scenery are difficult as there are no empirical measures but in the subjective judgement of the well-known vulcanologists Robert and Barbara Decker "The perfect cone of Kronotsky in Kamchatka is a prime candidate for the world's most beautiful volcano."

Other distinguishing land-form features of the area include its many lakes and rivers and the large number of glaciers that occur on the volcanoes and the important role they have in studies of climate change. In fact the Kamchatka volcanoes have been carefully studied for over 30 years and are seen as classic case study sites. (The local Institute of Volcanology was established in 1962 and has a staff of 250 including 64 scientists.)

In addition to their physical landscape qualities, volcanoes have other associated natural features as well. It is here where the Volcanoes of Kamchatka stand apart from most other volcanic areas. In the five protected areas that comprise the nomination are found six vegetation zones with 700 species of higher plants; a large marine component in the Bering Sea with many marine mammals and seabird colonies and very high populations of wildlife species including such notables as the brown bear and Stellar's sea eagle. On top of all this Kamchatka's streams and lakes are some of the most productive salmon spawning areas in the Pacific.

Apart from the high species and habitat values of Kamchatka are the biological processes that occur there that are rare on the planet. These relate to the location of the peninsula on the edge of the ocean and a large continent and the "islandisation" features of its geography. The relatively recent recovery from glaciation and near pristine condition add to special nature of the site and to its distinctiveness.

In sum, the Kamchatka volcanoes have a bio-geodiversity found in only a few places of the world. There have been few disturbances and the area still exists in a largely natural condition.

3. INTEGRITY

The nomination is a serial one with five different protected areas in four separate locations. Two of the protected areas are federal nature reserves and have been in existence for many years while the other three were established in 1995 by the regional government. Documentation on each of the five sites and detailed maps are provided.

The integrity questions that need to be addressed in all serial nominations are as follows:

- Does the serial nomination approach in this setting have justifiable rationale? By their very nature, volcanoes are spread over the length of the southern part of the peninsula and 19 of the 29 active ones are included in the nomination. The nomination has been focused only on the five existing protected areas which incorporate the main natural and volcanic features of the Peninsula. Approximately 20% of Kamchatka Oblast and 7% of the Kamchatka Peninsula are included in the nominated area.

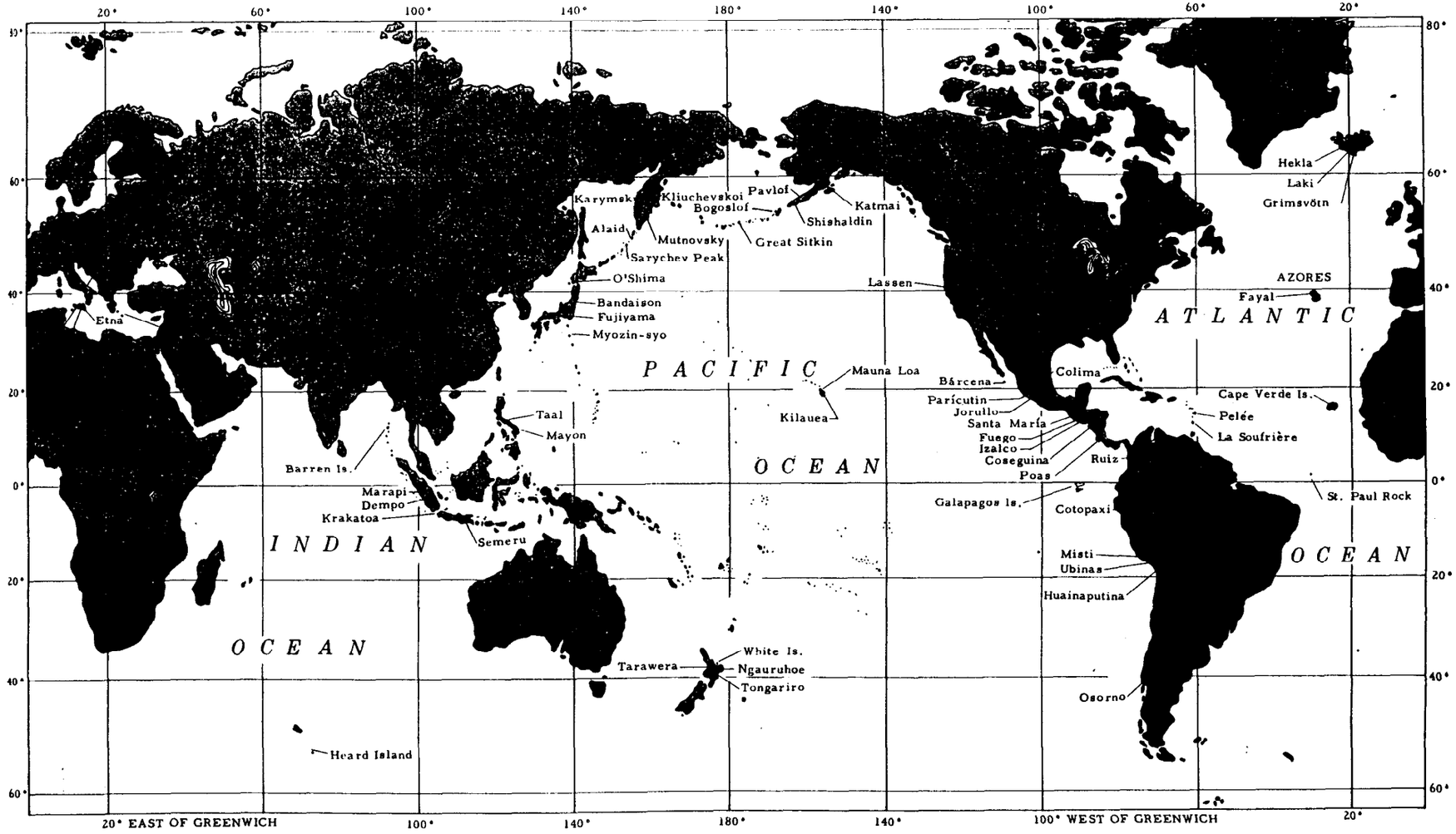

FIGURE 60. Active volcanoes of the world. It was not possible, because of the scale of the map, to locate all of the active volcanoes. Those mentioned in the text, as well as some of the other more prominent volcanoes, are named.

ACTIVE VOLCANOES OF THE WORLD[1]

	Partial Total	*Subtotal*	*Total*
Circum-Pacific belt			283
Asia and the southwestern Pacific		163	
*Kamchatka	20		
*Kurile Islands	33		
Japan	49		
*Philippines	11		
*Melanesia (New Guinea, New Britain, Admiralty Islands, Solomon Islands, Santa Cruz Islands, and New Hebrides)	29		
New Zealand, Kermadec Islands, Tonga Islands, and Samoa Islands	21		
North America		48	
Alaska and Aleutian Islands	36		
Western United States	1		
*Mexico	11		
*Central America		31	
Costa Rica	6		
Nicaragua	11		
El Salvador	7		
Guatemala	7		
South America		41	
Southern Andes	22		
Central Andes	8		
Northern Andes	11		
Alpine-Himalayan belt			98
Canary Islands		3	
Mediterranean area (Italy, Sicily, and Aegean Sea)		17	
Barren Island (Bay of Bengal)		1	
*Indonesia		77	
Sumatra	12		
Java	20		
Lesser Sunda Islands	20		
Banda Sea	8		
Celebes	6		
Sangihe Islands	5		
Moluccas	6		
Pacific Ocean			7
Hawaiian Islands		4	
Galapagos Islands		3	
Atlantic Ocean			46
Iceland		26	
Azores		9	
Lesser Antilles (West Indies)		9	
St. Paul Rocks		1	
Cape Verde Islands		1	
Indian Ocean			2
Reunion Island		1	
Heard Island		1	
*Africa			16
Ethiopia and Red Sea		6	
East Africa		7	
Central Africa		2	
West Africa		1	
Antarctic			2
Grand Total			454

[1] Information on areas marked with an asterisk (*) is based on Catalogue of the Active Volcanoes of the World (1951–1959). Other figures compiled from miscellaneous sources.

- Are the individual elements functionally linked and do they all contribute to the overall unity of the nomination? The five sites are spread over a distance of 600 km from north to south. All five contribute certain features that reflect the variety of features of the peninsula. IUCN was initially concerned over the inclusion of the Bystrinsky Nature Park but during the field inspection this was answered. Bystrinsky adds an east-west transect and contains the one main volcano of the central range. It also adds substantial tundra habitat and has the highest population of snow sheep and marmot as well as being a major bear hibernation area. The total unity of the site, however, would be substantially strengthened if the Klyuchevskaya volcano and adjacent wetlands were added. This is not only the highest active volcano in Eurasia (4750 m) but is the most active. It is not yet under a protective status but the Oblast is planning to establish a nature park there in the near future.

- Do the individual clusters in the serial nomination have an overall framework which serves to integrate them into a broader whole and ensure integrity? Serial nominations all give rise to concern over how they are affected by adjacent land use activities and what kind of administrative framework exists to manage the larger whole. At the moment the two Federal reserves are administered separately from the three regional reserves. Managers are in close contact and as the areas are all only very lightly used there is not a pressing need for an overall structure. Nevertheless, the Regional Committee for Nature Protection is aware of the issue and is looking into what arrangements might be appropriate in future.

A greater issue dealing with integrity is the prospect of mining activities being undertaken in or next to the established parks. One of the proposed mines (Aginskoye) would be inside the Bystrinsky Nature Park and a resolution cautioning against this has been presented to IUCN's World Conservation Congress in Montreal in October 1996. The impact of a proposed mine has been studied by an Expert Commission and the current regional Government intentions are not in favour of approving the project.

A second area when leasing rights to mineral resources has been given is at Asachinskoe and Rodnikovoe in the wedge separating the two portions of the Southern Kamchatka Nature Park (see map). This area is not covered in the IUCN Resolution but would be an equally damaging activity as the proposed mine in Bystrinsky. This mine is unlikely to go ahead but the lease area and the valley it is in have been omitted from the nomination.

A final issue relating to integrity is the lack of sufficient resources to manage the sites. Staff of the two Federal areas had not been paid for some months while field staff for the Nature Parks are only just being appointed. Management plans are available for the Federal Nature Reserves but not yet for the Regional Nature Parks. Support for preparation of these is, however, coming through the Northern Forum's Tourism and Park Development Project and through an EU training project.

In summary, the Kamchatka Volcanoes nomination presents some problems with integrity issues. Although the site is of substantial size (3.3 mil. ha), it is missing one outstanding volcano (Klyuchevskaya) and the connecting wedge between the two sections of the Southern Kamchatka Nature Park. In addition three of the component part of the serial nomination are only newly created and have not yet been adequately staffed and operationalised. Mining proposals are being discussed that could affect the site. Kamchatka's long period of relative isolation has ended and conservation action is now needed.

4. ADDITIONAL COMMENTS

Most of the nominated area has no human presence and is seldom visited. Two small areas of settlement in Bystrinsky are excluded from the nomination. Some traditional activities (reindeer grazing, trapping, hunting) exist in the three Nature Parks, however, and some archaeological evidence of the former Itelmeni and Eveni residents exists.

5. EVALUATION

The Kamchatka Volcanoes are one of the most outstanding volcanic regions in the world with both a high density of active volcanoes, a variety of types (Strombolian, Hawaiian, Pelean, Vesuvian, and Plinian) as well as a full diversity of related volcanic features (geysers, mud pools, hot springs, calderas mineralisation). The five sites that make up the serial nomination collectively bring together the majority of the major volcanic features of the Peninsula and the nomination clearly meets criterion *i* as an outstanding example of geological processes and land-forms.

The site is also biologically analogous to an island and its particular geographic location between a large continental land-mass and the Pacific Ocean have given it unique characteristics. Natural processes continue with on-going volcanic activity and colonisation. Criterion *ii* thus is also met.

The Kamchatka Volcanoes also qualify under criterion *iii* as a landscape of exceptional natural beauty with its symmetrical volcanoes, lakes, wild rivers, and spectacular coastline. It also contains superlative natural phenomena in the form of salmon spawning areas and major concentrations of wildlife (e.g. seabird colonies) along the coastal zone of the Bering Sea.

The Kamchatka Volcanoes nomination is of sufficient size and contains all of the prime features of the Peninsula except for one volcano (Klyuchevskaya) which is not yet under protective status and which should eventually be added to the site. Mining proposals in the Bystrinsky Nature Park are not compatible with maintenance of World Heritage natural values and fortunately are unlikely to proceed. Similarly, the proposal for a mine in the Asachinskoe area should be very carefully considered and preferably cancelled. The wedge between the two parts of the Southern Kamchatka Nature Reserve should be added to the site.

The fact that a management presence in the three State Nature Parks is just being established and that the Federal Nature Reserves do not receive sufficient resources, hopefully, are short term concerns and not serious impediments to integrity. World Heritage status, in fact, will stimulate action to strengthen local management activity.

To conclude, IUCN agrees with the sentiment expressed by the Russian author Andrei Nechayev in his book on Kamchatka. "The power of the wild nature of Kamchatka to preserve itself and resist onslaughts should no longer be put to the test. For its protection, it needs the support of that world public which understands that treating nature with care is a central concern of our time. No one would ever forgive us for the loss of the unique world of Kamchatka."

6. RECOMMENDATIONS

The Kamchatka Volcanoes should be inscribed on the World Heritage List under criteria *i*, *ii* and *iii*. The Committee should express concern to the Russian authorities over the proposals for mining in or near the property. It should also suggest additions to the property be considered and encourage the Kamchatka Oblast in their efforts to compile management plans and to operationalise management in the three recently created nature Parks.

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