

ASIA/PACIFIC

SHIRETOKO

JAPAN



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## WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

SHIRETOKO (JAPAN) ID No: 1193

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### 1. DOCUMENTATION

- i) **Date nomination received by IUCN:** April 2004
- ii) **Dates on which any additional information was officially requested from and provided by the State Party:** IUCN requested supplementary information on the 20 August 2004, after the field mission, and 2 February 2005, after the IUCN WH Panel. State Party responses were received on 5 November 2004 and 30 March 2005 respectively.
- iii) **IUCN/WCMC Data Sheet:** 1 [the nomination which contains 136 references]
- iv) **Additional Literature Consulted:** : Hattori H., 2004. **Plankton and seasonal sea ice.** Unpublished report provided to evaluation mission; Nature Conservation Bureau, 1985. **Conservation Reports of the Onnebetsu-Dake Wilderness Area, Hokkaido, Japan.** Environment Agency, Japan; Ohtaishi N., and Nakagawa, H. (1988) **Animals of Shiretoko. Hokkaido University Press, Sapporo English Summary.** Sakurai Y., 2004. **The rich marine environment and ecosystem around Shiretoko – towards coexistence with the fisheries.** Unpublished report provided to evaluation mission. Sato K., 2004. An Introduction to Vegetation of the Daisetsuzan Mountains. **Journal of Development Policy Studies,** Hokkai-Gakuen Univ, No 73:23-38; Tatewaki M., 1963. **Phytogeography of the Islands of the North Pacific Ocean. Proceedings of the Tenth Pacific Science Congress,** University of Hawaii, pp 23-28; Tatewaki M., (1958) **Forest Ecology of the Islands of the North Pacific Ocean** University of Sapporo, Japan.
- v) **Consultations:** 12 external reviewers provided input to this evaluation report. Extensive consultation was carried out in Japan with representatives of relevant government agencies, local communities and other stakeholders.
- vi) **Field Visit:** David Sheppard, July, 2004
- vii) **Date of IUCN approval of this report:** April 2005

### 2. SUMMARY OF NATURAL VALUES

Shiretoko is located in the northeast of Hokkaido, the northernmost island of Japan. The Shiretoko Peninsula is approximately 25 km wide at its base and protrudes 70 km into the southern boundary of the Sea of Okhotsk. The nominated property includes the terrestrial area from the central part of the Peninsula to the tip of the peninsula (Shiretoko Cape) and the surrounding marine area. The total area of the nominated property is 56,100ha comprising a core area of 34,000 ha and a buffer area of 22,100 ha.

The Shiretoko peninsula was formed by volcanic activities and uplift from the Pacific Plate subducting under the North American Plate. The Peninsula comprises a number of volcanoes running along the centre of the peninsula and including the highest peak within the nominated property, Mount Rausu (1,661m). The coastlines on the east and west sides of the peninsula were formed by a combination of volcanic activities, tectonic movement and marine erosion. For example, sea cliffs around Utoro range from 60m to 120m in height and were formed from andesitic lava from the eruption of Mt Rausu 80,000 years ago and subsequent marine erosion.

The key feature of the property is the productivity of the marine and terrestrial ecosystem, reflecting the formation of seasonal sea ice at the lowest latitude among the world's seasonal sea ice in the northern hemisphere. The formation of the sea ice plays an integral role in the formation of the phytoplankton which develops on the nutrients supplied by the sea ice. Blooms of ice algae and other phytoplankton occur earlier in spring as ice melts faster than other sea ice areas. The phytoplankton is the primary producer in the marine ecosystem and provides the source of food for krill and zooplankton such as small shrimp, which in turn become food for small fish, crustacean and shellfish. These in turn become food sources for fish, marine mammals, such as seals and sea lions, as well as birds including the Steller's sea eagle and the White-tailed eagle. In addition, salmon and trout swim upstream to spawn and become an important food source for terrestrial species, including the brown bear and the Blakiston's fish-owl.

The significance of the sea ice in contributing to the high productivity of the ecosystem within the nominated property reflects three distinct conditions affecting the Sea of Okhotsk in general and this property specifically. The first condition is the double-layered water structure of the Sea of Okhotsk, with the surface and lower layers of the water having a large difference in salinity. The second condition is that the Sea of Okhotsk is

surrounded by lands with limited exchange of seawater with the open sea. This low level of exchange contributes to maintaining the double-layered water structure with different salinity levels. The third condition is the distribution of atmospheric pressure in the area, causing cold air from Siberia to blow into the area and providing a chilling effect on the seawater. As noted, the seasonal sea ice contributes to the productivity of both the marine and terrestrial ecosystems.

In relation to the marine ecosystem, two hundred and twenty three (223) species of fish have been collected from the coastal waters of the Shiretoko Peninsula, with the composition of species reflecting the effects of the seasonal sea ice in winter, as well as the differential in water temperature throughout the year, with cold water temperatures in winter and the warmer surface temperatures of the property from August to September, due to the warm Soya current. Ten species of salmonid species have been found in the coastal waters of the Shiretoko Peninsula and thus a majority of the 13 species in the Pacific Ocean and 12 in the Sea of Okhotsk are represented in the group. The coastal waters of the Shiretoko Peninsula are recognized for their global importance for salmonid species and also as a key migration route for salmonids.

The nominated property also has important populations of marine mammals and cetaceans. The sea ice around Shiretoko is particularly important for the feeding, resting and breeding of marine mammals, since the coastal waters of Shiretoko are rich in food and the ice that covers the sea in winter provides protection from predators and waves. Twenty eight (28) species of marine mammals have been identified in the coastal area of Shiretoko. These include the Steller Sea Lion, which is listed as Endangered in the IUCN Red List of Threatened Species, as well as a number of other important marine mammal species. The Steller Sea Lion is one of the flagship species within the nominated property and the coastal waters of the Shiretoko Peninsula are essential for over-wintering and feeding for this species. The Walleye Pollack is a particularly important fish species for the diet of the Steller Sea Lion. The Sea Lions rest along the near shore waters about one km from the coast and feed along the edge of the continental shelf near the isobathymetric line of 200 metres.

There are seven cetacean species commonly distributed in the coastal waters adjacent to the Shiretoko Peninsula, including within the waters of the nominated property. The coastal waters of the Shiretoko Peninsula are important as a cetacean feeding and breeding site and also as a route for their seasonal migration. Species include the Minke Whale, the sperm whale and the Dall's porpoise, with the nominated property providing the only confirmed breeding site in the West Pacific Ocean for the latter species. In addition, some species are infrequently found within the waters of the Shiretoko Peninsula, including the Sei Whale (Listed as Endangered on the IUCN Red List of Threatened Species) and also two rare and little known beaked whales.

In relation to the terrestrial ecosystem the majority of the vegetation is in a natural or semi natural condition. Various types of virgin vegetation are present from the

coastline to the mountain peaks, 1,600m high. Further, the complex and undulating topography and the differences in weather conditions between the east and the western sides of the Shiretoko Peninsula create a variety of habitats and as a result, Shiretoko contains a diverse range of terrestrial fauna and flora. A number of endemic plant species are found within the property, including *Viola kitamiensis* which is endemic to the Shiretoko Mountain Range and a number of plant species found within the nominated property are listed in the IUCN Red List of Threatened Species. While the altitude variation within the property is only 1,600 m from the coast to the highest peak (Mount Rausu), alpine plants such as the Japanese stone pine and other alpine plant communities are developed at relatively low altitudes, due to an upper forest line at about 800 m. The forest within the nominated property is a Pan Mixed Forest Zone and consists of a mosaic of three types of forests: (a) cool temperate deciduous broad-leaved forest with species such as Japanese Oak, Painted Maple and Japanese Linden; (b) sub-arctic evergreen coniferous forest with species such as Sakhalin fir, Yeso Spruce and Sakhalin Spruce; and (c) mixed forest combining the above cool temperate deciduous broad leaved forest and sub-arctic evergreen coniferous forest.

The nominated property supports a range of animal species, combining northern species from Sakhalin and southern species from Honshu. There are thirty five (35) species of terrestrial mammals within the nominated property, including three species of one family of Chiroptera which are listed as Endangered or Lower Risk (LR) in the IUCN Red List of Threatened Species. The property has one of the highest recorded densities of brown bear populations in the world, with estimates up to 35 bears per 100 km<sup>2</sup>. This, in turn, reflects the very small home range of brown bears in the Shiretoko Peninsula, at 15 km<sup>2</sup> on average, among the smallest home ranges for brown bears in the world.

A rich diversity of avifauna is found within the nominated property, with two hundred and sixty four (264) species of birds recorded in the Peninsula, including 9 species listed on the IUCN Red List of Threatened Species. Shiretoko is recognized as one of the world's Important Bird Areas (IBA) by Birdlife International. The nominated property provides particularly important habitat for the Blakiston's fish owl (Endangered on the IUCN Red List of Threatened Species) and the previously mentioned Stellar sea eagle. It has been estimated that there are less than 1,000 Blakiston's fish owls left in the world, with a significant number of these found in the Shiretoko Peninsula. It has been estimated that the global number of Stellar sea eagles is around 5,000 (Birdlife International) and more than 2,000 have been recorded as over-wintering within the Shiretoko Peninsula. The nominated property is also an important wintering site for the White-tailed eagle, with up to 600 individuals recorded at the property in winter. These three species, along with the black woodpecker, are designated as Natural Monuments in Japan, due to their rarity and high scientific value. The coastal areas of Shiretoko are also important for migratory seabirds. Specifically the sea cliffs along the coast from Utoro on the western side of the Peninsula to Shiretoko Cape are important breeding grounds for a range of species, with particular

importance as a breeding site for the Japanese Cormorant.

In autumn, both Steller's sea eagle and White-tailed eagle feed upon the salmon which swim upstream and in winter they hunt the Walleye Pollack. Two hundred and fifty five (255) species of fish have been recorded in the rivers of the Shiretoko Peninsula. The nominated property is noted as a key breeding area for the nine salmonid species found in the rivers of the Shiretoko Peninsula. Rivers specifically play an important role as a spawning and wintering area for these species. In particular the Shiretoko Peninsula is the southernmost habitat in the world for the sea run of the Dolly Varden.

### 3. COMPARISON WITH OTHER AREAS

The nominated property lies within Udvardy's "Manchu-Japanese Mixed Forest" Biogeographic Province. The Central Sikhote-Alin in Russia is the only World Heritage (WH) property within the same Udvardy Biogeographic Province. This property, at 406,200 ha is much larger than the nominated property and is one of the world's largest temperate wilderness areas. On a comparative basis it is clear that the forest within Shiretoko (total area 56,100 ha) cannot compare with the Shitote Alin property in terms of forest biodiversity nor in general terms of species diversity or coverage of this province. However the range of other attributes of the nominated property is important and particularly the higher level of marine biodiversity exhibited at the property. Shiretoko also exhibits clearer and exceptional evidence of the interaction between the marine and the terrestrial environments.

From the global perspective there are 11 other natural WH properties within the same "Temperate broad – leaved forests or woodlands, and sub polar deciduous thickets" biome of Udvardy. Among the existing WH properties there are only two which feature the interaction of the terrestrial and marine environment, Sikhote-Alin, mentioned above, and Volcanoes of Kamchatka, also in Russia. The Volcanoes of Kamchatka property was inscribed on the WH List for its wide range of volcanic attributes as well as its biodiversity. This property has a higher diversity of salmonid fish species but the level of diversity of terrestrial mammals and birds is higher in the nominated property, also due to its more southward location, with Shiretoko having 35 species of terrestrial mammals and 264 species of birds compared to the 33 species of terrestrial mammals and 145 species of birds found in the Volcanoes of Kamchatka. It is further noted that the seasonal sea ice within the nominated property is formed by the specific conditions of the Sea of Okhotsk while the east coast of the Kamchatka Peninsula (where the WH property faces) usually does not have sea ice.

There are three comparable large continental/maritime natural WH properties at broadly similar latitudes in North America – (a) Olympic National Park bordering the Pacific Ocean in Washington State; (b) Gros Morne National Park on the western Atlantic seaboard in Newfoundland and Labrador province in Canada; and (c) the Redwood National Park situated along the Pacific Coast in California. The Olympic National Park (Oregonian biogeographic province) is an outstanding temperate

rainforest but its climate is very different (much wetter and warmer) than Shiretoko and its forest is more coniferous. Olympic is also not listed for its biodiversity value or endangered species. Gros Morne National Park, likewise, is not listed under criterion (iv); it is wetter and cooler (in summer) than Shiretoko and it lacks the forest community diversity of the latter. The Redwood National Park is characterised by virgin temperate rainforests, mainly consisting of giant conifers and exhibits a different range of species from the nominated property and it does not exhibit the same interaction of terrestrial and marine features of the nominated property, neither is it influenced by the seasonal sea ice.

The Udvardy's "Manchu-Japanese Mixed Forest" Biogeographic Province also extends across provinces of north-east China (Heilongjiang and Jilin) to the North Korean border. The most significant site in this area is Changbai Mountain Nature Reserve (190,582 ha). This site is a Biosphere Reserve but lacks any lowland forest (below 300m) or any coastal landforms and biota. It is noted that similar ecosystems, and especially the same type of forest vegetation as well as comparable interactions between terrestrial and marine ecosystems also occur on the two southernmost islands of the Kuril island chain, adjacent to Shiretoko.

In addition to the comparison with other properties within the same Udvardy Biogeographic Province and Biome, it is noted that there are a number of distinctive features which strengthen the case for the nominated property being of Outstanding Universal Value. These include:

- The productivity of the marine and terrestrial ecosystem, reflecting the formation of seasonal sea ice at the lowest latitude among the world's seasonal sea ice;
- The interaction between the marine and terrestrial environment within the nominated property;
- The high number of flora and fauna species within the nominated property that are endemic and/or listed as Threatened on the IUCN Red List of Threatened Species (refer above section);
- The nominated property also has particular importance as a site for the protection of a number of globally threatened bird species, including the Steller's sea eagle, the Blakiston's Fish - owl and the White-tailed eagle, as well as being a significant site for migratory birds, such as Short tailed shearwater. Birdlife International suggests the ornithological importance of the site relates to the "site's significant numbers of globally threatened bird species, to its significant assemblage of species whose breeding distributions are largely or wholly confined to one biome, and to the fact that it holds, on a regular basis, more than 1% of a biogeographic population of a waterbird species"
- The fact that this property has one of the highest densities of brown bear populations in the world is also an important, although secondary, attribute. It is noted that densities in Shiretoko compare with brown bear population densities observed in coastal areas of Alaska and Kamchatka, with bears in these areas

also having access to salmon. However, it is noted that the high figure estimated for the Shiretoko nomination is exceeded by at least two Alaskan island populations (40 bears per 100 km<sup>2</sup>) (pers. comm. IUCN/SSC Bear Specialist Group). Thus the high density of the brown bear at the nominated property is a key feature but by itself probably not sufficient to justify "Outstanding Universal Value".

- The property has particular significance for salmonid species. The IUCN/SSC Salmon Specialist Group notes there are nine Natural World Heritage properties established within the natural range of Pacific salmon (Shirakami Sanchi in Japan, Central Sikhote-Alin in Russia, Volcanoes of Kamchatka in Russia, Wrangel Island Reserve in Russia, Kluane/Wrangell-St. Elias/Glacier Bay/Tatshenshini-Alsek in Canada and the USA, Olympic National Park in USA, Redwood National Park in USA, Yosemite National Park in USA, and Nahanni National Park in Canada). Most of these properties, however, include higher elevation areas that do not necessarily encompass critical habitat for salmon, or only provide partial protection of watersheds that support salmonids. Exceptions to this include the Olympic National Park in the USA and the Volcanoes of Kamchatka in Russia. The 3.7 million km<sup>2</sup>. The Kamchatka property includes the world's greatest diversity of salmonid fish as well as important populations of seabirds and marine mammals. The IUCN/SSC Salmon Specialist Group notes the particular significance of the Shiretoko property is that it encompasses habitat in more than a dozen small watersheds and supports several species of Pacific salmonids, including White spotted charr, Japanese huchen or Sakhalin taimen, masu salmon, chum salmon and pink salmon. The nominated property has specific importance as it is the southernmost habitat in the world for the sea run of the Dolly varden. The importance of the property is underlined by the fact that many of the salmon river ecosystems in the region have been significantly altered through land use practices and various forms of channel modification and impoundment.
- The nominated property represents the lowest latitude of the world's seasonal sea ice. This is a particularly interesting feature but is not by itself sufficient as a feature to represent Outstanding Universal Value. However the enormous productivity of the marine and terrestrial ecosystem within the nominated property is, as noted above, a direct consequence of the seasonal sea ice and thus the sea ice is a major contributing factor to the conservation value of the nominated property.

## 4. INTEGRITY

### 4.1 Legislation and Management Plan

The nominated property is protected through a number of national laws and regulations. These include The Nature Conservation Law (1972), the National Parks Law (1957), the Law on Administration and Management of National Forests (1951) and the Law for Conservation of Endangered Species of Wild Fauna and Flora (1992). A comprehensive administrative scheme is proposed

for the nominated property to ensure effective integration of the various management objectives for the property and to ensure cohesive management for the core and buffer zones. Several management plans exist for the nominated property and this includes both a Park Plan for the Shiretoko National Park and the Regional Administration and Management Plan for the National Forest. These plans have been developed through a consultative process, involving relevant stakeholders, and set out clear management objectives and strategies for the nominated property.

In general, these and other laws provide an effective matrix of legal protection for the nominated property, within its current borders. IUCN finds the legal and management planning basis satisfactory (while noting the points below in section 4.4) but notes that the management plan may need to be revised in future, particularly in relation to the need to address anticipated tourism pressures and to ensure the effective protection and management of marine resources within the nominated property.

### 4.2 Boundaries

The boundaries of the nominated property consist of those of existing legally designated protected areas. The nominated property is classified into a core area and a buffer area for management purposes. As previously noted, the total area of the nominated property is 56,100 ha comprising a core area of 34,000 ha and a buffer area of 22,100 ha. The core zone consists of a number of specially protected areas, including the Onnebetsudake Wilderness Area and the Special Protection Zone of the Shiretoko National Park. The buffer area includes land surrounding the core area and also the sea area within the coastline of the nominated property. IUCN notes that the terrestrial boundaries are logical and protect the key terrestrial features of the property, although there are some construction and recreation-related developments in the settlements which need more consideration in future.

In relation to the marine boundaries IUCN notes that the boundaries were originally proposed as being one kilometre from the shoreline. In discussions with the State Party following the Evaluation Mission, the Japan Government, including relevant Ministries, Local Government Authorities and key stakeholders, agreed to extend the marine boundaries to a distance of three kilometres from the shoreline. This corresponds to the depth of 200 metres which encompasses the key marine ecological area for marine biodiversity. The IUCN Evaluation Mission also noted the need to ensure effective protection of marine resources within the nominated property and for adequate protection of flagship species, such as the Steller sea lions. This is further elaborated in section 4.4 below.

### 4.3 Management of the terrestrial environment

The level of management of the terrestrial component of the nominated property is high and the area's physical features retain a high degree of natural integrity. As noted, effective management plans cover the nominated property, and these set out clear management objectives and strategies. There are adequate resources to ensure

the implementation of the provisions of the management plans and these are available from a range of sources, including the Ministry of the Environment, Forestry Agency, Hokkaido Prefectural government and the local towns adjacent to the nominated property (Shari Town and Rausu Town). The National Parks Foundation, Shiretoko Branch, also contributes to the management of the property, particularly through clean-up activities and the management of facilities within the park. In total there is an amount of approximately US\$11.6 million per annum available from the various sources for the management of the nominated property (and also areas surrounding the property, in the case of the Forestry Agency). The IUCN evaluation mission was particularly impressed by the close cooperation between the Ministry of Environment and the Forestry Department, as well as the excellent collaboration between the different levels of government (national, prefectural and the local towns). The involvement of external partners and stakeholder groups, such as the National Parks Foundation and the Shiretoko 100 Sq Metre Trust also makes a major contribution to the effective management of the nominated property.

Tourism and wildlife management are important issues within the terrestrial component of the nominated property. In relation to tourism, it is estimated there are approximately 2.34 million visitors per annum to the Shiretoko Peninsula. Summer is the high season but some 300,000 people also come to see the sea ice (January to March). Popular tourism activities include the nature walks to Shiretoko-goko lakes and Kamuiwakka, trekking around Lake Rauso, sightseeing from Shiretoko Pass and climbing in the Shiretoko mountain range. Nature sightseeing from the sea on tour boats is another popular attraction.

The IUCN Evaluation Mission (June 2004) noted some signs of soil erosion around the high mountain trails, underlining the need for clear management strategies and actions. The high density of bear populations in proximity to an increasing number of visitors also underlines the need for effective management of bear - human interactions, particularly in and around main tourist destinations. The State Party, working with NGOs and local communities, is addressing these problems, particularly through a range of non-lethal ways, including through increased public awareness, and the short term closure of key visitor use areas, as required. Ecotourism is clearly promoted by the authorities. In July 2004 a "Shiretoko Ecotourism Promotion Council" was established. This council will formulate an ecotourism strategy for Shiretoko by the end of 2005. Ecotourism has clear potential for positive and also negative impact, in relation to the nominated property. It is important to develop the ecotourism strategy, building on experience from within the property and from elsewhere. Elements for possible consideration in this strategy include: (i) a Trail Management Strategy, based in part on existing scientific research relating to trail use and impacts; (ii) considering developing Limits of Acceptable Change indicators for different zones within the park, in relation to visitor use; (iii) promotion of visitor use strategies within a regional context should use levels become too high; and (iv) management of bear - human interactions.

Wildlife management is also an important issue within the property. Specifically, the Sika deer is another abundant and high profile species at Shiretoko and the deer population has been subject to major fluctuations. It is noted that Sika Deer populations are rapidly increasing all over Japan and that effective deer control is a broader wildlife management issue within Japan. As for regulated ungulate populations elsewhere, such as in the Yellowstone National Park, there is debate as to whether and how to prevent such dramatic oscillations. High deer densities greatly alter the natural vegetation, so the debate centres on whether the effects of the deer are natural, or due to long term human imposed changes in the ecosystem. (IUCN/SSC Bear Specialist Group, pers. comm.). The management plan for the property notes that a study will be undertaken to monitor the relation between population density and the impact on the forest ecosystem. Results from this study will be used to identify effective measures for the future management of deer populations. IUCN notes that there might be potential conflicts between the management of Sika deer and the desire of visitors to see wildlife, and that effective management will be required.

#### **4.4 Management of the marine environment/fisheries management**

The IUCN Evaluation Mission noted that there is currently a broad range of fishing activities within and adjacent to the nominated property. The Nomination document notes that the: "fishing industry uses set nets, gill nets and aquaculture in the coastal waters of the Shiretoko Peninsula. The major marine resources harvested are salmon and trout, Sagittated calamari, Walleye Pollack and kelp. There have been almost no changes in production volume in the last 10 years for most of the fisheries resources. The level of catches in the fisheries operating in the coastal waters of the Shiretoko Peninsula is supported by the high production level of the sea. Fisheries activities are controlled by the Fisheries Law and other regulations issued by the Hokkaido Prefectural government, voluntary restrictions by the fisheries industry, as well as artificial production and fry release programme for salmon and trout".

IUCN notes that fishing has been undertaken in the area for a considerable period of time and it is a vitally important industry in the region. Considerable consultation has taken place with fisheries interests and there has been a high level of cooperation in relation to the prescriptions in the management plan regarding fisheries, such as those relating to restrictions and prohibitions on capture of Sakhalin surf clams and sea urchins, and prohibitions on certain fishing methods. However, IUCN notes that there appear to be declining levels of catch of key fish species within and adjacent to the nominated property.

As noted above, the potential significance of the nominated property as being of Outstanding Universal Value derives from the inter-relationship between the terrestrial and the marine ecosystems. Further, the protection of any property as World Heritage implies the highest possible level of legal protection for the property as a whole, both for terrestrial and marine components. Accordingly the protection and management of the marine component of the nominated property is of high

importance. The IUCN mission communicated with the State Party after the evaluation mission and raised a number of issues relating to the management of the marine component of the property, including concerns regarding:

- the level of protection of the marine component of the nominated property;
- the level of fishing currently occurring within the nominated property. Concerns were also raised in relation to what appeared to be declining levels of catch of the Walleye Pollock within and adjacent to the nominated property, as this species is one of the main food sources of the Stellar Sea Lion, the Steller's sea eagle and the White tailed eagle, which are flagship species of the nominated property;
- potential impacts of aquaculture, including the release of trout; and
- the need for consideration of stricter controls of fishing within key breeding, spawning and nursery sites for key fish species within the nominated property and in the adjacent areas, as far as they are functionally related ecologically to the nominated property. Potentially this could be achieved by the establishment of a number of Fisheries Resource Protection Areas (FRPA) and this should be undertaken through consultation with appropriate scientific bodies and fisheries experts.

The State Party response to these matters noted, inter alia:

- that resource levels of the Walleye Pollack have, in fact, been stable within the nominated property but have been generally declining throughout the Sea of Okhotsk. The Government manages the resources by setting the Total Allowable Catch (TAC) based on surveys from relevant fisheries organisations. There have also been self imposed controls on fishing of Walleye Pollack, for example, by reducing the number of fishing boats operating gill nets (from 324 to 181 during the period 1990 to 2003);
- their intent to develop within the next 5 to 10 years a "Multiple Use Integrated Marine Management Plan": "in order to conserve the marine area within the nominated property as a World Heritage Area". This plan would include mechanisms for ensuring the conservation of the marine life, based on a detailed assessment of the state of marine life, fisheries operations and leisure fishing within the nominated property and the surrounding areas; and
- that governments and relevant stakeholders will review new measures to control fisheries activities within the nominated property. These new measures would be modelled after the existing fishing ban in certain areas and periods, which are voluntarily adopted by local fishermen and fisheries organisations, to conserve and manage the Walleye Pollack stock. The new measures will be presented to the Shiretoko Nominated property Regional liaison Committee by 2008.

IUCN notes the increasing evidence from around the world to support the link between the establishment of well managed marine protected areas (MPAs) and the conservation of fisheries stocks. It is further noted that there are currently many global efforts underway to develop representative marine protected areas, including within the Great Barrier Reef Marine Protected Area, which provides one example of a representative marine protected areas system. These examples have shown the need for management policies to be based on the best available science and the critical importance of working closely with the fisheries sector and relevant interests. A further important lesson is that effective consultation takes time and effort.

IUCN supports the development, within the next three years, of the Multiple Use Integrated Marine Management Plan and the study as proposed by Japan. It is important that such an integrated management plan draw on appropriate scientific expertise and that it clearly identify measures for strengthening marine protection within the nominated property. This may include restrictions on fishing within key breeding, spawning and nursery sites for key fish species within the nominated area, as well as reviewing strategies for expanding the boundaries of the marine component of the nominated property. Any future boundaries should consider the need to adequately protect key locations and migration routes for the Steller sea lions and cetacean species. The Plan should include clear and time bound objectives and strategies and the effectiveness of the measures within the plan on marine resources should be assessed after a five year period.

Following consultation between the State Party and IUCN, the State Party has recently agreed to shorten the period for the development of the Marine Management Plan and also to extend the marine boundary from 1km to 3km off the shoreline. IUCN considers these to be positive developments and recommends a mission after two years, if this property is inscribed, to assess the impact of the Plan and the marine extension on the ecological functionality and the fisheries resources of the property.

#### 4.5 Dam Construction on Rivers

The nominated property has important values for salmonid species (IUCN/SSC Salmon Specialist Group, pers. comm.) and salmon species are an important food source for a number of important species within the nominated property, including the Steller's sea eagle and White tailed eagle which feed upon the salmon swimming upstream in summer. Providing for the free movement of fish species within the nominated property should be an important element of the overall management in relation to the restoration and maintenance of natural river flows and processes. An important element of this is the need to consider installation of ecologically efficient fish ladders to allow for the free movement of salmon on all structures maintained on the rivers in the nominated property and strict regulations of leisure fishing in the lower courses of the streams (buffer zones or outside the nominated property).

Currently nine out of the forty-four rivers within the nominated property have artificial modification, mainly in the form of dam construction. These have been installed to protect human life and properties from the impacts of severe weather events and associated disasters, such as landslides. The nomination document notes that: "The impact of these constructions on salmon is not clear yet, and is going to be investigated" (pg 21). Subsequent to the Evaluation Mission, IUCN raised this issue with the State Party and noted the importance of further research and possibly remedial action, which could potentially involve the removal of some of these structures in the future and/or the installation of fish ladders.

IUCN considers that it is important that more research, providing substantial results within a definite span of time, be undertaken in relation to the impact of dam construction on populations of salmonid species. Such research could include aspects such as the:

- extent to which specific streams are used for spawning by each of the salmonid species;
- specific impact of dams in relation to impeding salmon migration; and
- establishment of a monitoring program to regularly assess status and trends of the populations of salmonid fishes.

IUCN considers that a Salmonid Management Plan, as one component of the overall management plan for the property is necessary. It should include an assessment of the current practice of salmonid management by releasing artificially reared fry. Such a Management Plan should be developed to ensure the above issues are adequately addressed. It is important that this draw on appropriate scientific expertise and the IUCN/SSC Salmonid Specialist Group may be able to assist this process. The Plan should include clear and time-bound objectives and strategies and the effectiveness of the measures within the plan on marine resources should be assessed after a five year period

## 5. ADDITIONAL INFORMATION

### 5.1 Public support and involvement

The nominated property features a very high level of involvement of local communities and stakeholder groups. It is particularly noteworthy as the setting for the innovative Shiretoko 100 square metres movement, an innovative mechanism for individuals and organisations to support conservation through specific donations and support. This model has become a pioneering model, inspiring similar efforts throughout East Asia and other parts of the world. Similarly, the involvement of stakeholders involved in fisheries has been noteworthy and very effective.

### 5.2 Scientific Research

There are a number of innovative scientific research programmes throughout the nominated property and

these are, to the fullest extent possible, linked to the development of management strategies within the nominated property. It is important that these research programmes be expanded in the future, particularly to address key issues for management, including the management of bear and Sika deer populations and to contribute to the development of management plans for marine resources, salmonid species and ecotourism.

### 5.3 Neighbouring Islands

There are clear and apparent similarities between the environment and ecology in Shiretoko and the neighbouring islands. It is noted that there has been contact between Japanese and Russian researchers. Should it be possible for the States Parties to agree to promote the conservation of these properties in the future, there may be the potential for development of these properties as a wider "World Heritage Peace Park".

### 5.4 Involvement of Indigenous Peoples

Shiretoko was reverently called by the Ainu People as "sir.etok" (the end of mother earth) indicating the importance of this area for traditional inhabitants. It is important, as reinforced in the management plan (page 214 of the nomination document) to "study the culture of the Ainu people and the traditional wisdom and skills of the local residents in order to determine the methods to preserve, manage and realize sustainable use of the natural environment". Accordingly it is considered important that representatives of the Ainu people, such as through the Hokkaido Utari (Ainu) Association, have the opportunity to be involved in the future management of the property, including in relation to the development of appropriate ecotourism activities which celebrate the traditional customs and uses of the nominated property

## 6. APPLICATION OF CRITERIA/STATEMENT OF SIGNIFICANCE

Shiretoko has been nominated under natural criteria (ii), (iii) and (iv)

### Criterion (ii) Ecological Processes

Shiretoko provides an outstanding example of the interaction of marine and terrestrial ecosystems as well as extraordinary ecosystem productivity, largely influenced by the formation of seasonal sea ice at the lowest latitude in the northern hemisphere. This process supports the formation of phytoplankton which develops on the nutrients supplied by sea ice. Blooms of ice algae and other phytoplankton occur earlier in spring as ice melts faster than other sea ice areas. The phytoplankton is the primary producer in the marine ecosystem and provides the source of food for krill and zooplankton such as small shrimp, which in turn become food for small fish, crustacean and shellfish. These in turn become food sources for marine and terrestrial species which provide the basis for the outstanding ecological processes exhibited at the property. IUCN considers the nominated property, including the proposed extension to 3 kilometres off the shoreline, is an outstanding example of the linkage between marine and terrestrial ecological processes and ecosystems. IUCN considers that the nominated property meets this criterion



### Criterion (iii) Superlative natural phenomena, scenic beauty

The nominated property derives its primary visual impact from a range of natural landscapes that vary with the season. These features include the scenic coastline, with sea cliffs more than 100 metres high and mountain scenery. IUCN considers that this property is very beautiful but considers that these values are of significance at the regional level and cannot compare to other coastal and mountain sites already inscribed on the WH List, under this criteria, such as Lord Howe Island (Australia) and the Volcanoes of Kamchatka (Russia). IUCN considers that the nominated property does not meet this criterion

### Criterion (iv) Biodiversity and threatened species

Shiretoko has particular importance for a number of marine and terrestrial species. These include a number of endangered and endemic species, such as the Blackiston's Fish owl and the plant species *Viola kitamiana*. The property is globally important for a number of salmonid species and for a number of marine mammals, including the Steller's sea Lion and a number of cetacean species. The property has significance as a habitat for globally threatened sea birds and is a globally important area for migratory birds. The nominated property also exhibits excellent examples of forest ecosystems with a very limited area of distribution. IUCN considers that the nominated property meets this criterion

## 7. DRAFT DECISION

IUCN recommends that the Committee adopt the following draft decision:

*The World Heritage Committee,*

1. Having examined Document **WHC-05/29.COM/8B**
2. Inscribes Shiretoko, Japan, on the World Heritage List on the basis of natural criteria (ii) and (iv).

**Criterion (ii):** *Shiretoko provides an outstanding example of the interaction of marine and terrestrial ecosystems as well as extraordinary ecosystem productivity, largely influenced by the formation of seasonal sea ice at the lowest latitude in the northern hemisphere.*

**Criterion (iv):** *Shiretoko has particular importance for a number of marine and terrestrial species. These include a number of endangered and endemic species, such as the Blackiston's Fish owl and the plant species *Viola kitamiana*. The site is globally important for a number of salmonid species and for a number of marine mammals, including the Steller's sea Lion and a number of cetacean species. The site has significance as a habitat for globally threatened sea birds and is a globally important area for migratory birds.*

3. Notes that the State Party has agreed to extend the Marine Boundary of the property from 1km to 3 km

*off the coastline, and that such extension is "de facto" in place awaiting legal designation by the end of 2005.*

#### 4. Requests the State Party to:

(i) *Expedite development of a Marine Management Plan, to be completed by 2008, to clearly identify measures for strengthening marine protection and the possibilities of extending the boundaries of the marine component of the property;*

(ii) *Send a map and details of the final boundaries of the property, as well as a copy of the law supporting them, to the World Heritage Centre once they have been confirmed in law;*

(iii) *Develop a Salmonid Management Plan to identify impacts of dams and strategies to address this impact; and*

(iv) *Address other management issues included in the evaluation report, including in relation to tourism management and scientific research.*

#### 5. Encourages the State Party to invite a mission to the property in 2 years from its inscription to assess progress with the implementation of the marine Management Plan and its effectiveness in protecting the marine resources of the property.

#### 6. Commends the State Party for the commendable process for public consultation involved in the preparation of this nomination document; the preparation of an excellent nomination dossier; and for effectively addressing IUCN recommendations to enhance the conservation and management of this property.

Map 1: General Location of nominated property

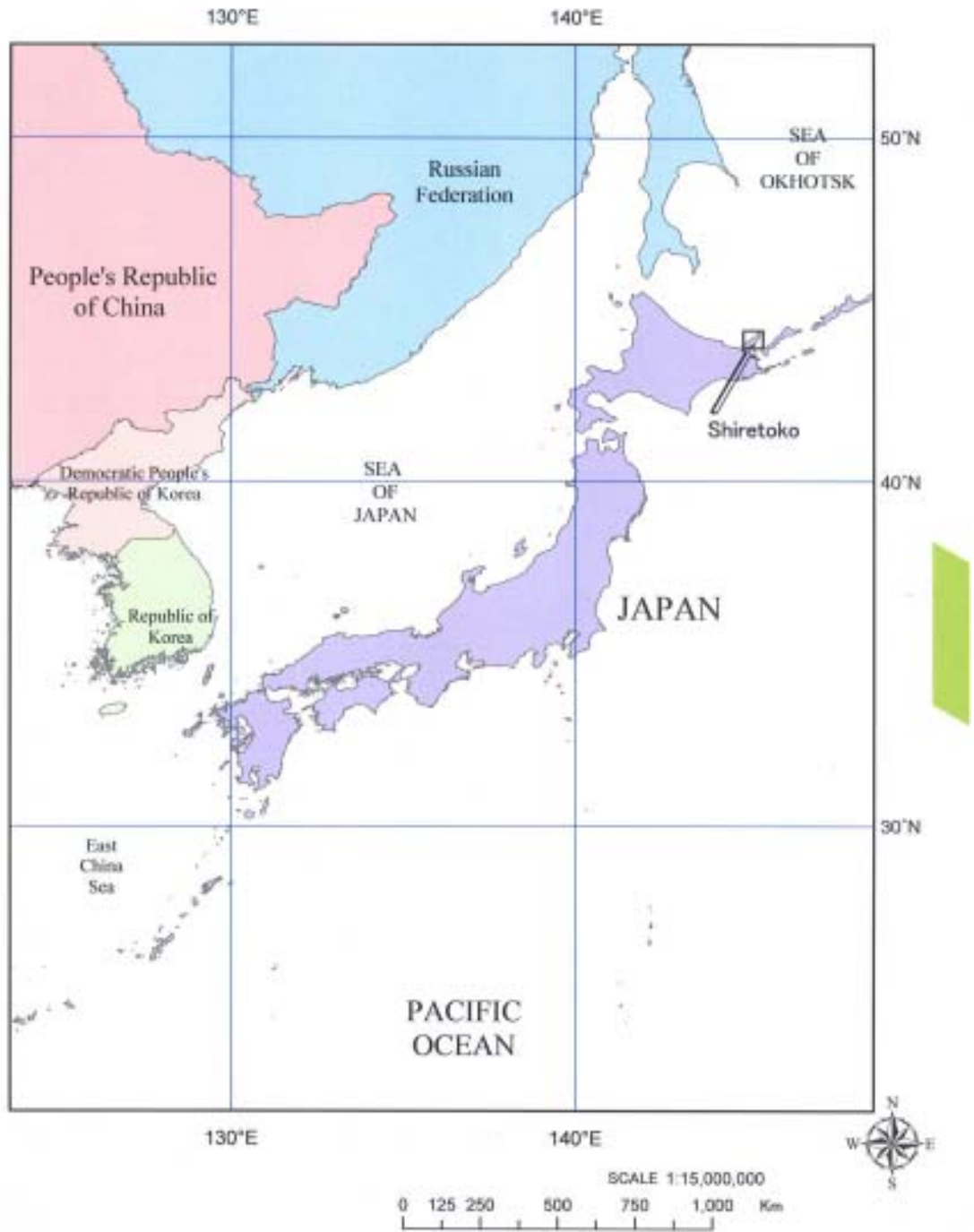


Figure 1-1 Location of Shiretoko Peninsula in Japan

Map 2: Boundaries of nominated property

