

World Heritage Sites

Protected Areas and World Heritage



SHIRETOKO JAPAN

The peninsula of Shiretoko is one of the richest north temperate ecosystems in the world and an outstanding example of the interaction between terrestrial and marine ecosystems. The sea is enriched by melting sea ice in spring and by a warm current in summer, which produce and maintain an explosive growth of phytoplankton, the basis of extremely abundant life. Many rivers connect the sea with a wealth of pristine vegetation from the coast to volcanic mountain tops. Both on land and in the sea, northern and southern species intermingle, resulting in great diversity, ten salmonid species and dense populations of bears, sea lions and birds.

COUNTRY

Japan

NAME

Shiretoko

NATURAL WORLD HERITAGE SERIAL SITE

2005: Inscribed on the World Heritage List under Natural Criteria ix and x.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

The UNESCO World Heritage Committee issued the following statement at the time of inscription:

Justification for Inscription

Criterion (ix): 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 (x): 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.

IUCN MANAGEMENT CATEGORY

Onnebutsedake Wilderness Area:	Ia Strict Nature Reserve
Shiretoko Forest Ecosystem Reserve:	IV Habitat/Species Management Area
Shiretoko National Park:	V Habitat/Species Management Area
Shiretoko National Wildlife Protection Area:	V Habitat/Species Management Area

BIOGEOGRAPHICAL PROVINCE

Manchu-Japanese Mixed Forest (2.14.5)

GEOGRAPHICAL LOCATION

Located in furthest northeast Hokkaido, the northernmost island of the Japanese archipelago, between 43° 56'38" to 44° 21'10" N and 144° 57'57" to 145° 23' 022" E.

DATES AND HISTORY OF ESTABLISHMENT

1964: Shiretoko National Park established under the National Parks Law of 1957;

1980: Onnebutsedake Wilderness Area established under the Nature Conservation Law of 1972;

- 1982: Shiretoko National Wildlife Protection Area established under the Wildlife Protection & Hunting Law of 1918 as revised in 2002;
- 1990: Shiretoko Forest Ecosystem Reserve established under the Law on the Administration and Management of National Forests; extended in 2004 south of the main bisecting road;
- 2005: Marine Management zone to be enlarged from 1 to 3 km offshore, adding 15,000 ha.

LAND TENURE

State: 95% is owned and managed by the national Forestry Agency with a few areas owned by the state directly, by Hokkaido Prefecture, Shari and Rausu towns and private owners. The Wilderness Area and National Park are managed by the Ministry of the Environment (MoE) by Hokkaido Prefecture and local governments. These are to be replaced by a regional liaison committee.

AREA

Total area: 71,100ha. Core zone: 48,700ha; Buffer zone: 22,400ha, including the original marine area (7,400ha). The core zone includes the Onnebutsedake Wilderness Area (1,895ha) and is coterminous with the Preservation Zone of the Shiretoko Forest Ecosystem Reserve. The core zone also contains both Special Areas of the National Wildlife Protection Area and is contained by Shiretoko National Park (46,073ha) and the National Forest. The buffer zone surrounds the whole site, including but extending south of the National Park.

ALTITUDE

±200m below sea level to 1,661m (Mt Rausu).

PHYSICAL FEATURES

The nominated property is one third sea and two-thirds land. The peninsula of Shiretoko is about 24km wide at the base and protrudes north-east some 70km from the mainland between the Sea of Okhotsk and Nemuro Strait between Hokkaido and the Kurile Islands. In the area of the nominated site it is 21 km wide narrowing to an average of 10 km and extends some 50km. It is formed of a range of volcanic peaks over 1,550m high of which Mt Rausu (1,661m) is the highest; Mt Iou has periodically erupted pure molten sulphur, last in 1936, and there are still fumaroles and hot springs in the range. The western coast has steep volcanic cliffs up to 120m high, the east coast is smooth with curious rock formations. 44 small rivers, nine of which have been dammed, run down to the sea where on the west coast surface ice forms in winter. The formation of this which is the most southerly sea ice in the northern hemisphere (the latitude is south of Bordeaux) is due to three factors: the enclosed nature of the Sea of Okhotsk, which limits water exchange with the ocean, the huge flow of freshwater from the Amur river, which is trapped in the top 50m by a layer of cold salt brine which prevents deeper circulation of the water; and icy winter winds from Siberia, which freeze the surface rapidly. Its melting releases nutrients along the continental shelf feeding long-lasting phyto-planktonic blooms which underpin an immense biological productivity. In summer, the warm Soya current flows along the surface of the sea. The sea cliffs and rock formations, the changing colours of the vegetation and of the offshore sea ice are handsome scenery.

CLIMATE

There is a marked difference in the weather of the east and west coasts, separated by the central mountains. The east coast has 1,600mm of rainfall with, in 1998, an average maximum temperature in August of 18.9°C and an average minimum February temperature of -10.9°C, with heavy snowfall. The same year on the west coast the annual rainfall was 813mm, the average maximum temperature in August was 21.8°C, the average minimum February temperature was -16.1°C.

VEGETATION

About 90% of the land is covered with nearly pristine natural vegetation extending from the coast to above the tree line in belts graded by altitude. The complex undulating topography and contrasting weather on either coast create a variety of habitats where many southern as well as northern species grow here. 817 species are recorded of which 233 are alpine species from the northern Pacific or Siberia. Alpine and subarctic communities grow on the exposed and thin soils of the coasts. From these (on Mt Rausu) the vegetation ranges through cool temperate broadleaved forest of Japanese oak *Quercus mongolica grosseserrata*, Japanese linden *Tilia japonica* and painted maple *Acer mono* to 750m; mixed forest of species found below and above this level; then sub-alpine coniferous forest of Sakhalin fir *Abies sachalensis*, Yeso spruce *Picea yesoensis* and Sakhalin spruce *P. glehnii* with birch

Betula ermanii forests up to 1,100m. Above these is an alpine zone of stone pine *Pinus pumila* scrub and deciduous thicket.

Much of the broadleaf forest is of deciduous southern species like the katsura tree *Cercidiphyllum japonicum*, and several isolated southern plants occur. The mixed forest is floored with dwarf bamboo and contains many woody vines and epiphytes. There are numerous endemic and threatened species. One flower, *Viola kitamiana*, is endemic to the peninsula. There is wetland vegetation in marshes and beside lakes; and on the acid soil near sulphurous fumaroles there is a solfatara community. Offshore, southern species of seaweed grow in the warm Soya current, not far from northern species growing in the cold winter waters of the east Sakhalin current where there is distinct zonation of species by depth. On the west coast ice algae growing in the relatively mineral rich waters under the sea ice, and other algae which bloom on the melting of the ice, produce an explosive growth of phytoplankton which is said to be ten times greater than that off the east coast of the peninsula, which forms the basis for the very productive food chain.

FAUNA

The undisturbed richness of the peninsula's resources enables animals to feed on prey from both land and sea. The quality of the habitat is so high that the home territories of the brown bear *Ursus arctos yesoensis* for example are the smallest in the world. The marine diversity is enriched in summer by the surface-flowing Soya current and by the numerous rivers in which many of the region's fish spend some time. The abundant phytoplankton in the melting sea ice feeds a rich zooplankton, which sustains 28 species of marine mammals and 223 species of marine fish, 150 of which live in on the continental shelf in waters less than 200m deep. There are also 42 species of freshwater fish. Among the marine species are kaluga *Huso dauricus* (CR), green sturgeon *Acipenser medirostris* and walleye pollack *Theragra chalcogramma*, a main food of the sea lion. 70% of these fish are northern, but 14% are also southern species, mostly in the warmer upper layer of the sea. Alongside northern species like halibut *Hippoglossus stenolepis* there are southern species such as ocean sunfish *Mola mola*. There are 10 salmonid fish such as chum, pink and cherry salmon *Oncorhynchus keta*, *O. gorbuscha* and *O. masou*, Dolly Varden char *Salvelinus malma*, white-spotted char *Salvelinus leucomaenis*, and Sakhalin taimen *Hucho perryi* (CR). Wild salmon are declining rapidly throughout their range along the Pacific rim, and there are very few large areas like Shiretoko left in the Pacific to preserve not only native runs of salmon and steelhead, but also the intact ecosystems that they support and that support them.

These waters are essential habitat for the Steller sealion *Eumetopias jubatus* (EN), which feeds about 3 km offshore, and for feeding, breeding and migrating cetaceans and seabirds, as well as salmonid fishes. Other marine mammals are spotted seal *Phoca largha*, northern fur seal *Callorhinus ursinus* (VU), killer whale *Orcinus orca*, minke whale *Balaenoptera acutirostrata*, North Pacific bottlenosed whale, *Berardius bairdii*, grey whale *Eschrichtius robustus*, humpback whale *Megaptera novaeangliae*, sperm whale *Physeter macrocephalus* (VU) and, more rarely, sei whale *Balaenoptera borealis* (EN). Two little known beaked whales have also been discovered: ginko-toothed and arch-beaked whales *Mesoplodon ginkodens* and *M. carlhubbsi*. There are also harbour porpoise *Phocaena phocaena*, Pacific white-sided dolphin *Lagenorhynchus obliquidens* and Dall's porpoise *Phocaenoides dalli*. The spring abundance of zooplankton and krill attracts many of the animals to give birth in these waters.

On land, fish travelling upriver feed raptors such as foxes *Vulpes vulpes schrenki* and a population of brown bears, which is amongst the densest in the world with an average range of 15 sq.km. There are 33 other species of terrestrial mammals including the nationally rare Ikonnikov's and northern bats *Myotis ikonnikovi* and *Eptesicus nilssonii*, and, from the south, Hokkaido sika deer *Cervus nippon yesoensis*. Seven species of reptile and three amphibians are known, perhaps originally attracted by the volcanic sources of geothermal heat. Leatherback turtle *Dermochelys coriacea* (CR) occur offshore. The wealth of habitats supports 264 species of birds, 49% of the Japanese total. 9 are globally threatened and this is one of Birdlife International's Important Bird Areas. Steller's sea eagle *Haliaeetus pelagicus* (VU:2,000 individuals), whitetailed eagle *H. albicilla* (600), two subspecies of the large Blakiston's fish-owl *Ketupa blakistoni* (EN) and the black woodpecker *Dryocopus martius* are all designated Natural Monuments for which the area provides valuable protection. Other notable species include Japanese night heron *Gorsachius goesagi* (EN), Baikal teal *Anas formosa* (VU), Japanese cormorant *Phalacrocorax capillatus* in great numbers; Japanese crane *Grus japonensis* (EN), and yellow bunting *Emberiza sulphurata* (VU). The wide variety of habitats support 2,500 species of insects, including site-endemic and southern species, 1,850 moths and 500 beetles. The local cranberry blue butterfly *Vaciniina optilete daisetsuzuana* was designated a Natural Monument in 1967.

CONSERVATION VALUE

The peninsula of Shiretoko is one of the world's richest north temperate marine ecosystems and an outstanding example of the interaction between terrestrial and marine ecosystems. The sea is enriched by melting sea ice in spring and by a warm current in summer, which produce and maintain an explosive growth of phytoplankton, the basis of extremely abundant life. Many rivers connect the sea with 560 sq.km of pristine vegetation from coastline to the volcanic mountain tops. Both on land and in the sea, northern and southern species intermingle, resulting in great diversity.

CULTURAL HERITAGE

The area, in the part of Japan inhabited by the Ainu, was always rather inaccessible. The ruins of one earlier village have been found.

LOCAL HUMAN POPULATION

The peninsula was settled between 1912 and 1967 but farming was given up because of the harsh conditions. There was never any forestry, except for a brief attempt within the National Park in 1986-7. There are two small towns, Shari and Rausu, just outside the Park and, after tourism, a traditional self-regulating sustainable fishery for salmonid fish, calamari and kelp is the chief activity. Recent measures to protect the fish have led to a halving of the number of fishing boats. No-one lives in the protected area today and only seven in the buffer zone. There is one major road crossing the peninsula, between Shari and Rausu towns.

VISITORS AND VISITOR FACILITIES

There were 2.34 million visitors in 2001, a figure which has remained fairly constant for the last ten years. Most visit between June and October, but some 300,000 come to see the sea-ice in February. Ecotourism is being developed through the Shiretoko Ecotourism Promotion Council. Many tourists sightsee from tour boats. Other activities are walking, guided trekking and nature observation, climbing, sea-kayaking and fishing. The Shiretoko-goko lakes near the west coast are very popular. In Shari are the Shiretoko Nature Foundation and Shiretoko Museum, and near Rausu a group facility complex and Visitors' Centre. There are also 5 hotels, 4 inns and 3 restaurants, a campsite and 4 picnic areas, some within the protected area. Beyond it there are many hotels and other facilities, especially in Shari.

SCIENTIFIC RESEARCH AND FACILITIES

The Onnebutsedake Wilderness has been extensively studied. Monitoring of animal populations, especially sika deer and bear, and the ecology of the area, have been done intensively especially during the last 25 years. Most of the 135 references in the nomination bibliography record researches into various aspects of Shiretoko's climate, geology, flora and fauna and history. Future monitoring of the sea ice is important as it is sensitive to fluctuations in air temperature and could be a key indicator of climatic change. A Marine Area Working Group has been set up by the Shiretoko World Heritage Nominated Site Scientific Council to make an inclusive survey of the area as the basis for a Multiple Use Integrated Marine Management Plan (Onadera, 2005).

MANAGEMENT

The nominated site is protected by separate laws covering each of the component areas. Plans for the National Park and the National Forest were integrated in a Management Plan which was finalised in 2003. The Shiretoko Nominated Site Regional Liaison Committee now combines staff from the Ministry of the Environment, the Forestry Agency, Hokkaido Prefectural and local town governments with fishermen's and tourist associations in its collaborative execution. It is advised by a panel of experts. The Plan's main aim is conservation of the area with appropriate uses such as monitoring, recreation, education and research which are permitted except when they might disturb nesting animals. Nearly all other types of activity (such as open fires or plant-gathering) are forbidden except with permission from the Ministry of the Environment. The fishing industry is closely monitored and controlled by the Prefectural government and fishing organisations. Fishing for trout and salmon in all rivers, near the mouths of the main five main rivers and in certain offshore areas on the Rausu side, is forbidden (Onadera, 2005).

The Steller's sea-eagle, white-tailed eagle, Blakiston's fish-owl, black woodpecker and Vaciniina butterfly are all given special protection as Natural Monuments. The first three, with sea lions, bears and the *Viola kitamiana*, walleye Pollack, salmonid fish, the impacts of deer and the numbers of tourists are regarded and will be monitored as indicator species. The Shiretoko 100-Square-Meter Forest Trust was established in 1977 to buy land north of Shari to prevent settlement and restore it to a natural state. By 1997 nation-wide donations of 520 million yen (US\$4,300,000 in 1997) were used to secure land

and to plant 420,000 seedling trees and riverbanks. Adjacent national forests are to be managed to avoid any drastic environmental change to the protected area. This initiative has had world-wide influence. A Multiple Use Integral Marine Management Plan is to be developed by 2008 to safeguard fish stocks and areas important to sea lions and cetaceans. Any future Salmonid Management Plan would investigate the impact of the dams on these populations. A transboundary park with the pristine Russian Kurile Islands is a future possibility (Sheppard, 2005).

MANAGEMENT CONSTRAINTS

There are few constraints on management except for erosion caused by increasing numbers of tourists and occasional conflicts with bears. In mid season, cars are replaced by coach travel over one popular road on the west coast, and popular trekking and climbing routes on Mt. Rausu need protection against erosion. Precautions have been taken against landslides, rockfalls and volcanic events. The impacts of increased tourism will be lessened by dispersal and limits on numbers.

COMPARISON WITH SIMILAR SITES

Only one natural World Heritage site lies in the same biogeographic province - the Manchu-Japanese Mixed Forest. This is Central Sikhote-Alin northeast of Vladivostok in the Russian Federation, at almost the same latitude, on the east coast of Siberia and in the mountains behind it. At 1,631,923ha in area this serial site of four reserves in the east Siberian taiga is almost thirty times larger than Shiretoko. It contains fifteen faunal assemblages, plants of northern and southern origin totalling 1,200 species and protects the habitat of a notable critically endangered species, the Amur tiger. It has somewhat higher mountains but rather less coastline than Shiretoko and contains 65 mammal, 241 bird and 51 fish species. 20 plants and 38 birds are listed as globally endangered.

By comparison Shiretoko, one of the world's richest north temperate marine and terrestrial ecosystems, within a much smaller area has over two-thirds as many plant species (817, of which 233 are alpine and several also of southern origin), 63 mammal species, 28 being marine, 264 birds, 213 saltwater fish, 42 freshwater fish and 2,500 insects. The peninsula's vegetation is 90% undisturbed and grades with altitude from warm coastal conditions with broadleaf forest with species of southern origin to a cool coast across a 1,660m altitudinal range containing at least 5 vegetation types, plus a solfatara plant community on the active volcano. Among its globally threatened species are 6 birds, 5 marine mammals and 2 large fish and its bird species are 49% of Japan's total count.

The Volcanoes of Kamchatka World Heritage site further north is said to have the world's largest concentration of salmonid fish with 11 species, though Shiretoko has 10 of these. This larger more northern serial site is similar in being a volcanic Pacific peninsula and its flora is almost as rich as that of Sikhote-Alin. But it has only 145 bird species and its fauna, though numerous and endemic, is not so diverse nor does it share the distinctive sea-ice ecosystem. The nearest Japanese site is Shirakami-Sanchi in the far north of Honshu, which preserves the last virgin Japanese beech forest and the vulnerable Japanese black bear but is not at all comparable in richness of species except for insects. The other Japanese World Heritage site, Yakushima in the Ryukyu archipelago, is a warm-temperate forest ecosystem.

The Kluane/Wrangell-St.Elias/Glacier Bay/Tatshenchini-Alsek site, which is far more northerly is mountainous and topographically very varied but has a less diverse biota, less close connection with its coast and no periodic sea-ice. The Tasmanian Wilderness is very rich in many respects, especially in endemic species of a rather different flora and in diversity of habitats but it has fewer species of all kinds than Shiretoko though it is 25 times the area. Te Wahipounamu in New Zealand is a large densely forested marine landscape with a very rich endemic flora and birdlife, but is very dissimilar mountainous fjord country, again without sea-ice.

Shiretoko resembles an island in its untouched isolation and closeness to the sea. Except for the ice algae its terrestrial and marine ecosystems are not unique but the distinctive and close integration between them and the fertility of the sea produce a more diverse and numerous fauna than any other cool temperate site of comparable area, and it is well protected by both its location and the law. In addition, BirdLife International has identified Shiretoko as a candidate area for Asian Important Bird Area status. The WWF recognises the Okhotsk Sea, which Shiretoko borders, as one of the richest north temperate marine regions in the world, and designated it one of the its Global 200 biologically most outstanding habitats.

STAFF

Administrative and conservation staff total 82 (MoE 17, FA 20, Hokkaido 25, Shari 2, Rausu 7 and Natural Parks Foundation 11). The MoE employs 3 rangers, the FA 25 foresters and 4 rangers, Hokkaido 2 research and 5 educational staff, in Shari the Shiretoko Nature Foundation has 25 staff, the Shari Museum 5 and there are 5 Natural Monument guardians.

BUDGET

The present annual budget totals ¥ 1,284million (US\$11.6million) from various sources: ¥ 78 million (US\$ 0.7million) from the Ministry of the Environment, ¥ 960 mil.(US\$ 8.7mil.) from the Forestry Agency, ¥ 21 mil. (US\$ 0.2mil.) from Hokkaido Prefecture, ¥ 150 mil. (US\$1.4mil.) from Shari town ¥ 26mil. (US\$0.2mil.) from Rausu town and ¥ 49 mil.(US\$0.4mil) from the Natural Parks Foundation, Shari.

LOCAL ADDRESSES

Ministry of the Environment, East Hokkaido Regional Office for Nature Conservation, 4F Kushiro National Government Building, 10-3 Saiwai town, Kushiro City, Hokkaido 085-8639, Japan.

Forestry Agency, Hokkaido District Forest Office, 7-70 Miyanomori, 3-jyo, Chuo-ku, Sapporo City, Hokkaido 064-8537.

Hokkaido Prefectural Government, Natural Environment Division, Kita 3-jyo, Nishi 6-chome, Chuo-ku, Sapporo City, Hokkaido, 060-8588.

Natural Parks Foundation, 208, Utoro-higashi, Shari town, Shari-gun, Hokkaido 099-4355.

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DATE

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