WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

CENTRAL SIKHOTE – ALIN (RUSSIAN FEDERATION)

1. DOCUMENTATION

i) **IUCN/WCMC Data Sheet:** (4 references)

ii) **Additional literature consulted:** Newell, J. & Wilson, E., 1996. **The Russian Far East: Forests, Biodiversity hotspots, and Industrial developments.** FOE, 200pp.; Bocharnikov, V.N., 1996. **The Sikhote-Alin Nature Complex as an object of the World Heritage list.** *Vestnik DVO RAN (5),* 43-53.*;* Zhuravlev, Yu.N., (Ed.) 2000. **A Biodiversity Conservation Strategy for the Sikhote-Alin.** Russian Academy of Sciences (Far Eastern Branch), Vladivostok, 135pp.; Matthiessen, P., 2000. **Tigers in the Snow.** Harvill Press, London. 185pp.

iii) **Consultations:** 8 external reviewers contacted. Local experts; officials from the Russian Ministry of Natural Resources, the Committee on Natural Resources of Primorskii Krai, and the local administrations of Terney and Bikin; Udege leaders in Krasny Yar.

iv) **Field visits:** J.Thorsell and J.Cassils in September 1996; L.F.Molloy and R.Hogan in July 2001.

2. SUMMARY OF NATURAL VALUES

The nominated site lies within the Sikhote-Alin mountain range in the extreme south-eastern corner of the Russian Federation, a region with a climate and biodiversity entirely different from the rest of Russia. The Sikhote-Alin is not a major mountain range (1,100km in length and up to 1830m in altitude) but a vast unmodified temperate forest wilderness lying within northern latitudes (44-49^{o} N). Elsewhere, at these latitudes, the mixed coniferous/deciduous forests of western Europe and North America have largely been removed or severely modified. Lying between the coastline of the Sea of Japan in the east and the valleys of the Amur and Ussuri rivers in the west, the Sikhote-Alin is subject to both maritime and continental climatic extremes. Summers are warm and wet because of the rain-bearing south-eastern monsoon winds (up to 85% of precipitation can fall in summer); in winter, the icy north-westerly Siberian winds bring snow to the mountains and temperatures can drop as low as –50^{o} C in the Bikin valley (with less than 100 frost-free days per annum in the western valleys). The large Bikin River freezes over from October until March.

The nominated Central Sikhote-Alin site in Primorskii Krai consists of two units separated along the crest of the range by a distance of 70km (see Map 2):

- The southern unit consists of two protected areas separated from each other by the town of Terney:

1) **Sikhote-Alin Nature Preserve** (401,428ha) on the eastern maritime slopes near the town of Terney (including a marine protected zone of 2,900ha, extending 1km out from the coastline); This is a 'Zapovednik' or IUCN Category 1a (Strict Nature Reserve) and has also been designated a UNESCO Man and the Biosphere Reserve; and

2) **Goralij Zoological Preserve** (4,749ha) an IUCN Category IV (Habitat/Species Management Area) is a coastal zone north of Terney.

- The second, or northern unit, consists of two contiguous areas located on the **Bikin River** catchment upstream of the town of Krasny Yar:

1) **Bikin Territory of Traditional Nature Use (TTNU)** (407,764ha) for the Udege people in the middle Bikin, this area has no IUCN designation; and the

2) **Verkhnebikinski zakaznik** (746,482ha) covering the entire upper Bikin catchment above the river junction at Ushaia). This is an IUCN Category IV protected area (Habitat/Species Management Area).

The total area of the nominated site is approximately 1,560,000ha.

The Sikhote-Alin protected areas are considered to contain the greatest plant and animal diversity on the north-western coastline of the Pacific Ocean. The region lies at the junction of the Eurasian continent and the Pacific plate, a biogeographic 'mixing zone' which largely escaped the rejuvenating impacts of the last glaciation and allowed the development of the ancient *'Turgai'* biota during the Tertiary and early Quaternary periods. This unique assemblage of biota contains elements from Manchuria, Okhotsk-Kamchatka (Bering), eastern Siberia and Dauria-Mongolia. The unique combination of its severe climatic characteristics, physical isolation, and traditional resource use by the Udege and other indigenous peoples, has meant that 80-90% of the region's vegetation still remains as dense temperate forest and taiga.

The site lies within the 'Primorye' Centre of Plant Diversity identified by IUCN and WWF; it also lies partly within WWF's 'Russian Far East temperate broadleaf and mixed forest' ecoregion 71 (Global 200). Forests cover 95% of the site, with alpine tundra, coastal shrublands, meadows and bogs accounting for the rest of the area. More than 180 tree and woody shrub species occur in these forests; the most characteristic large trees are: Korean pine, Jeddo spruce, needle fir, several species of larch, Manchurian ash, white-barked elm and Mongolian oak. At higher altitudes, the forests have a higher proportion of conifers and small-leaved deciduous trees, typically birches, Koyama spruce and Siberian larch. Along the banks of the Bikin River, there is a preponderance of white-barked elm, Korean pine and Maximovitch poplar. Korean pine is a prolific 'nut' (seed) producer, essential to the survival of at least 30 mammal species, and important as a food source (rich in edible oils) for the indigenous people. In total, almost 1200 vascular plant species are present, including many of medicinal value and importance to the indigenous people; the best-known plants in this category are ginseng and Siberian ginseng.

More than 400 vertebrates have been recorded, including 241 bird species, 65 mammals, seven amphibians, 10 reptiles and 51 fish. The site is renowned in international conservation circles as the largest intact habitat for the extremely rare Siberian (or Amur, or Ussuri) tiger. In addition, it is the habitat of brown bear, Himalayan black bear, lynx, goral, sika deer, yellow-throated marten, Manchurian hare, scaly-sided merganser and other endemic and/or endangered species. Seals are a feature of the Sikhote-Alin coastline.

3. COMPARISON WITH OTHER AREAS

The region of Ussuriland in which the nominated area occurs is one of the world's most distinctive natural regions. Ussuriland extends southwards from the mouth of the River Amur to the border with China and Korea. It is bounded on the west by the Ussuri River and on the east by the Sea of Japan. No other area has this particular mix of flora and fauna and, combined with glacial history, this has helped to make the Ussuri region a priority for conservation in Russia. For example, the WWF report by Krever *et. al.* (1994) for the World Bank states that "the bioregion is critical to global biodiversity conservation because is contains some of the richest and most unusual temperate forests anywhere in the world. Compared to other temperate ecosystems, the level of endemic plants and invertebrates present in the region is extraordinarily high which, together with the region's unique biogeographic history, has resulted in unusual assemblages of plants and animals."

The Sikhote-Alin nomination lies within Udvardy's *'Manchu-Japanese Mixed Forest'* biogeographic province. There are currently no other natural World Heritage sites listed within this province. The Russian Federation has nine other protected areas within this biogeographic province (including the Lazovsky zapovednik, 120,000ha, which is also Amur tiger habitat) but Sikhote-Alin is by far the largest and most important. Within the Sikhote-Alin Range, the Bikin cluster of the nomination is considered to be the only intact large-scale watershed on the western slopes of the Sikhote-Alin. A report by the Russian Academy of Sciences notes that the Bikin is "one of the last intact, large scale watersheds not only in the Russian Far East but also in the Northern Hemisphere." The Bikin catchment also includes one of the most expansive mountain plateau systems of the Sikhote-Alin range.

The biogeographic province extends across Heilongjiang and Jilin provinces of north-eastern China, but the only protected area approaching Sikhote-Alin in significance is the Changbai Mountain Nature Reserve of 190,582ha (originally established as a category IV protected area in 1961 but re-classified by IUCN as category Ia in 1986). Like Sikhote-Alin, Changbai is a Biosphere Reserve of long-standing. Although the Changbai Mountains are

higher (2,691m), they lack any lowland forest (below 300m) or any coastal landforms and biota. The Changbai Mountain protected area, and the adjacent Tumen and Yalu rivers forming the border with North Korea, were Amur tiger habitat in the 19th Century but relentless forest clearance and tiger hunting has eliminated the last populations.

Hokkaido, the northernmost of Japan's main islands, also lies within the Manchu-Japanese Mixed Forest province. However, there are no sites equivalent to Sikhote-Alin in Hokkaido: the two IUCN category Ia protected areas in Hokkaido are very small (674ha and 1,895ha) and the two main forested national parks (Daisetsuzan and Shiretoko) are IUCN category IV and extensively developed. Shiretoko does have many of the maritime forest characteristics of Sikhote-Alin and it has the advantage of being among the most natural of Japan's 28 national parks. However, the combined area of Shiretoko 'Special Protected Area' and adjacent Mount Onnebetsu Wilderness Area is 25,460ha – only about 1.6% of the area of the Sikhote-Alin nomination.

There are two comparable large continental/maritime natural World Heritage sites at these latitudes in North America – Olympic National Park bordering the Pacific Ocean in Washington state and Gros Morne National Park on the western Atlantic seaboard in Newfoundland & Labrador province of Canada. Olympic National Park (Oregonian biogeographic province) is an outstanding temperate rainforest but its climate is very different (much wetter and warmer) than Sikhote-Alin and its forest is more coniferous. Olympic is not listed for its biodiversity value or endangered species (criterion iv). Gros Morne National Park, likewise, is not listed under criterion (iv); it is wetter and cooler (in summer) than Sikhote-Alin and its lacks the latter's forest community diversity. Gros Morne is listed primarily for its geological history (especially glaciation in an island setting).

The sites of Giants Causeway (UK) and Miguasha (Canada) are not comparable because of their very small size and specialist geological character. Two other maritime sites are also not comparable with Sikhote-Alin – Redwood National Park on the Pacific slopes of the Coast Range in northern California (lower latitude and fragmented protected area units) and the island of St Kilda in the Atlantic Ocean off the western coast of Scotland (small size and higher latitudes). The Redwoods site is not listed under criterion (iv). There is no forest on St Kilda but it is listed under criterion (iv) because of its outstanding sea bird populations. Sikhote-Alin also has a number of species in common with Shirakami-Sanchi in Japan which was inscribed for the importance of its cool-temperate ecological processes. However, the beech forest is considered to be low in species diversity and endemics. For example, it has approximately 500 plant species compared to the 1,200 species found in the nominated area. The Western Caucasus is at similar latitude to Sikhote-Alin but shows a much greater variation in altitude. Though this site has a higher diversity of plants (almost 1,600 species) it has a lower diversity of vertebrates than Sikhote-Alin.

Two Pacific coastal World Heritage sites are found further north: Russia's Volcanoes of Kamchatka and Tatshenshini-Alsek/Kluane National Park/Wrangell-Saint Elias National Park and Reserve and Glacier Bay National Park. Both of these sites include important glacial and volcanic features which are not present in Sikhote-Alin. Both sites also have biodiversity values. In the case of the 3.7 million hectare Kamchatka site, biodiversity is high relative to other areas at the same latitude and includes the world's greatest diversity of salmonoid fish as well as important populations of seabirds and marine mammals. The Tatshenshini-Glacier Bay complex covers some 10 million hectares and includes tundra and Sitka spruce forests. It is important for natural processes such as glacial activity, plant succession and animal migration. The area is also important for wildlife, including endangered species such as the humpback whale. While the nominated area is smaller in area it is clearly richer in biodiversity.

4. INTEGRITY

4.1. Boundaries

When Sikhote-Alin zapovednik was established in 1935 it comprised 1,800,000ha, and was at that time the largest zapovednik in Russia and one of the largest strictly protected areas in the world. In 1951 it was reduced to about one sixth of its original size, although subsequent additions have increased it to its present size of 405,000ha. When the Sikhote-Alin site was first nominated for World Heritage in 1996, it then comprised 2,680,000ha but, in its evaluation, IUCN pointed out that only 14% of the nomination had a legal status as protected area. The nomination was subsequently deferred, with a recommendation that it be resubmitted once:

- protected status was conferred on the Bikin catchment and the Sikhote-Alin zapovednik was extended to the north, and

- consultation was undertaken with the government of Primorskii Krai and the local indigenous people (in the Bikin and Iman valleys).

The present nomination has made significant progress in fulfilling the 1996 recommendations, in that:

- the entire middle and upper catchments of the Bikin River (a vast area of more than 1,154,000ha) is now protected from the exploitative commercial forestry and mining which has depleted the natural resources of much of the Sikhote-Alin region (especially the coastal slopes), and

- the government of the Primorskii Krai and the Udege people have expressed their support for the nomination and for continued protection of the landscapes and biota contained within the two main areas.

However, there are still some outstanding integrity issues which need to be addressed. The first is the need for a protected area along the 70km of the crest of the Sikhote-Alin Range, linking the zapovednik with the Bikin catchment. The second is the desirability of linking the headwaters of the Bikin with the coast around the town of Svetlaya, to give a contiguous west-east corridor of largely unmodified forest. An aerial inspection of this watershed between the upper Bikin and the coastal slopes above Svetlaya revealed the unsustainable nature of the forest clear-cutting carried out by a joint Russian/South Korean forestry venture. A major logging road is currently being built from Svetlaya to Khabarovskii Krai through this forested upland around the head of the Bikin watershed, so there is an urgent need to develop a network of protected areas and sustainably-managed forests (which are still suitable as wildlife habitat) to buffer the Bikin and provide a forest corridor to the coast.

There is a sound strategic framework for the entire nominated area (and surrounding forest 'buffers') in the prescriptions (until 2005) contained in "A Biodiversity Conservation Strategy for the Sikhote-Alin" (Zhuravlev et al), published in 2000 and approved by a decree from the Governor of Primorskii Krai. The strategy sets out a plan for "A System of Territories to Conserve the Amur Tiger Population" along the length of the Sikhote-Alin Range in Primorskii and Khabarovskii Krais. The plan is comprised of existing and proposed protected areas and traditional/multiple use zones linked by ecological corridors. This system of territories would conserve the territory's biodiversity and provide the minimum essential area for the short-term conservation for the Amur tiger (conserving the territories of 50 mature females). However, for the long-term conservation of the Amur tiger population, habitat must be secured for a further 250 females. The plan proposes the development of a zoning process and special management regimes for the most important habitat outside of protected areas.

Despite the size of the Bikin, the management of surrounding areas has an impact on the population of mammals within it. An adequate buffer zone or regulation of activities in these areas is essential to the long-term protection of the site. The northern boundary of the nominated area coincides with the administrative boundary between Primorskii and Khabarovskii Krais but logging activities have been approved in some of the adjacent lands in Khabarovskii.

4.2. Management

The management plan for the Sikhote-Alin zapovednik expired in 2000 and a revised plan is currently being prepared. There is no management plan for the Bikin TTNU or Verkhnebikinskiy zakaznik and this is a planning challenge for the government of Primorskii Krai.

The Bikin TTNU is an area of traditional use set up to maintain the way of life of the Udege indigenous people. The sustainable use of the area's natural resources is permitted under the responsibility of the Primorskii Krai Department of Wildlife Resources. Economic activities include hunting, the collection of NTFP's and some timber harvesting. The commercial rights to the areas are currently leased to the *'AO Bikin'* enterprise which is responsible for the management of the NTFP resources. In the past there were hunting and fishing inspectors to monitor use of the area but there is no longer any effective field monitoring. A report from the 'Bikin Project' (see below) notes that 'official data and expert opinion conclude that the harvest of wild game is already near its maximum, and for the majority of species current harvest rates are not sustainable. And in view of an absence of data on illegal take of these species, especially poaching from surrounding regions, there is little doubt that there has been a dramatic reduction in the population numbers of native animal species.'

In the Bikin TTNU the Udege have the right of veto on activities if the community considers them to be detrimental to their traditional values. During the field mission the Bikin residents noted that they were not involved adequately in the management of the area and that their access to their traditional hunting lands is

subject to a complex licensing system. The designation of the Verkhnebikinskiy zakaznik on the Upper Bikin which was formerly an Ethnic Territory of the Bikin residents has also caused insecurity about future access to this land by the Udege for commercial and subsistence use.

The management of the Verkhnebikinskiy zakaznik is under the responsibility of the "Maritime Wood Department" which is a regional branch of the Federal department of forestry. The Zakaznik has a set of regulations which outlines activities which are prohibited or sanctioned in the area. The regulations allow for "commercial logging of secondary forest resources" as well as hunting and collection of NTFPs.

In conclusion the management regime in the Bikin is far from satisfactory. The Udege have few rights on commercial harvest of NTFPs and feel that they do not have adequate control over their own resources. The Udege are also under pressure from illegal hunting which is contributing to the unsustainable harvest of many animal species - especially ungulates. In addition, there is a problem with the unsustainable use of areas adjacent to the Bikin which are important for maintaining the populations of animal species hunted in the Bikin. IUCN is also concerned about the impact of small-scale logging on the ecology of the area.

4.3. Threats

Poaching and illegal logging currently threaten the ecology of the entire Sikhote-Alin range and are the main threats to the integrity of the nominated site. Logging and hunting in adjacent lands can impact heavily on protected areas – reducing animal populations and severing important biological corridors. A major international research and management programme is attempting to secure the future integrity of the population of Amur tiger, in particular, its protection from poaching and careful regulation of the hunting of its ungulate prey species. Sikhote-Alin zapovednik benefits from an enforcement programme which has received financial assistance from WWF and has proved to be quite effective.

5. ADDITIONAL COMMENTS

The Sikhote-Alin site has been nominated under both natural and cultural criteria. IUCN believes that there is a very close relationship between the natural ecosystems of the Sikhote-Alin and the hunting culture of the Udege indigenous people. The protection of the natural landscape is an essential pre-requisite for the continuation of the Udege culture.

In the 1990s the US State Department and US Forest Service funded the "Bikin Project" which carried out extensive socio-economic and biodiversity research in the Bikin watershed and developed proposals for biodiversity conservation and local economic development of the Bikin. However, the project was not continued and many of these proposals have not been implemented.

6. APPLICATION OF CRITERIA/STATEMENT OF SIGNIFICANCE

The site has been nominated for consideration under natural criteria (ii), (iii) and (iv).

Criterion (ii): Ecological processes

The site is a large temperate forest wilderness, with very little human habitation or disturbance. However, no convincing evidence was presented to establish that there were on-going ecological processes of "outstanding universal value" within the site. Central Sikhote-Alin is primarily climax forest, with little evidence of natural perturbation, except for occasional fires from lightening strikes and the inundation of the floodplain of the Bikin River. The Sikhote-Alin zapovednik coastline shows geomorphological evidence of progressively uplifted marine terraces but these are not considered to be linked to outstanding ecological processes. IUCN does not consider that the site meets this criterion.

Criterion (iii): Superlative natural phenomena or natural beauty and aesthetic importance

Although the expanse of wilderness in the nominated area is impressive, the landscapes and scenery of the site are not exceptional. The forest is very difficult to penetrate on foot, the topography is subdued and the natural waterways intricate and subtle, and insect pests are aggressive and ubiquitous during spring and summer (constituting a major disincentive to human settlement and tourism development). IUCN does not consider that

the site meets this criterion.

Criterion (iv): Biodiversity and threatened species

The nominated area is representative of one of the world's most distinctive natural regions. The combination of glacial history, climate and relief has allowed the development of the richest and most unusual temperate forests in the world. Compared to other temperate ecosystems, the level of endemic plants and invertebrates present in the region is extraordinarily high which has resulted in unusual assemblages of plants and animals. For example, subtropical species such as tiger and Himalayan bear share the same habitat with species typical of northern taiga such as brown bear and reindeer. The site is also important for the survival of endangered species such as the scaly-sided (Chinese) merganser, Blakiston's fish-owl and the Amur tiger. IUCN considers that the site meets this criterion.

7. RECOMMENDATION

That the Bureau note that Central Sikhote-Alin is considered by IUCN to meet natural criterion (iv) but that the management of the Bikin River protected areas (Bikin Territory of Traditional Nature Use and Verkhnebikinski zakaznik) need to be improved before this area is inscribed on the World Heritage List. Therefore the Bureau should recommend the **inscription** of the Sikhote-Alin Nature Preserve and Goralij Zoological Preserve but **defer** the inscription of the Bikin River protected areas and request that the State Party:

- develop an effective and integrated collaborative management regime for the entire Bikin catchment with the full involvement of indigenous peoples in this process;
- regulate activities in areas adjacent to the Bikin catchment in both Primorskii and Khabarovskii Krais; and
- improve the physical linkages between the Bikin and the Sikhote-Alin Nature Preserve by urgently developing a comprehensive network of protected areas which can both link the Bikin to the Sikhote-Alin zapovednik and provide a natural corridor to the coastal regions near Svetlaya. This should be carried out within the framework of the system of interlinking protected areas proposed by the *'Biodiversity Conservation Strategy for the Sikhote-Alin'* and fully involve indigenous people in this process.

Once these activities have been completed, the State Party may wish to submit the Bikin protected areas for consideration as a second phase of the nomination.

The Bureau may wish to commend the State Party for responding to the request of the 1996 Bureau and encourage the State Party to request International Assistance from the Committee to fund the necessary technical work to fulfil the above request.