
WORLD HERITAGE NOMINATION - IUCN SUMMARY

THE LAPPONIAN AREA (SWEDEN)

Summary prepared by IUCN/WCMC (April 1996) based on the original nomination submitted by the Government of Sweden. This original and all documents presented in support of this nomination will be available for consultation at the meetings of the Bureau and the Committee.

1. LOCATION

Lies close to the Arctic circle in northern Sweden, in Norrbotten County and contiguous to the international boundary with Norway.

2. JURIDICAL DATA

Almost the entire nominated area is protected within four national parks (Padjelanta, Sarek, Stora Sjöfallet and Muddus) and two nature reserves (Sjaunja and Stubba). Remaining areas have a certain degree of protection under the 1987 Natural Resources Act and the 1988 Ancient Monuments Act.

The State owns about 99% of the area (9,400km²), through the Swedish Environmental Protection Agency and the National Property Board. Four small settlements in Sjaunja and part of the Rapa valley delta, covering 35km², are not under state ownership. The property includes wetlands of international importance recognised under the Ramsar Convention: 1,886km² in Sjaunja Nature reserve and a delta in Sarek National Park. Sarek, Padjelanta and Muddus national parks have been awarded the Council of Europe's European Diploma.

Both the legal status of the protected areas and the management regimes are aimed at a strict level of wilderness protection. However, the Saami people hold legally protected rights under the Reindeer Husbandry Act to herd reindeer and exploit natural resources throughout the nominated property.

3. IDENTIFICATION

The property consists of two landscape types, an eastern lowland area of Archaean geological origin and a western mountainous landscape covering two-thirds of the area, formed more recently and comprising part of the Swedish-Norwegian Scandes. Glacial activity has had a major influence on the development of the landscape, and the current complement of flora and fauna are evidence of colonisation following the last glacial retreat some 9,000 years ago. The lowland (taiga) consists of a plain with isolated, flat-topped hills covered by taiga vegetation with large open areas. Pristine pine and fir forests cover approximately 1,000km² and a variety of swamp types cover another 1,000km², the latter being the largest untouched mire complex in western Europe. Deep canyons cut by melt water are a notable feature.

Two-thirds of the site comprises a thinly-vegetated mountainous landscape with steep valleys and powerful rivers. More than one hundred peaks higher than 1,800m and about 100 glaciers have been recorded. Birch, low heath and alpine meadows (one of the floristically richest areas in Sweden), are found below boulder fields, permanent snow fields and glaciers. More than 150 bird species have been recorded, including 100 residents. Notable species include moose, Arctic fox, brown bear, lynx, wolverine, otter, pine marten, capercaillie, whooping swan, bean goose, jack snipe, golden eagle, gyrfalcon and white tailed eagle.

Although there is no permanent population, the site is of great cultural and economic significance for the Saami people, and reindeer herding is practiced throughout. The Saami have been resident for 4,000 to 5,000 years, and have progressively substituted reindeer hunting for reindeer herding from the sixteenth century onwards. Today some 200-250 Saami spend summers in the nominated area, especially in the western part, herding 30,000-35,000 reindeer. The rights of the Saami to land, water, fishing and hunting are legally regulated and protected.

4. STATE OF PRESERVATION/CONSERVATION

The great majority of the site is within legally gazetted protected areas, or under other forms of legal protection. The major natural features are in pristine condition and under no threat of exploitation. However, reindeer herding is a livelihood widely practised and which in some areas constitutes an environmental threat mostly due to over-grazing and vehicular traffic. Hunting and fishing are strictly regulated, whilst developments such as hydroelectric power, forestry and road construction are prohibited. Remoteness and limited facilities mean only small numbers of tourists visit the site.

Management plans were prepared for Muddus and Padjelenta national parks in 1993, and are under preparation for Sarek and Stora Sjöfallet. Brief management plans have been prepared for both Sjaunja and Stubba nature reserves.

5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST

The Government of Sweden has presented the following justification for designation of The Lapponian World Heritage Area: Precious Nature - Saami Culture as a World Heritage property :

- (i) **Contains examples of the major stages of earth's history and outstanding geological features.** A wide variety of features illustrating both historic and on-going geological processes are found. These include features such as monadnocks, kursu valleys, sandurs, boulder hollows, tundra polygons, U-valleys, glacial cirques and moraines, talus accumulations, drumlins, weathering phenomena and palsa bogs.*
- (ii) **Contains examples of on-going geological and biological processes.** A wide variety of features illustrating both historic and on-going geological processes are found. These include features such as monadnocks, kursu valleys, sandurs, boulder hollows, tundra polygons, U-valleys, glacial cirques and moraines, talus accumulations, drumlins, weathering phenomena and palsa bogs.*
- (iii) **Contain superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance.** The nominated property consists of a variety of landscapes of exceptional natural beauty, exemplified by the number and diversity of habitats and scenic places.
- (iv) **Contain the most important and significant natural habitats for threatened species.** Altitudinal, geographical and topographical variation has led to the development of a wide range of vegetation types. Typical and unspoilt Fennoscandian habitats are contained in their entirety, supporting a diverse range of species, some being internationally threatened.

* The nomination presents the same case for the satisfaction of both Criteria (i) and (ii).

WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

THE LAPPONIAN AREA (SWEDEN)

1. DOCUMENTATION

- (i) IUCN Data Sheet (3 references)
- (ii) Additional Literature Consulted: CNPPA/IUCN. 1982. *The World's Greatest Natural Areas: Indicative Inventory of Natural Sites of World Heritage Quality*. IUCN 1990 Draft IUCN Technical Evaluation Sjaunja (Sweden). Thorsell, J.W., IUCN 1990 Observations on field inspection of Sjaunja World Heritage Nomination. IUCN. 1995. IUCN Summary and Technical Evaluation for World Heritage Nomination of the Virgin Komi Forests (Russian Federation). WCMC data sheet for the Virgin Komi Forest World Heritage Site, 1996.
- (iii) Consultations: 6 external reviewers, Swedish Government officials
- (iv) Field Visits: June 1990: Jim Thorsell (Sjaunja nomination); 16-22 June 1996: Bernie Lieff, and P H C Lucas.

Note: This is part of a joint nomination by Sweden as a Mixed Site for which the 1996 field mission was undertaken jointly for IUCN and ICOMOS. It follows an earlier natural site nomination of only the Sjaunja Nature Reserve comprising 285,000 ha. The outcome of an IUCN field mission to Sjaunja in 1990 was that the Swedish Government withdrew the nomination. The current revised nomination includes all the areas suggested in 1990 plus four additional areas, total 940,000 ha.

2. COMPARISON WITH OTHER AREAS

The Lapponian Area as nominated lies within the Arctic Circle and within two Biogeographical provinces. The World Conservation Monitoring Centre (WCMC) estimates that two-thirds of the nominated site lies in Biogeographical Province 2.6.5 (Subarctic Birchwoods) with the balance in Biogeographical Province 2.3.3 (West Eurasian Taiga).

The Taiga Biogeographic Province comprises a vast boreal forest ecosystem that encircles the Northern Hemisphere containing 204 protected areas (1993 UN List of Protected Areas). The Subarctic Birchwoods forming the subalpine zone in the Scandinavian mountains has only 17 protected areas on the UN list with no World Heritage Sites.

The 1982 IUCN Indicative Inventory of Natural Sites of World Heritage Quality included "Swedish Lapland" stating that "this 843,000 ha wilderness north of the Arctic Circle is the largest wild region in Europe comprising five contiguous reserves. The site includes all of Lapland's habitats and contains most species of plants and animals found in the northern coniferous belt of Europe."

Sweden subsequently nominated only the Sjaunja Nature Reserve. IUCN's Technical Evaluation of Sjaunja in 1990 noted the extensive coverage of taiga habitat across North America and Eurasia and added that Sjaunja "stands apart and owes its uniqueness to three factors: its size; its variety of habitats from mountains, virgin birch and spruce forests, numerous lakes and wetlands, and it contains the largest mire (peat-based wetland) in all of Western Europe outside the Soviet Union." IUCN added that the natural features of Sjaunja "are likely duplicated in several other reserves elsewhere in the

circumpolar region. But, being contiguous with four other reserves to the south and west, it is part of a larger complex of conservation units that would together, more completely comprise an area of outstanding universal value that the Convention requires."

A reviewer of the 1996 nomination considers that the enlargement of the area proposed for listing in 1990 "is a great success making the area now nominated as very suitable for the World Heritage List." This reviewer notes the inclusion in the WH List in 1995 of the virgin Komi Forests and recognizes that the primeval forests of the Lapponian site are not as large but points out that the Lapponian site has other outstanding features such as the large lake plateaus of Padjelanta which do not occur in the virgin Komi Forests site.

The 3 million ha Virgin Komi Forests (Russian Federation) inscribed in 1995 is the latest listed of three World Heritage sites in the boreal forest province. The others are in Canada - Nahanni (476,560 ha) and Wood Buffalo (4,480,000 ha) National Parks.

The Lapponian Area contains significant physical and vegetational differences from these. The majority of it is situated in the Subarctic Birchwoods Province characterized by the birch scrub-forest which does not occur in either Nahanni or Wood Buffalo. Additionally, the conifer forest throughout the nominated area is very open with low heath type vegetation, whereas in Nahanni and Wood Buffalo the forest is much taller and subject to frequent fires producing in places dense new growth.

According to the WCMC current data sheet for the Virgin Komi Forests, the boreal forests there are comprised largely of pine and larch with extensive spruce and pine in the valleys. The boreal forest in the Lapponian area is largely pine and spruce and the site has substantial birch forests.

Like Wood Buffalo and Nahanni, the Komi area has a significant karst landscape with craters and riverbeds which are seasonally flooded. Karst topography is absent in the Lapponian nomination.

To sum up, the Lapponian Area contains significant differences physically and in vegetation from other World Heritage sites which share the West Eurasian Taiga Biogeographical Province while there is no existing World Heritage site in the Subarctic Birchwoods Province.

3. INTEGRITY

As the nomination states, 99% of the site is State-owned and legally protected, mostly in seven protected areas totaling 893,400 ha while the remaining land in the nomination has protection under the 1987 Natural Resources Act.

Under the Nature Conservation Act, national parks are State-owned and are large natural areas representing different types of landscapes and where compatible recreation is allowed. Nature reserves in Sweden are a more flexible form of protection which are zoned for varying uses, always with the major goal of conservation. The three smaller areas in the nomination have their natural values under the 1987 Natural Resources Act.

Overall responsibility for the natural values of the area lies with the Swedish Environmental Protection Agency (SEPA) which funds, supervises and prepares management plans besides providing scientific research support. The County of Norrbotten is the management agency. Field management is handled by its Mountain Branch at Jokkmokk with a manager, 12 rangers and four other employees operating with what the manager advises is an adequate budget.

Management plans exist for Muddus and Padjelanta National Parks but not for the other areas although there are management measures specified in the establishment provisions for Sjaunja and Stubba Nature Reserves.

Recent additions to the complex and the linking of the Sjaunja Nature Reserve and Muddus National Park have enhanced the coherence of the boundaries and apart from the narrow strip separating the nominated area into two portions, the site is a coherent entity.

The narrow strip which divides the area dates from a 1919 decision of the Swedish Parliament to excise

a river and lake system from the Stora Sjöfallet National Park for hydro-electric development and create the Stora Lule artificial lake. This hydro-electric system (outside the nominated area) is not proposed for expansion and is not considered a threat to the integrity of the nomination. The only hydro-electric development inside the nominated area is a much smaller-scale one with a single control structure and controlled lake near Vietas in the eastern sector of Stora Sjöfallet. This small scale unit is not proposed for expansion.

The site's integrity is not threatened by tourism. One road built to serve the hydro-electric development today brings some 70,000 visitors a year mainly to the Stora Sjöfallet area using tourist bases outside the nominated site. Visitors to the other national parks are low in number: 1500/2000 a year to the Sarek's wilderness; 4000 to Padjelanta mainly to walk its long distance trail; and 2,000 to Muddus mainly for forest hiking and sightseeing. Padjelanta has modest overnight cabins operated by the management authority. The site of the main cabin complex at Staloluokta is the only location in the total nomination where aircraft landing is permitted with up to eight landings a day during the two month summer use period using helicopters or float planes. (This is apart from helicopter use in association with Saami reindeer herding discussed later).

The SEPA has a national monitoring programme studying global climate change, the impacts of acid rain, the effect of reindeer herding on natural vegetation and on key fauna species.

Hunting is not permitted in the national parks but there are some areas zoned in the nature reserve where recreational hunting is allowed on the basis of specific permits. Recreational fishing is permitted only in Padjelanta National Park. The Saami people have the right to fish and there are reported to be a few who do fish the large lakes in Padjelanta commercially but as a sideline during the summer period while there with reindeer herding. The monitoring programme shows that current hunting and fishing activity poses no threats any of the species involved.

The crucial factor in terms of the area's integrity is the impact of reindeer husbandry which, by Swedish law, is a right guaranteed to the Saami people. The archaeological record shows remains of human settlement over wide areas of the site indicating a hunting and fishing culture from between 3500 and 2000 BC evolving around 2000 BC into use of trapping pit systems. Extensive reindeer domestication and nomadic life based on herding of tame reindeer did not develop until the 17th and 18th Centuries.

Reindeer are an historical component of the biodiversity of the nominated area and, in themselves are not a negative factor in considering the ecological integrity of the area. The question to be addressed is their impact as a semi-domesticated herded animal and the impacts of the herding society. Until the recent past, the indigenous Saami families lived in the landscape moving seasonally in scattered villages and probably had a significant impact in localized areas because of the numbers involved and the length of time they spent on the land. This can be compared to the present situation where the settlements are occupied for very short periods of time and often not by the entire family unit. This change has been brought about by technological advances in transportation and by the amenities offered in nearby towns outside the protected areas.

The integrity issue in relation to reindeer herding focuses mainly around the use of technology in the husbandry activity itself, for example, the use of aircraft and motor cycles to round up the herds and move them between pastures and the use of fences to separate the herds of neighboring communities. Throughout the mission's extensive coverage of the area by aircraft supplemented on foot, the mission did not see any damage caused by motor cycles but the team was told that it exists in localized areas such as those containing corrals. Therefore, in the overall context, the use of motor cycles is not seen as a threat to the integrity of the site which does not mean that local impacts should not be addressed.

It is recognized that there may be wider spread impacts from the use of snowmobiles and motor cycles resulting from the noise they emit and the ability they give operators to chase down species. A Saami Council spokesperson confirmed that the Saami are not going to leave the "Yamaha Way" and go back to their traditional way of herding reindeer. Rather, they recognize that they need to address how they can lessen the impact reindeer herding has on the land. Overgrazing is another issue in which the Saami are cooperating with the SEPA.

All these issues are being addressed in projects designed to assess the impact of reindeer herding on the natural values. Projects relating to the impact of reindeer husbandry include the satellite monitoring of vegetation, the monitoring of vegetation through the use of exclosures (with financial support of WWF)

and the monitoring of key species. The county administration decides on the number of reindeer permitted for each community and the results of the studies will be used to review these numbers. Both the Saami and the county administration are preparing themselves to manage reindeer in a more environmentally sustainable manner.

The field mission noted the use of wire fences in some areas. The impacts of these were discussed with the management agency whose spokesperson felt that, while there were too many, most wildlife species could go over, under or through these fences. Besides reindeer, the other species affected was moose as females would go over fences, leaving calves behind. The spokesperson did not feel that this occurred commonly and because of the healthy moose population, was not a major concern. There does not appear to be a way of eliminating the fences while still keeping the animals of the various owners in neighboring communities from mixing, but the scale and siting of fences is proposed to be addressed.

Researchers working on large mammal predators and white-tailed eagle indicated that all populations seem to be healthy with the exception of wolverine which occur in low numbers (as noted earlier the wolf has been expatriated from the region and in fact from most of Sweden). Large mammal predators take reindeer cows and research has shown that 12% of calf mortality is the result of predators, mostly wolverine. A compensation programme has been set up, formerly based on animal losses but starting in 1996 is based on an inventory of predators. This may encourage the herders not to hunt predators but this remains to be seen. Although wolverine have been fully protected since 1969, poaching still occurs according to SEPA scientists whom consider the wolverine population to be stable in the nominated area the species is included in a monitoring programme.

The brown bear has been studied extensively since 1984 when the first bear was collared; in 1996 there were 38 bears with transmitters in the nominated area. Saami have the right to take bear in the non-core areas of the reserves but not in the national parks. An estimated 100 bears, including wanderers use the nominated area. The population is regarded as being healthy. Regarding the wolf, the mission was advised that it is not politically feasible to reintroduce it because of the reindeer herding activity.

White-tailed eagle formerly covered all of Sweden but have been reduced to two populations, one of them in the nominated area and, research shows that it is the only healthy one. The population is regarded as stable containing 50 to 100 pairs. There has been a reference by IUCN to declining passerine numbers. The avian researcher advised that this is occurring outside the nominated area and is likely to be the result of forestry operations. There has been no research into the status of passerines in the nominated area.

Monitoring of air quality shows no problems as indicated in a report the team briefly reviewed. Water quality in a number of lakes in the nominated area has been sampled: pH is not a problem nor is there evidence of heavy metals.

In summary, the only area which causes some concern is the limited coverage of management plans. This concern is balanced by limited pressures on areas such as Sarek, by the long experience of staff backed up by a substantial history of research which continues. However, IUCN considers that action should be taken as soon as possible to apply this research and staff experience in achieving management planning coverage. In spite of this, IUCN is satisfied that the Conditions of Integrity are met.

4. ADDITIONAL COMMENTS

a) Possible transboundary expansion

The Lapponian Area has its western boundary along the Norwegian border and in the 1990 IUCN report suggesting the current nomination, the comment was made that "if an additional area could be included on the Norwegian side, so much the better." This addition would result in 10% of the total area being in Norway. The issue has been followed up and there is continuing dialogue between the Swedish and Norwegian authorities on the proposal that the Lapponian Area be complemented on the Norwegian side of the common border by the existing Rago National Park and the Tysfjord/Hellemoboth area being considered for national park status. The processes involved in Norway are not simple and are unlikely to be completed before 1999 and more likely some years later (Negotiations with the Saami over land rights are involved).

b) Reindeer husbandry

The management authorities and the Saami people need to be encouraged to carry out their review of reindeer numbers assigned to communities with a goal of adjusting numbers where needed to reduce environmental impact. Additionally, the scale and siting of reindeer fences in the nominated area needs to be reviewed with the goal of removing all unnecessary fencing and considering resiting where there are wildlife problems. The change in the method of compensating reindeer herders for losses due to predation has been noted. The effects of the new methodology should be monitored to determine if this results in more protection of predators from poaching (Section 5).

c) Inventory

Although there has been much work done on inventorying and monitoring flora and fauna, this does not appear to be the case with passerine birds. At the least, basic inventories should be carried out and the results put into the context of their status elsewhere in Scandinavia (Section 5). Ongoing monitoring of the status of wolverine is recommended for follow-up management actions if needed.

d) Management Plans

Full coverage with management guidelines should be achieved as a priority with an overall management plan produced as soon as possible to ensure that the nominated area is managed as an entity, rather than as separate areas.

5. EVALUATION

The 1990 report evaluating Sjaunja suggested adding additional areas. These and others are included in the current nomination. They include: Sjaunja Nature Reserve, Padjelanta, Sarek, Stora Sjöfallet and Muddus National Parks, Stubba Nature Reserve linking Sjuanja Nature Reserve with Muddus National Park, Sulitelma with alpine and glacier landscape, Tjuolta incorporating a river valley south of Sarek, and Laitaure which includes a rapidly developing delta system.

There has already been regional and international recognition of major components of the current nomination in the award of the Council of Europe's European Diploma to Sarek, Muddus and Padjelanta National Parks. The nomination also includes two Ramsar Sites in Sjaunja and in the Rapa Valley Delta of Sarek National Park.

The nominated area contains all the processes associated with glacial activity such as U-shaped valleys, moraines, talus slopes, drumlins, presence of large erratics and rapidly flowing glacial streams. It has excellent examples of ice and frost action in a tundra setting including formation of polygons and an area of spectacularly collapsing and growing pulsas. Glacial rivers originating in the snowfields continue to cut through bedrock. Large unvegetated areas illustrate the phenomenon of weathering. The site also contains a record of humans being part of these ecosystems as far as 7000 BP. The site thus meets criterion *i*.

The site is considered to meet criterion *ii*. The importance of the vast mire complex of Sjaunja has been recognized by its Ramsar site designation and is the largest in Europe outside Russia. This area is virtually impenetrable by human beings except during winter. The area has primeval coniferous forest with dating indicating ages as old as 700 years. Natural succession continues here unimpaired.

The area meets criterion *iii*, with its great variety of natural phenomena of exceptional beauty. The snow-covered mountains in Sarek and Sulitelma are not only magnificent to see but are a text book of glacial-related geomorphology. The large alpine lakes in Padjelanta, with the mountain backdrop on the Swedish/Norwegian border are of exceptional beauty. The extensive Rapa Valley provides a total contrast with the alpine areas. Particularly noteworthy is its very active delta area, surrounding cliffs and rocky outliers with sheer faces plunging to the delta. The existence of the Saami culture ranging from the traditional birch and turf kata to contemporary cabins adds to the aesthetic value of the site as does its link with the eminent botanist Carl von Linné/Carolus Linnaeus.

6. RECOMMENDATIONS

The Lapponian Area be inscribed on the World Heritage List under Natural criteria *i*, *ii*, and *iii*.

The attention of the State Party be drawn to the comments (Section 6) of this Technical Evaluation.

This Technical Evaluation be considered in association with the evaluation of the site by ICOMOS under the appropriate cultural criteria.

WHC/JWT/amb
October 1996