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**CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS**

**GROUP OF SPECIALISTS -EUROPEAN DIPLOMA OF PROTECTED AREAS
9-10 FEBRUARY 2012, STRASBOURG
ROOM 14, PALAIS DE L'EUROPE**

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**MUDDUS NATIONAL PARK
SAREK & PADJELANTA NATIONAL PARKS**

**Appraisal report
Pierre Galland (Switzerland)**

*Document prepared by
the Directorate of Culture and Cultural and Natural Heritage*

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Introduction

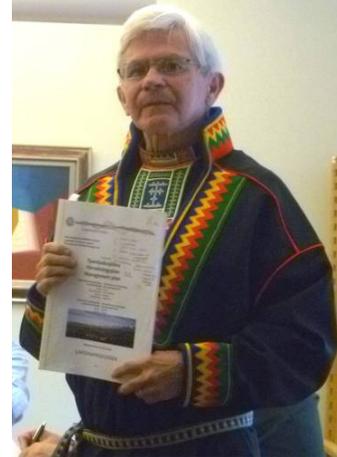
The European Diploma was awarded to the 3 parks Muddus National Park, Sarek and Padjelanta in 1967 and has been periodically renewed since then, the last time on 24 October 2007. The last expert mission, conducted by Mr Hervé Lethier, took place in 2001.

The Swedish Authorities have sent annual report regularly these last few years.

The 3 National Parks, together with Stora Sjöfallet National Park and the Nature Reserves Sjaunia and Stubba have been inscribed on the World Heritage List by the World Heritage committee in 1996 under both natural and cultural criteria. The property is called Laponian Area (= Lapponia).

All protected areas are managed by the same authority, the County of Norrbotten Administrative Board, in close collaboration with and under the supervision of the Swedish Environmental Protection Agency. In addition 2 Ramsar sites are included or adjacent to the WH property: Laidaure, 4,319 ha at the border of Sarek NP, and Sjaunja, 188,600 ha, in the Sjaunia nature reserve (outside of the considered National Parks).

Both the Council of Europe and the World Heritage Committee have repeatedly requested the preparation of Management Plans for the Diploma holder National Parks but also for the WH property as a whole. In addition the establishment of a participative management structure involving the local Sami population was strongly suggested. The Diploma field mission took place at a crucial moment for the site's management. On the last day of the mission we had the privilege to be invited at a ceremony in Stora Sjöfallet for the establishment of a new Management board, the designation of its members and the presentation of the new management plan.



We would like to express our gratitude to all the organizers of the mission, and in particular to the Norrbotten County Administrative Board (Mrs. Britta Wännström, Mr. Kjell Sundvall and Kenneth Karlsson) and the Swedish Environmental Protection Agency (Mrs. Anna von Sydow) for the excellent preparation, the useful presentation during the mission and the very friendly company. We also thank sincerely the wardens Alf Karlsson and Jan Stuge for the very detailed information they have provided during the field visit and for making our stay in the parks' refuges very pleasant despite the poor weather conditions. The complete list of people met during the mission figures in annex 1.

The Swedish authorities have been particularly generous providing several hours of helicopter flight; without this it would be impossible to have an overview of these 3 very large National Parks (at European scale) in a short week.

1. Progress of the mission – main events

The detailed mission's program is presented in annex 1.

After an opening welcome dinner with local representatives in Jokkmokk, we had the next morning (19.8) a few general presentations in the office of the Norrbotten County Administrative Board explaining the management structure and its current changes, the main issues, e.g. the predators' population follow-up and the forest fires impact, as well as some aspect of the field work, including the cooperation with the Sami population who use large parts of the parks for reindeer herding.

A hike in Muddus NP led us from the trail head in Skaite to the Muddusfallet waterfall, followed by an overnight stay in the refuge.

The next morning (20.8) we flew by helicopter to the site of the 2006 large forest fire, and then we visited the Muddusluoppal refuge and observation tower. We then flew over the Sjaunia Nature reserve and into Sarek National Park, with unsuccessful predators tracking due to poor weather conditions (rain and fog). Overnight stay in Rinim cabin at the head of Sitojaure (lake), on the border of Sarek NP.

On Sunday (21.8) we flew across Sarek NP and into Padjelanta NP. A hike across reindeer summer herding area led us to Sallohaure where we met the herdsman and fisherman Per Anders Vannar who took us to a fishing boat trip on the lake and cloudberry picking and gave us a lot of very useful information about reindeer herding and the Sami traditions.

On the Monday morning (22.8) we flew again across Sarek to Stora Sjöfallet where took place the inauguration of the Laponia management board, its members' election and the presentation of the new MP. We also visited the location of the future information center and were invited to the official dinner in presence of the county Governor.

Important note: The 4 National Parks and the 2 Nature Reserves forming the Laponia WH property are managed all together by the Norrbotten County Administrative Board; the main management issues concern the site globally and only very few of them are specific to one of the Parks. In parallel to the establishment of a participative new global management structure, it might be advisable to re-assess the

current international designations and to proceed with a potential harmonization in an effort to facilitate the communication and simplify the administrative work.

2. General presentation of the National Parks and WH Site Laponia

Muddus National Park was created in 1942 and expanded in 1986; it is at an altitude varying between 166 m and 611 m and today covers a territory of 493 km² consisting mainly of lakes, marshland and mixed woodland in the northern part, and a more densely wooded area stretching down to the Lulea river in the south; the latter sector includes spectacular gorges on the river Muddus, which drains much of the protected area. Muddus is the most visited of the 3 parks; it offers several trails, partially equipped with wooden structure allowing crossing the large bog areas, a few refuges and an observation tower for wildlife and birdwatching.

The previous expert reports provide further details of the ecological interest of the Park, which is a habitat, at certain times of the year, for three large predators - the bear (*Ursus arctos*), the lynx (*Lynx lynx*) and the wolverine (*Gulo gulo*); the wolf (*Canis lupus*) is present only in the south of the country, by the Norwegian border; the policy of the Swedish government is to prevent any reproduction of wolves in the Sami reindeer herding area. Reindeer are present in Muddus mainly during the spring and autumn migration from the mountain areas to the pine and mixed forest around Jokkmokk.

The Council of Europe Diploma was granted to the Muddus National Park in 1967 in category A, on grounds of its scientific interest; it has been renewed five times – in 1987, 1992, 1997, 2002 and 2007.

Sarek National Park was created in 1909. Its 1,970 km² of territory features alpine ecosystems formed of barren high plateaus and some 200 summits, some of them above 1,800 m; there are around one hundred glaciers. While lower parts are used as reindeer summer grazing areas with low impact on the ground, the upper areas can be considered as core of one of the very last mountain reserves in a completely natural state in Europe. Like the Rappa valley lying at its heart, it offers a landscape of a rare authenticity.

The sustainable use of this pristine ecosystem by the Sami is a key issue to consider regarding the management of the area. The Sami have been fighting for preserving their herding rights, which was not always compatible with the establishment of protected areas including the protection of large predators.

Sarek has little in the way of tourist facilities and offers no accommodation; it has just one trail, crossing its southern part. However an unknown number of tourist looking for real wilderness experience visit the park every year.

Padjelanta National Park was created in 1962 and extends over 1,984 km². In terms of mean altitude it is lower than Sarek, although its highest peak, the Jeknaffo, stands at 1,836 m. Padjelanta comprises sub-alpine lakes and grasslands forming open landscapes of great beauty. Virtually the entire park is above the tree-line.

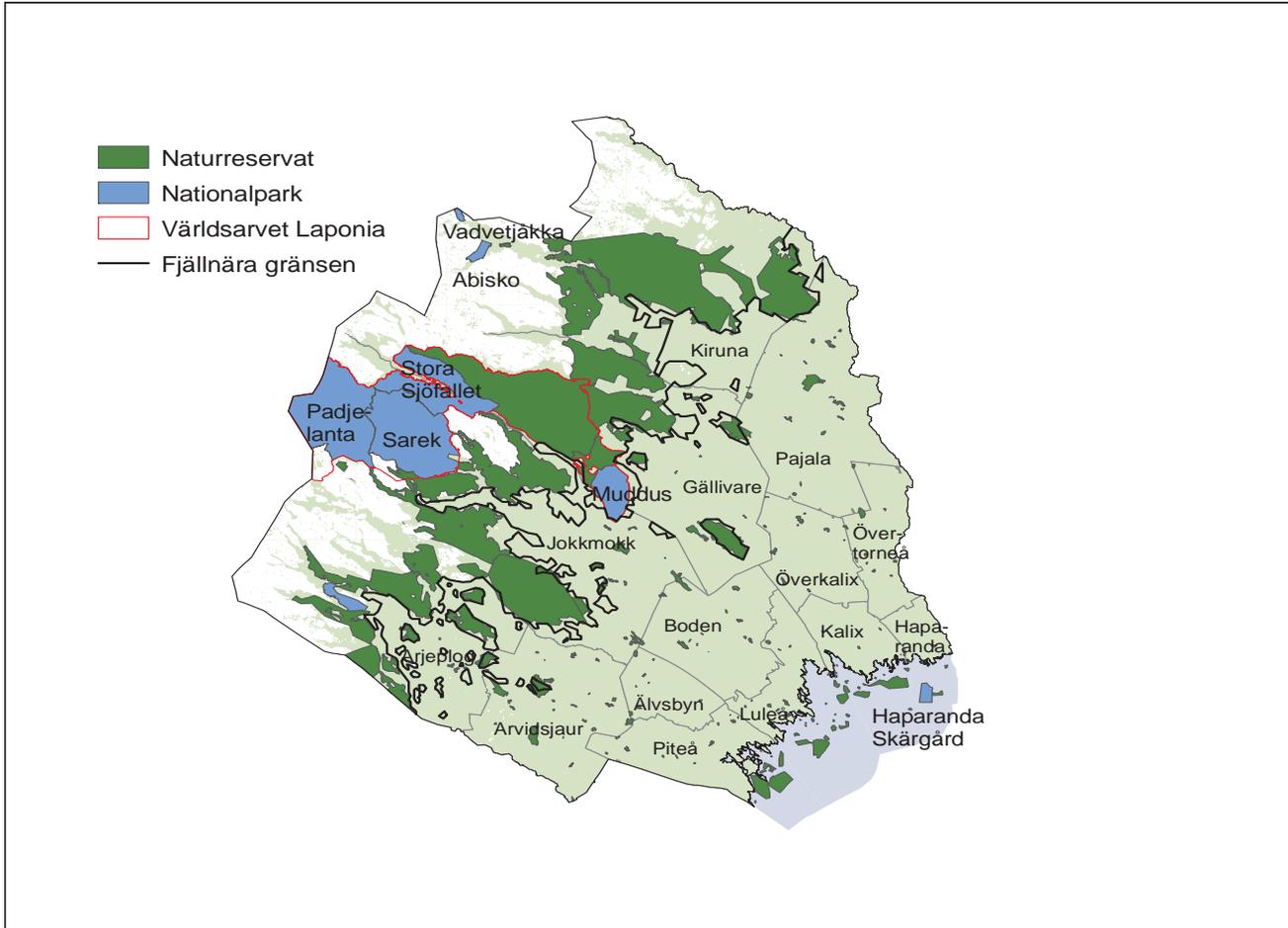
Padjelanta is more easily accessible than Sarek and offers a network of light facilities appreciated by hikers, trails, refuges and small trade outlets.

Like Sarek, Padjelanta is occupied during part of the year by Sami herders and fishermen, living in several villages on the western fringe of the Park at the edge of the large lakes - from south to north - of, and Virihaure, Vastenjaure, Sallohaure (within Padjelanta SP) and Akkajaure. Some changes have occurred for these nomad populations. Settlements have been established in some area, changing their status to semi-nomad with relatively long periods spent in their villages.

Sarek & Padjelanta NP form a continuous mountain protected area to which the European Diploma was awarded in category A in 1967; it has been renewed five times – in 1987, 1992, 1997, 2002 and 2007. The previous expert reports provide further details of the ecological interest of the Diploma

area, which is a habitat, all year round, for three large predators - the bear (*Ursus arctos*), the lynx (*Lynx lynx*) and the wolverine (*Gulo gulo*).

Sarek, Padjelanta and Muddus NP are included in Lapponia, the immense 9,400 km² territory inscribed by UNESCO as a world heritage property in December 1996; it also includes the national park of Stora Sjöfallet, which borders Sarek to the north-east, as well as the Sjaunia and Stubba nature reserves, between Stora Sjöfallet and Muddus. It is declared under both natural and cultural criteria, but not as cultural landscape.



4. Management structure of the National Parks and WH Laponia property.

The management of the whole Laponia area, and thus the 3 NP Muddus, Sarek & Padjelanta, is in the hand of the Norrbotten County administrative board, under the overall supervision of the Swedish Environmental Protection Agency. The field unit is in charge of 8 National Parks, ca 350 Nature reserves and 268 Natura 2000 sites. It is very well organized with a very competent team. However the human resources for the field activities are very limited; 3 nature conservation rangers are responsible for the field supervision of Muddus, Sarek & Padjelanta NP (almost 4'500 km²).

Norrbotten County field unit: 17 employees + 1 unit head

Whereof:

- 8 nature conservation rangers (3 in Padjelanta, Sarek and Muddus)
- 6 administrators
- 4 whose jobs span over more than one field of work:
- 1 administration/economy
- 1 communications officer
- 1 Abisko Visitor Centre
- Auxiliary staff:
- 4 rangers during inventory of large predators
- Guides in Abisko Visitor Centre

Main tasks of the Field Unit Supervision include:

- Illegal hunting of large predators
- Hunting and fishing in general on State land
- Off road driving on State land
- Condition compliance in restricted areas

New management authority

At the end of August 2011 a completely new management system was established, with the creation of the "*Laponiatjouttjudus*" a participatory board bringing together Swedish environmental protection agency, County administration board of Norrbotten, The local authority of Gällivare and Jokkmokk and the Sami village (it is the association of the reindeer herders in a special area). The Sami representatives are in majority in the board.

The timing of the mission was perfect; we had the chance to participate to the launching of the new structure and the presentation of the new management plan.

Following the repeated recommendation from the Council of Europe and the World Heritage committee, a global management plan had been drafted for the whole Laponia area, including specific management for the National Parks. The plan was officially presented at the inaugural meeting of the committee; unfortunately it is not available in English at this stage.

5. Specific management issues of the National Parks Predators inventory and control

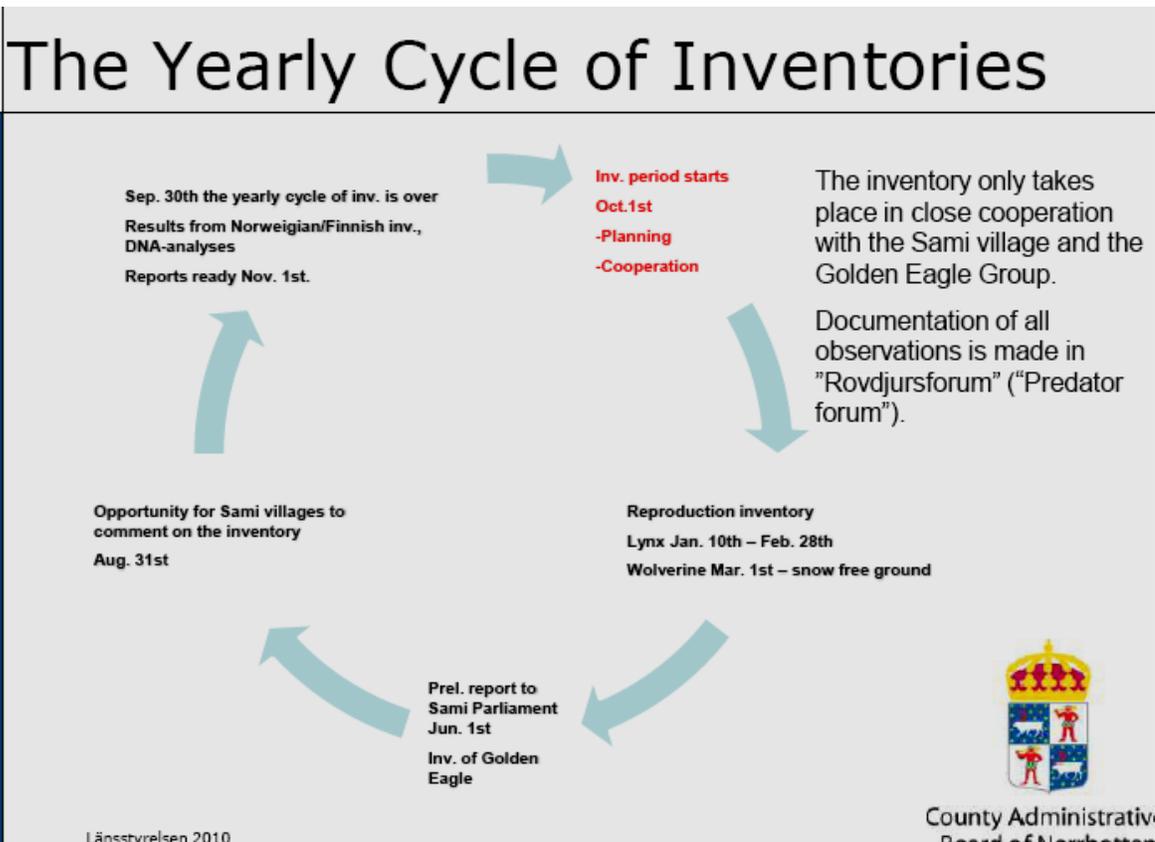
The monitoring and control of the predators is a very important task. The presence of lynx, bears, wolverines and sometime of wolves is exceptional. However the whole area being traditionally devoted to reindeer herding, it is essential to balance the interest of the wilderness conservation versus the Sami reindeer traditional herding.

Large Predators in Norrbotten County

Norrbotten = Predator County There are more predators than 100 years ago! Norbotten has approximately :

- 2/3 of national wolverine pop.
- 1/4 of national bear pop.
- 1/3 of nat. golden eagle pop.
- 1/10 of national lynx pop.
- the odd wolf...

Yearly predator inventories are done together with the Sami villages.

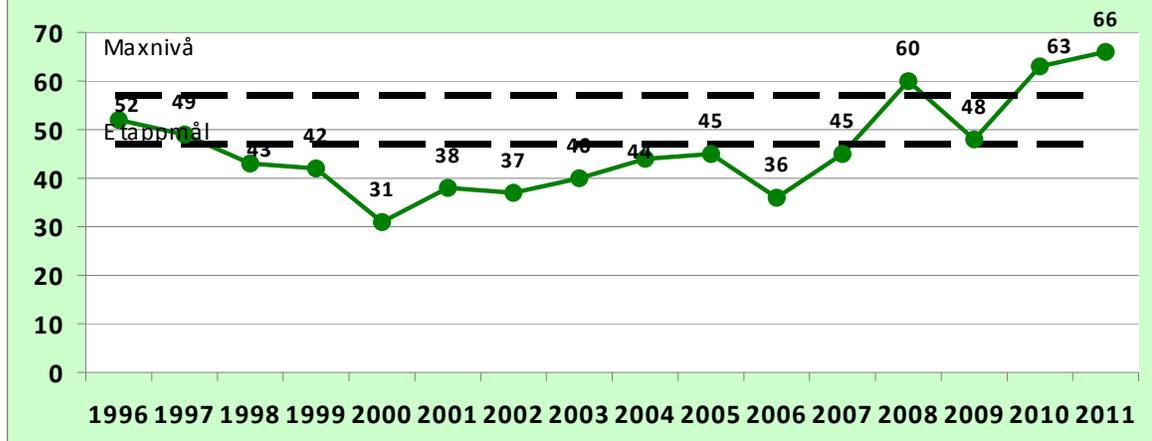


Some results are presented below:

Lynx reproduction 1996-2011

Wolverine reproduction 1996-2011

Järvföryngringar 1996-2011



Bear

It is difficult to make inventory of bears, as they hibernate during winter.

Estimation 2008: Approx. 900 bears in Norrbotten County

Muddus	15-20
Sarek	5-10
Padjelanta	2-4

Collections of bear feces will give a better estimation of the population; they are currently analysed (DNA); the result will be presented in September

Wolf

Wolves are naturally dispersed over Sweden, but reproduction in the reindeer grazing area is limited to the so called "åretruntmarkerna" ("all year round grounds").

- Eastern wolves are allowed to migrate through Norrbotten County
- Every year a few wolves migrate through the county

Predators – general conclusion:

All predators' populations are stable or growing; due to the number increase during the last few years, a certain number of hunting permits are issued every year, based on the previous year's inventory.

Due to the limited food sources, individuals of each predator's species occupy vast territories; thus the overall density is extremely low. Population dynamic studies at the level of one national park or nature reserve do not make much sense; even for the whole Lapponia WH site data interpretation is difficult. The only serious analysis has to be made at county level. For example Muddus national Park hosts very few predators; they travel through the park, but the resources are insufficient for supporting stable populations.

5.1. Forest fires

In summer 2006 approximately 300 ha of forest burnt in Muddus NP. Summer 2006 was exceptionally warm and dry. The fire was very well documented and further studies have permitted to receive more information on history of forest fires but also on ecological impact and potential for regeneration.

The fire started slowly and did not require an intervention. But after 3 days the wind changed and the danger increased, requiring intervention with helicopters. The fire was extinguished after 6 days.

The burnt area was mapped according to 3 degrees of damage; only in very few small areas the trees died. In most of the surface the soil and lower branches burned but with relatively low intensity.

Studies have been conducted on plants, insects and birds. Population dynamics of different species after fire was measured. The plant and lichen regeneration is very slow; fires are therefore a problem in reindeers winter grazing areas, because lichens is the principal source of food and take a long time to grow again.

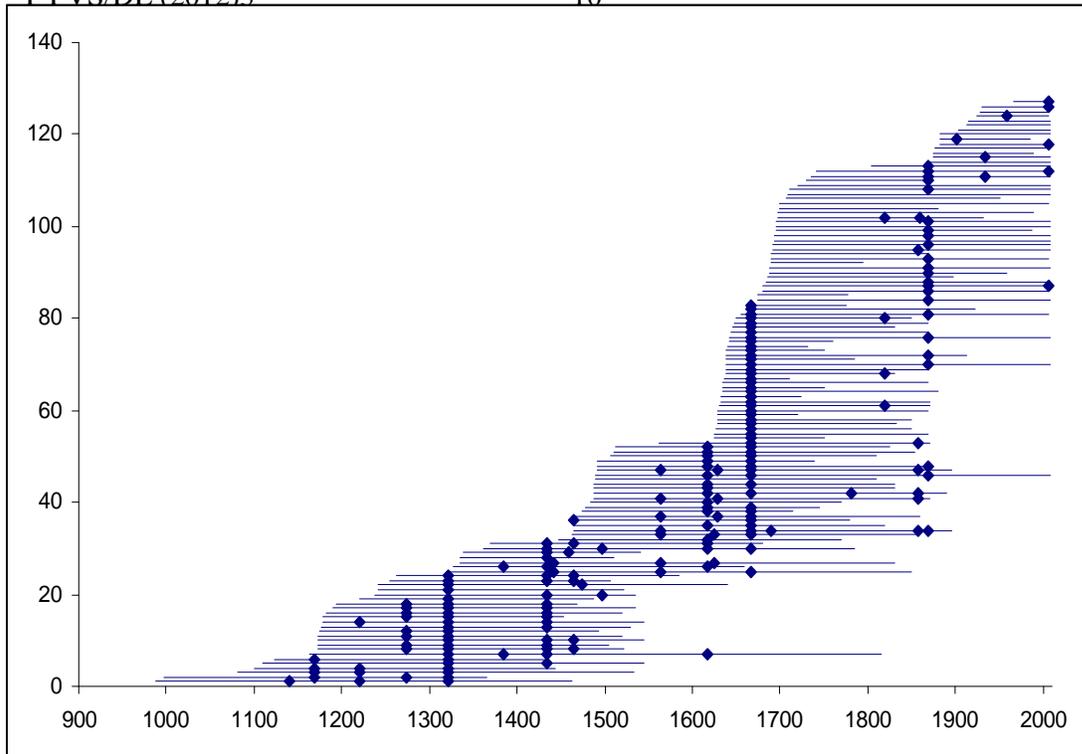
Some insect populations increased, but without causing major problems (in particular the bark beetle). Some species of bird increased, while other decreased.

History of forest fires – dendrochronology studies

The trees in the Muddus Park are growing very slowly and are much older than one would expect. The oldest living trees are more than 500 years old, and oldest dead trees found can reach 700 years. It has been therefore possible to reconstruct about 1'000 years of history of forest fires.

The oldest reliable fire dating goes back to 1141; there is uncertain dating of one fire back to 981. Ten prominent fires happened over 837 years, with a mean interval of 93 years (variations: 31 – 201 years) ; few fires occurred during the 18th century

Despite the decrease of fire frequency for the last 200 years, Muddus forests are still characterized by fire



5.2. Guarding and daily maintenance of infrastructures

The maintenance of the infrastructures (trails, bridges, refuges) is an important but time and resources consuming task. The table below shows the extension of the trail system and the number of bridges in the county. The cost for the bridge of Sallohure (100 m long) amounts to 4 Million SEK (ca 0.5 mio €). Many tasks are given to contractors, under close supervision from the field unit.

Summer trails –	1620 km
Unmarked summer trails –	100 km
Winter trails -	995 km
Snowmobile trails -	605 km
Sum -	3320 km
No. of bridges	293 st
Suspended bridges -	96 st
Sum -	389 st
No. of windbreaks -	31 st

The number of staff is exceptionally low for such a large area with high protection status. However the management problems seem to be limited; the pressure from visitors is extremely low, though no hard data on visitation are available. It might be advisable to find a system for estimating the number of visitors, their profile and distribution over the year and for assessing their potential impact.

The main problems come from illegal hunting and fishing, as well as the use of snowmobile and off-road vehicle which are prohibited in the parks.

5.3. Relation with the Sami communities and reindeer herding

The Sami people who have been using the land for reindeer herding for certainly more than 1000 years continue to bring reindeers for the summer season in Padjelanta NP especially. They participate to the predators' inventory and now have the majority in the new management board. They are allowed to travel by boat on the lakes, to use snowmobiles and motorbikes. They also use sometime the helicopter to bring the reindeer together for the marking of the calves.

The guaranty of the herding rights has been a major issue after the establishment of national parks and other types of protection. It appears that young people are eager to continue the tradition of their ancestors; however it has to be expected that some compromises will have to be found to allow modern way of life in accordance with the conservation objectives, in addition to the use of snowmobiles, motor boats and even helicopter for reindeer marking.

5.4. Scientific research

Scientific research is conducted in the park by different institutions, in particular the University for Agriculture. The park does not have a budget for research, with the exception of the predators' inventories, directly connected to the management. All the results of the researches are available; however they are not put together in a common database. With the new development of the management and the implementation of the management plan, it might be suitable to establish for the Laponia area or for the whole Norrbotten County a database linked to the GIS.

6. Review of the 2002 and 2007 Recommendations

The 2007 renewal was done without on the spot appraisal; the recommendation are to a large extend those proposed by the expert in 2002.

- 1. strictly comply with the requirement set out in the Regulations for the European Diploma (Resolution (98) 29) for the submission of annual reports at the proper time;*

For the last few years, reports have been delivered every year

- 2. complete the comprehensive management plan which the park manager should send as soon as it is available;*

The new management plan in Swedish language was presented during the mission (a hard copy is attached to this report) It would be highly advisable to make an English version (or at least a comprehensive summary) as soon as possible

- 3. as recommended in the previous resolution on renewal of the European Diploma, give absolute priority to increasing the number of staff assigned to park surveillance and infrastructure maintenance;*

The staff level on the ground is very low, but well organized and with good technical support (helicopter, etc.). Since there are no major management problems and very few visitors in the Parks, it does not appear to be an absolute priority. However we were not able to check what are the duties foreseen by the new management plan; we might expect that new tasks will be assigned to the management team. The construction of an information center in Stora Sjöfallet in a couple of years will require hiring more people. The management board should therefore address the overall issue of human and financial resources as a priority.

- 4. step up study and research work on the park's biodiversity and related trends, with a view to the ultimate establishment of a permanent observatory providing information and data on the park;*

High quality and comprehensive research on predators has been performed during the last decades by the park authority (Norrbotten County). Other research projects are done by different institutions, in particular the University for Agriculture. All the researchers must get a permit from the park authority and the results must be available; however they are not stored at a central location. What is lacking is a centralized database of all the investigations performed in the Park and linked to a GIS. The database could be located in or close by the new info center; the results could be used for displays and visitors' information in the center as well.

5. *develop a system for managing and archiving scientific reports so as to facilitate the application of research findings;*

See above

6. *continue with current conservation strategies, incorporating landscape aspects more fully;*

This recommendation is not very clear; conservation strategy is good and the principle should be anchored in the new management. We have not seen any serious landscape conservation problem and no new threats have been mentioned

7. *undertake particularly close monitoring of bear and lynx populations, and develop monitoring methods in the light of international research techniques.*

Research is done and yearly inventories available for the managers. Modern techniques (e.g. DNA analysis) are used.

8. *endeavor to conduct research within the park on the impact of reindeer herding on the natural environment;*

There has been apparently very little research about the impact on vegetation and soils of the reindeer herding, but no signs of erosion or overgrazing can be observed. However this site is very unique and closer research and the ecological aspects of 1000 years or more of herding would bring very valuable results in view of potential climate or socio-economical changes.

9. *continue to ensure the active involvement of the Sami population in park management with a view to the possibility of joint management, and keep the Secretariat regularly informed of the outcome of these discussions.*

The establishment of the new management board with majority for the Sami representative is a direct answer to that recommendation. The Parks have often been used as models at the same time for wilderness areas but also for long lasting symbiosis between nature and human activities.

7. Conclusions

The 3 parks are very well managed by highly competent people. They are not currently facing any major management problems. However it is important to remain vigilant; climate change as well as changes in the socio-economic conditions might have a significant impact on the ecosystem. The centuries old balance between nature and human activities is fragile; boreal ecosystems are at the same time very resilient but also fragile, their potential for regeneration being limited due to the harsh winter climate, the short summer season and the average low temperature.

The new the management structure recently established for Lapponia is very promising and the switch to the new management system deserves to be carefully monitored. It could be in the future a model of establishment of participatory management for other large protected areas.

It is recommended to renew the European Diploma for the 3 national parks, but it might be suitable to re-examine the national and international designation in order to harmonize them. The current

situation is quite complicated and difficult to understand; the Diploma is not used, partially by low understanding of its value and by difficulties to communicate the complex situation.

In addition a few recommendations, repeating partially those of 2002 and 2007 are presented to the Swedish authorities and the National Park managers.

Draft Recommendation

Renews the European Diploma of Protected Areas awarded to Muddus National Park until 27 October 2012;

Attaches the following recommendations to the renewal:

- Provide sufficient financial and human resources to the new “Laponiatjouttjudus” (= management board) in order to implement the new Management Plan and ensure a smooth transition from former County management structure to new board; provide as soon as possible with an English translation of the Management Plan.
- Continue the predators' inventories and use the results in order to help conserving the exceptional predator's populations while allowing Sami population to continue their traditional reindeer herding activities;
- Establish a centralized research database linked to a GIS for the whole Laponia area and make the results of the research largely available for scientist and visitors;
- Increase the field staff;
- Continue the monitoring of the fire areas and follow the natural regeneration processes;
- Assess the visitor flows and their impact within and outside the park (ecological and economic impact);
- Undertake a reflection regarding the use of the different national and international designations for the area; organize a workshop with the relevant international organization (e.g. Council of Europe, World Heritage convention, Ramsar Convention, National Park service) in view to harmonize the nominations, the reporting and the respective perimeters.

Draft Recommendation

Sarek and Padjelanta National Parks:

Renews the European Diploma of Protected Areas awarded to the Sarek and Padjelanta National Parks until 27 October 2012;

Attaches the following recommendations to the renewal:

- Provide sufficient financial and human resources to the new “Laponiatjouttjudus” (= management board) in order to implement the new Management Plan and ensure a smooth transition from former County management structure to new board; provide as soon as possible with an English translation of the new Management Plan.
- Continue the predators' inventories and use the results in order to help conserving the exceptional predator's populations while allowing Sami population to continue their traditional reindeer herding activities.
- Establish a centralized research database linked to a GIS for the whole Lapponia area and make the results of the research largely available for scientist and visitors.
- Increase the field staff; closely monitor the use of snowmobile, motor boats and other off-road vehicles, particularly in view to control the illegal hunting and fishing .
- Set up a system for estimating the number of visitors, their profile and distribution over the year and for assessing their potential impact;
- Initiate a research project on long term impact monitoring of the different human activities on the landscape (reindeer herding, fishing, tourism, etc.);
- Build and equip as soon as possible the Visitor info center in Stora Sjöfallet for the Lapponia WH site and provide specific information on the different National Parks; establish a network of smaller information points at the strategic entrances into the Parks and communicate about the different categories of international designations.
- Undertake a reflection regarding the use of the different national and international designations for the area; organize a workshop with the relevant international organization (e.g. Council of Europe, World Heritage convention, Ramsar Convention, National Park service) in view to harmonize the nominations, the reporting and the respective perimeters.