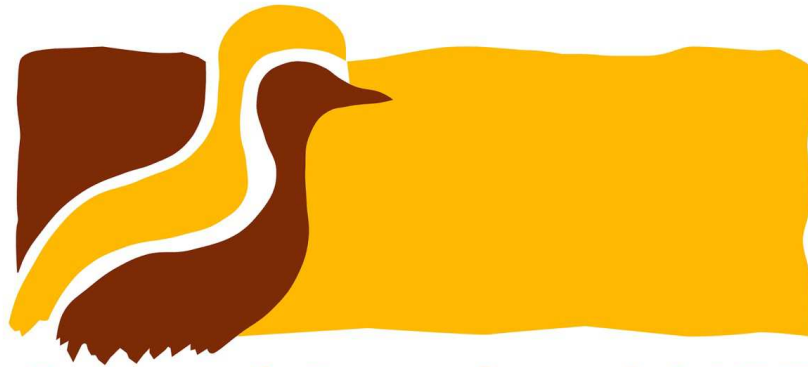


BOREAL PEATLAND LIFE

LIFE08 NAT/FIN/000596

Suoverkosto-LIFE



Boreal Peatland LIFE

After LIFE Conservation Plan

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1. Project history and situation analysis

1.1. Project history

On most of the N2000 areas targeted by the project, all peatlands that were in need of restoration when the project started were restored during the project. The project succeeded in restoring 4 790 of peatlands, 4 673 ha of which have been classified as HD Annex I habitats. In addition, dead wood was created on 103 ha to facilitate the development of the forests to representative Western Taiga (9010). Moreover, the area of the HD Annex I habitat types that has been directly positively affected by the restoration actions is even larger, 5 759 ha.

The outlook for the restored habitats is very good. Restoration was almost exclusively technically successful in the project sites and we were able to overcome the many challenges that are inevitable in restoration of mires, such as bad weather conditions preventing restoration actions, difficult hydrological conditions and sinking of excavators.

The monitoring actions done in the project proved that our restoration actions were successful. According to our monitoring results the variables that can fairly be expected to show clear short-term response to restoration actions, i.e. monitoring of hydrology and monitoring of Odonata, clearly show that the restoration actions have triggered the recovery of the natural habitats and species communities. In the other monitoring actions, i.e. monitoring of vegetation, butterflies and birds, the project period was found to be a bit too short to reveal clear response but it is safe to assume that the fauna and flora will benefit from the actions on longer term.

The three management plans prepared in the project are important tools in coordinating the different land use interests and thereby helping secure the long-term conservation targets of the in the three project sites.

The project received a lot of media attention and public discussion (e.g. related to articles in the internet) has been vivid. In Finland many people find the restoration as valuable nature conservation work but naturally many people consider mire restoration as waste of time and resources. Especially in the late phases of the project we emphasized in media work and project communication that the restoration actions carried out in the project had a significant impact on local economies and employment. 100 contractors – excavator drivers, logging truck drivers, forest workers etc. – were employed in the project, amounting to a total of about 90 person-years. This opportunity for work was highly appreciated especially as in many of the areas where restoration sites were situated job opportunities are not very abundant. This is a very important message so disseminate to politicians and laymen who quite often tend to think that nature conservation work is expensive and decreases work opportunities and local economy.



The project put a lot of time and energy to producing different kinds of innovative educational materials especially for children but also for laymen and even high-ranking politicians as part of our mission ‘Placing love for mires in the hearts of everybody’. The “Teacher’s material for mire educations” has been taken into use as part of school teaching by many teachers and will be undoubtedly be used long after the project has ended. The guided mire tours for children and disabled people were highly appreciated by the attending people. All these actions helped spread information about the importance of mires for securing many vital ecosystem services that peatlands provide. We also believe that the discussion and the success of the project in part affected the important governmental decision to launch the preparation of a new national mire protection program, which will supposedly also include restoration. Overall, the atmosphere in Finland is currently favourable for (mire) conservation and delivering information on the values and restoration of mires is likely to aid in preserving this favourable atmosphere.

1.2. SWOT analysis

1.2.1. Strengths

The project was very well planned and organized to make best use of the strengths of the beneficiaries, i.e the long history of working with the topics of the project. This meant that and the cost-efficient ways, i.e. best practices, for implementing the project actions were already in place when the project started. For example in the action regarding restoration planning (Action A1) and concrete restoration actions (C1-C4) the expertise gained by MH NHS during the more than 25 years that it has been restoring different peatland and forest habitats made it possible to work very cost-efficiently and still ecologically effectively. In the land purchase action (B1) and preparation of management plans (A2), KS ELY’s the long experience in acquiring land for conservation purposes and existing good contacts with the key landowner UPM Kymmene Corp. were very important for the great results on these actions. In the analysing and reporting of monitoring results (E13) the scientific know-how and experience and good contact network of JyU was elemental in producing the high-quality monitoring reports on short-term effects of restoration on many hydrology, flora and fauna of mires.

The experience and know-how of the beneficiaries has deepened further in the project, ensuring that when the actions will be continued in the project sites (e.g. further restoration, monitoring of hydrology and vegetation) and on other N2000 areas (e.g. restoration, management planning, land purchase), best practices and expertise will be utilized.

1.2.2. Weaknesses (difficulties)



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No weaknesses in the project team worth mentioning were met during the project but there were weaknesses or – more appropriately– difficulties that were due to outside factors.

Weather conditions in some of the project years, especially 2012 were rather abnormal and there was either too much snow or too high temperatures so that the surface of mires in parts of Finland did not freeze at all. In such circumstances tree removal can not be done without causing great damage to the surface of the mire. Also, during the summer and autumn of 2012 it rained more than ever in the recent 100 years which made mires too wet for excavators to fill in ditches. In case such weather would have prevailed for two or three years, the restoration objectives of the project would not have been met.

Vandalism caused problems in a couple of sites. In project site Petkelsuo the repeated acts of vandalism to the dams built during restoration of the site caused considerable extra work and also harmed the projects potential to achieve its objectives in that site. The risk of further vandalism on that site still prevails after the project and the situation on the site needs to be monitored even after the project. Another act of vandalism was a theft of automatic dataloggers from one of our hydrology monitoring sites in 2012. The theft lead to loss of precious data that was needed to analyze the effect of restoration on hydrology of eutrophic fens. The negative effect of data loss would have been smaller if there had been more monitoring sites. In the project the lack of data was taken into account in the analyzing phase by pooling data which leads to good results but inevitably also to a decrease in resolution of the results.

The objection of restoration actions by landowners due to risk of flooding their lands was in some of the project sites much greater than was foreseen. In these cases many negotiations with the landowners were taken in an attempt to reach a solution. In these cases compensation payments for wetting the land and consequent hindering of growth of timber and even land swaps or land purchase were offered to the landowners but to no avail. In some parts of Finland there are old discrepancies between landowners and environmental administration dating back to the implementation of the N2000 network and even further back to times when the national mire conservation programme was implemented in the 1970's. In such cases the landowners are almost without exception very old people and are not willing to change their minds in any circumstances. Negotiations with such landowners will be continued after the project but it may well be that a solution will be reached only after the next generation inherits landownership of the sites.

1.2.3. Opportunities

One of the key issues in successful nature conservation is to find the best ways to help laymen, politicians and decision makers understand that nature conservation is not about protecting the nature for nature at the cost of local economy but that healthy ecosystems are vital for providing the multiple ecosystem services that human well-being depends on. And also importantly, that nature



conservation has great potential for providing local economies opportunities for growth and employment.

With the intensive and versatile media work and other dissemination work, such as the mire exhibition and the guided mire tours, done during the project, the spreading of information about the importance of mires and restoration of impaired peatlands for securing many vital ecosystem services that peatlands provide was much more effective than would have been possible without the project. This will inevitably prove valuable in future nature conservation work in Finland.

About 100 contractors were used in the execution of the restoration actions in the project, totaling to about 90 person-years. This major input in local employment and economies was disseminated actively especially in later phases of project. In addition to this PR work for nature conservation, the project set the stage for creating many good relationships between contractors and the project beneficiaries and helped the contractors gain expertise in restoration. These will assure ecologically high-quality and cost-efficient execution of restoration actions in future restoration projects in Finland.

1.2.4. Threats

The main threat to fully reaching the projects objective of ensuring increasing the diversity of mire habitats in 52 N2000 areas is landownership and related land use outside some of the N2000 areas. In many cases in Finland, only part of the catchment of a mire is inside a N2000 area. Mires are hydrological entities that are fully (e.g. Aapa mires 7310, Springs and springfens 7160) or partly (e.g. margins of Raised bogs 7110, 7120) dependent on water and water-borne chemical variables originating from the catchment, either via surface flow or underground flow (groundwater). Thereby the actions done – or not being done – outside the borders of N2000, sometimes quite far away may in some cases have a large effect on the mires inside the N2000 area.

During restoration planning and later on during general monitoring visits it became evident that in some cases the full recovery of the mire habitats inside the projects target N2000 areas cannot be achieved due to land use outside the N2000 areas. In these cases the lands outside the N2000 border are owned by one or many private landowners and are in active economic use, most often used for forestry. The hydrological regime of these mires has been severely altered by the drainage in the catchment. Restoration actions done inside the N2000 are the first cure and help avoid the immediate loss of the habitats and associated species but are not enough to restore the original hydrological regimes as the water that should be flowing from the catchments to the mires is instead flowing in the ditches outside the N2000s and bypassing the N2000 areas altogether. Restoration of these ditches, and in many cases even the ditches inside the N2000 but close to the border, is not possible without flooding the neighboring landowners lands and thereby causing them significant economical harm. The landowners are not willing to sell the lands or accept compensation

payments for loss of economic revenue from timber sales which means that no risk of wetting their lands can be taken.

2. After-LIFE objectives and methodology

2.1. Restoration objectives and methodology

In some of the biggest N2000 areas in the project, especially Site 11 Haapakeidas, Site 12 Helvetinjärvi, Site 13 Lauhavuori and Site 14 Kauhaneva, tens to hundreds of hectares of drained peatlands still remain after the project. These areas should be restored in future as part of new LIFE projects and/or with other funding. In addition, there are several project sites and tens of other N2000 sites in Finland, where the N2000 habitat types and species are negatively affected by forestry drainage and other hydrological disturbances outside the N2000 areas. Restoring and protecting such sites disturbing N2000 network should be the highest priority in the future.

The MH NHS will continue carrying out peatland restoration in N2000 areas as a part of the new Peatland Protection Programme and the Forest Biodiversity Programme METSO 2008-2025 but on much smaller annual surface areas than was possible with the funding from Boreal Peatland LIFE. A plan is to combine the two above mentioned programmes to an extensive Life+ proposal that will be submitted in 2017 to return the area of annual restoration actions to the same level as it was during the Boreal Peatland LIFE.

In some cases, the objection by neighboring landowners prevents the successful restoration of mires in N2000 areas. Negotiations with such landowners will be continued by the MH NHS in an effort to be able to accomplish the restoration of also such sites in the future.

2.2. Monitoring objectives and methodology

Changes in species numbers and species community structure are often slow processes and it may take many years to detect changes induced by mire restoration. The project period of a few years is too short for detecting such changes in many species groups. On the other hand, the response of hydrology of mires to restoration or any other major disturbance is abrupt. Disturbing the peat layer and raising the water table at the same time inevitably causes major water quality changes in the pore water of mires and a consequence also in the run-off water from the mires. The changes can be expected to be temporary and the negative effects on water quality should stop within a few years as the peat and physiochemical reactions in the peat layer settle after the disturbance.



In both of the cases described above, it is of utmost importance to continue the monitoring for many years and the monitoring measures for monitoring hydrology and vegetation in the project should be continued to be able to detect the positive effects that may take many years to become visible.

The monitoring of hydrology and vegetation that was implemented during the project will be continued as part of MH NHS routine operation for as long as funding for it is available. Funding for 2015 is already secured. The scientific collaboration between the MH NHS and Universities of Jyväskylä and Oulu has deepened significantly during the project and helps secure high quality treatment and reporting of the monitoring results in the future as well. Moreover, the monitoring measures developed and started in the Boreal Peatland LIFE have inspired the University of Jyväskylä to prepare a project proposal connected to restoration prioritization to the Horizon 2020 launch. If the project will be realized, monitoring measures of the Boreal Peatland LIFE will help the EU member states to fulfill the EU Biodiversity Strategy 2020 Target 2, Action 6a by developing a strategic framework to set priorities for ecosystem restoration.

2.3. Nature education objectives and methodology

As already mentioned before, one of the key issues in successful nature conservation is to communicate to the great public that healthy ecosystems are vital for providing the multiple ecosystem services that human well-being depends on and that nature conservation has great potential for providing local economies opportunities for growth and employment.

The effective and also intuitive nature education work in the project has helped the MH NHS to establish effective ways to contact and communicate with different kinds of local institutions and organizations. Nature education will be continued by the MH NHS as part of its routine operation, including e.g. guided tours operated from Nature Centres and changing displays at Nature Centres even if not exactly in the same ways and with the same intensity as in the project.

2.4. Land acquisition and management planning objectives and methodology

There are many land use pressures threatening the diversity of mires and other habitats in Finland, both inside and outside N2000 areas. As a consequence, further protective measures such as land purchase, compensation payments and management planning are needed in the future also.

The KS ELY will continue to purchase land for conservation as part of the Forest Biodiversity Programme METSO 2008-2025 and also as part of the new Peatland Protection Programme. KS ELY will also continue the management planning of Natura 2000 sites by updating the general plan



concerning the management of the whole Natura 2000 network in Central Finland. Through this process the sites in need of more precise planning are recognized and prioritized.

3. Financial outlook

Funding needs are evident especially in four sectors:

- Restoration of drained mires that still remain in N2000 areas in different parts of Finland
- Implementation of further conservation as such (compensation payments, land purchase, land swaps)
- Continuation of monitoring of hydrology, vegetation and Lepidoptera
- Preparation of management plans and restoration plans for N2000 areas in different parts of Finland

3.1. Restoration

External assistance costs of 1 hectare of peatland restoration are on average 1 000 €. To be able to maintain the annual restoration area in Boreal Peatland LIFE of about 1 000 hectares means that approximately 1 million € annually is needed to cover the external assistance costs. In addition, a significant amount funding is needed to cover the personnel and travel costs of the restoration experts working in MH NHS.

Part of this funding comes from the Finnish Ministry of the Environment through the National Forest Biodiversity Programme METSO but considerable external funding is also needed. LIFE programme has been recognized as the most cost-effective source of external funding in peatland restoration in Finland and the MH NHS will be active in applying for new LIFE projects in the future. The plan is to prepare a project proposal with large scale peatland restoration activities to the 2017 LIFE launch. In addition, peatland restoration forms a part of the actions in the FRESHABIT Integrated LIFE proposal that the MH NHS is currently preparing.

3.2. Implementation of future conservation

The primary funding source in land purchase/compensation payments in Finland is the National Forest Biodiversity Programme METSO which is based on voluntarism, i.e. private landowners may offer their lands for protection. Therefore the exact funding needs depend on many factors,



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such as what kind of mires are offered for conservation by the private landowners, is the protection implemented through land purchase/compensation payments or land swapping, what are the characteristics of the mire areas to be protected etc.

In addition to the National Forest Biodiversity Programme METSO, acquisition of land for conservation will be included in future LIFE proposals.

3.3. Monitoring actions

3.3.1. MH NHS

The external assistance costs of the monitoring of hydrology in the set up that was used in the Boreal Peatland LIFE mainly includes laboratory costs of analyzing water samples. These costs are annually about 25 000 €. In addition, a significant amount of field work is needed to collect the water samples from the sites, resulting in annual personnel costs of app. 9500 € and travel cost of app. 15 000 €.

The monitoring of vegetation in the set up that was used in the Boreal Peatland LIFE results in average annual personnel cost of app. 38 000 € and travel costs of app. 20 000 €. External assistance costs of monitoring of vegetation (app- 8 000 € annually) are mainly caused by expert identification of the most difficult moss species by microscope.

After the project has ended, the only funding source for the monitoring of hydrology and vegetation is the National Forest Biodiversity Programme METSO. However, there is constant pressure to cut down the costs of monitoring actions and it is uncertain how long the monitoring can be maintained. For monitoring of Lepidoptera there is no funding at all. Therefore it is of utmost importance to include at least the most important monitoring actions i.e. monitoring of hydrology and vegetation in future LIFE proposals of the MH NHS.

3.3.2. JyU

The analysis of monitoring data collected by MH NHS as well as reporting of the results needs high amounts of scientific expertise and are beyond the capabilities of MH NHS itself. Instead, the analysis of data has to be done in close collaboration with research organizations, especially University of Jyväskylä. JyU however, has no funding for this kind of research activity at the moment. Therefore, external funding will be applied for by the JyU from sources such as the Horizon2020 launch and JyU will seek opportunities for being a beneficiary in future LIFE projects of MH NHS.

3.4. Management and restoration planning

3.4.1. MH NHS

In MH NHS preparation of management plans and restoration plans is normally done with budget money from the Ministry of the Environment. This funding will be utilized in the future also but the number of plans that is possible to prepare with it alone is considerably less than was possible during the Boreal Peatland LIFE. Therefore the preparation of management plans and restoration plans will be included in future LIFE proposals by the MH NHS.

3.4.2. KS ELY

Preparation of management plans or restoration plans in KS ELY has been done exclusively with external funding from projects. After the ending of Boreal Peatland LIFE, KS ELY has no funding for preparation of management plans or restoration plans. Therefore it is highly important that KS ELY will seek possibilities to act as a beneficiary in future LIFE projects in collaboration with MH NHS.

