Report on General monitoring (Action E6) in Boreal Peatland LIFE

Jouni Penttinen

Project manager

Metsähallitus Parks & Wildlife Finland

Background

The project monitoring aims at evaluation of the success of the restoration of Natura2000 habitats at three important hierarchical levels. At the highest level the restoration needs to be technically successful. With general monitoring (Action E6) we aimed to confirm this and to identify possibly unsuccessful sites early to allow actions to be initiated for their repair.

The general monitoring (Action E6) in Boreal Peatland LIFE was done following the monitoring plan prepared in action A3. Each restored site was visited two times, one and two years after the restoration. During each visit part of the in-filled ditches and built dams were inspected to make sure that the work has been technically successful. In addition the amount and flow patterns of water in the mire and big changes in vegetation, such as tree mortality, were observed. Special emphasis was put to inspecting the sites that are have been identified as critical places during preparation of restoration plans, typically ditches at the border of the N2000.

The general monitoring is by definition qualitative and based on general changes detectable by eye, i.e. quantitative data was not collected. During the visits notes were made on all observations that significantly deviated from the expected outcome of restoration.

Results

According to the observations done during monitoring visits the restoration actions were very successful in most of the sites and few major technical problems or other shortcomings were detected. In some sites however, need for repairing actions was detected during the first visit and repairing actions were taken to improve the situation and in some sites further monitoring was suggested to see which way the slight deviations from expected results will develop.

Overall, especially in the Aapa mires in Ostrobothnia, the greatest obstacle to successful restoration and recovery of hydrology, flora and fauna is ditches at the borders of the N2000 area that could not be filled in due to risk of flooding the neighbouring lands and thereby the objection by the neighboring landowners. In these cases, continuation of negotiations with the landowners in the future also is required and will be taken to enable further restoration at borders of the N2000 areas.

The more detailed observations from each site are listed below.

Site 1. Stormossen

No major technical problems or other shortcomings were detected as the filling of the ditches was done very carefully due to the particular flatness (prone for flooding) of the Stormossen. No signs of flooding have been detected and the filling of the ditches has been successful. Need for further monitoring of two dams in case of leakage and two drain tubes for forest roads in case of clogging and two drain tubes to improve water movement that is blocked by roads. Birch coppice rising from the stumps that were cut in 2012 is needed within a few years. Also, there are still 2 km of ditches in Stormossen, outside the area included in the project that should be filled in the future.

Site 2. Rajasuo

No major technical problems or other shortcomings were detected. Restoration actions on the privately owned parts of Rajasuo in the future would greatly facilitate the recovery of the eastern parts of the area.

Site 3. Petkelsuo

A few of the dams built in 2013 in one of the ditches were found to leak slightly during the visit in 2014 and the dams were repaired later in 2014. Besides the acts of vandalism reported in more detail in the Final report, no other major technical problems or other shortcomings were detected.

Site 4. Kytäjä-Usmi

Dam leakages were found on one part of the restored site during the first visit in 2011. The dams were repaired in 2012 and no major technical problems or other shortcomings were detected during the second visit.

Site 5. Nukinrahka-Hirvilamminsuo

No major technical problems or other shortcomings were detected.

Site 6. Koskeljärvi

No major technical problems or other shortcomings were detected.

Site 7. Iso-Hölö

No major technical problems or other shortcomings were detected.

Site 8. Himmaistenrahka

No major technical problems or other shortcomings were detected.

Site 9.Pitkäsuo

No major technical problems or other shortcomings were detected.

Site 10. Kukilankeidas

No major technical problems or other shortcomings were detected. Need for further monitoring of 3 dams in case of leakage.

Site 11. Haapakeidas

At sub-site Pohjaskeidas minor risk of wetting the neighboring lands was detected and the situation will be monitored in future. No major technical problems or other shortcomings were detected.

Site 12. Helvetinjärvi

At sub-site Haukilampi it was noted during the first visit in 2011 that at one dam water was directed wrong way out of the conservation area towards neighboring privately owned lands. Repairing actions were taken in 2012 and during the second visit in 2013 no problems were detected.

At sub-site Huidankeidas risk of flooding the neighboring lands was noted during the first visit in 2011 but during furher visits in 2011 and 2012 the risk had decreased to non-significant as the ditches outside the conservation area had started to function better.

No other major technical problems or other shortcomings were detected.

Site 13. Lauhanvuori

At one part of sub-site Vääräjärvenneva abundance of *Molinia caerulea* has increased siginificantly. The situation is expected to normalize with time but the situation needs to be monitored in future.

At sub-site Isoneva there are signs of green algae blooms in some of the dammed ditches. The situation is expected to normalize with time but the situation needs to be monitored in future.

No major technical problems or other shortcomings were detected.

Site 14. Kauhaneva

No major technical problems or other shortcomings were detected.

Site 15. Kolovesi

No major technical problems or other shortcomings were detected.

Site 16. Pirjatanneva

No major technical problems or other shortcomings were detected. In parts of the area some of the dams need to be monitored in future to make sure that the dams don't start leaking and that water flow is directed optimally towards central parts of the mire.

Site 17. Kermajärvi

At the first visit in 2013 it was noticed that at sub-site Hyövynniemi somebody had taken down a dam that was built at the outlet of pond Sorvalampi to raise the water level of the pond. The dam was rebuilt later in 2013 and at the second visit the dam was intact. At one part of the subsite Hyövynniemi re-wetting was noted not to be optimal due to the ditches left open to avoid leaching of nutrients and DOC to the lake Kermajärvi. The situation needs to be monitored in the future.

At some parts of sub-site Kohmanniemi it was noted that some of the dams are leaking slightly because of the steeply sloping terrain and consequent high water pressure. Further restoration actions are almost impossible as the mire is now very wet. The situation is evaluated not to compromise the target of restoration at the site but it will be monitored also in the future.

Site 18. Pässilänvuori

No major technical problems or other shortcomings were detected.

Site 19. Aittosuo

No major technical problems or other shortcomings were detected.

Site 21. Pyhä-Häkki

No major technical problems or other shortcomings were detected.

Site 22. Saarisuo-Vallessuo

The site was restored in 2014 and therefore no monitoring visits were done during the project.

Site 24. Pohjoisneva

One dam was found to leak slightly. The situation is evaluated not to compromise the target of restoration at the site but it will be monitored also in future. At one place trees will be removed in the future and a big ditch will be filled in again to facilitate the recovery of hydrology.

Site 25. Eitikansalon suot

The ditches at the border of the N2000 that could not be properly filled in to prevent flooding of neighboring lands are causing slight problems i.e. non-optimal recovery of water level at the border of N2000. The situation may improve over time but there is need for further monitoring to make sure that hydrology starts to recover. In addition, one ditch was left unfilled during restoration due to too wet working conditions for an excavator. The opportunity to block the ditch by filling in or by building dams in the future will be monitored.

Site 26. Salamajärvi

During the first visit in 2011 it was noted that some ditches at the border of the restoration area that were left un-filled need to be filled in later. This was done in 2012. No major technical problems or other shortcomings were detected afterwards.

Site 27. Suojärviensuo-Niittosuo

The site was restored in 2014 and therefore no monitoring visits were done during the project.

Site 28. Seläntauksen suot

No major technical problems or other shortcomings were detected.

Site 29. Hukkasuo

No major technical problems or other shortcomings were detected.

Site 30. Pilvineva

No major technical problems or other shortcomings were detected.

Site 31. Kotkanneva ja Pikku-Koppelon metsät

During the first visit in 2013 it was noted that two surface barriers were leaking slightly. The barriers were repaired in 2014 and no problems were detected afterwards.

Site 32. Särkkälammit

No major technical problems or other shortcomings were detected.

Site 33. Päävaara

No major technical problems or other shortcomings were detected.

Site 35. Kuoppasuo

No major technical problems or other shortcomings were detected.

Site 36. Eteläneva-Viitasalonneva-Seljänneva

No major technical problems or other shortcomings were detected.

Site 37. Saarisuo-Kurkisuo

In some parts of the restoration area it looks like more surface barriers should have been built. The situation needs further monitoring and in case the problems prevail, further restoration actions may need to be taken.

Site 38. Losonvaara

No major problems or shortcomings detected but further monitoring of some of the dams is suggested.

Site 39. Kansanneva-Kurkineva-Muurainsuo

The ditches on the border of Natura area that could not be filled in due to risk of flooding neighbouring landowner's lands still dry out the central flark-fen areas of the aapa mires. In future the negotiation with the neighbouring landowners must be continued to get these parts restored.

Site 40. Haapaveden lintuvedet ja suot, Köyrynrimpi ja Porerimpi

In autumn 2012 a small ditch was dug near the shore of lake Köyrylampi to prevent the water table rising too high during floods.

In Porerimpi mire two peat dams were found to be leaking during the first visit and were repaired by hand in autumn 2014. Two more dams are planned to be repaired in the same manner in summer 2015.

The ditches on the border of Natura area that could not be filled in due to risk of flooding neighbouring landowner's lands still dry out the central flark-fen areas of the aapa mires Köyryrimpi and Ollikkaanrimpi. In future the negotiation with the neighbouring landowners must be continued to get these parts restored.

Site 41. Antinmäki-Kylmänpuro-Hevossuo

No major technical problems or other shortcomings were detected.

Site 42. Rumala-Kuvaja-Oudonrimmet

No major problems or shortcomings detected.

Site 43. Pitkäsneva

No major technical problems or other shortcomings were detected.

Site 44. Haarasuo

During the first visit four dams were found not to direct water flow as wanted and were repaired in autumn 2013 by hand to improve the water flow to the central parts of Haarasuo aapa mire. The large totally dried flark fens in the northern part of the Natura-area could not be restored in the project, because of the resistance of neighbouring landowners as reported earlier. In future the negotiations with these landowners must be continued to get the most important northern parts restored.

No major technical problems or other shortcomings were detected in the part that was restored.

Site 45. Tormuan Pohjavaara/ Särkilammin suot ja Kortepaikan puro

No major technical problems or other shortcomings were detected.

Site 46. Tervajärvi-Ouvonsuo

No major problems or shortcomings detected.

Site 47. Liejusuo-Kaakkurisuo

No major problems or shortcomings detected but further monitoring of two sites suggested to avoid excessive flooding.

Site 48. Salmitunturi-Rääpysjärvi

Overall the restoration has been successful but in some places further monitoring is suggested. Further restoration actions may need to be taken in the parts where small “navero” ditches were left unfilled.

Site 49. Syöte

During the first visit in 2012 need for further restoration of about 14 ha was detected. The supplementary restoration was done in 2014.

Site 50. Asmuntinsuo-Lamminsuo

No major problems or shortcomings detected but further monitoring at the border of the N2000 was suggested to avoid flooding of the neighboring lands.

Site 51. Tynnyriaapa

No major technical problems or other shortcomings were detected.

Site 52. Termusaapa

The site was restored in 2014 and therefore no monitoring visits were done during the project.

Site 53. Ellitsa

No major problems or shortcomings detected but further monitoring at the border of the N2000 was suggested to avoid flooding of the neighboring lands.

Site 54. Pomokaira

No major technical problems or other shortcomings were detected.