



Layman's report of the project no LIFE02/NAT/EE/8555

PROTECTION OF PRIORITY FOREST HABITAT TYPES IN ESTONIA

01 November 2001 – 31 October 2005

Project beneficiary
METSASOHIU SIHTASTUS

Project partners
OÜ EESTI METSASESKUS
STATE FOREST MANAGEMENT CENTER
ESTONIAN MINISTRY OF ENVIRONMENT
SA KODUMETSA
ESTONIAN SCOUT ASSOCIATION



Background to the project

LIFE-Nature project no LIFE02NAT/EE/8555 **Protection of priority habitat types in Estonia** was an important step in the establishment of Natura 2000 areas for the protection of mainly forest communities of Community interest in Estonia. Project activities were carried out in **20** project areas with a total area of **59 131 ha** locating in different regions of Estonian (*Figure 1*, next page)

Project areas include in average 53-96% of forests with high nature value representing **8 different** forest habitat types of community importance

- 9010* Western taiga
- 9020* Fennoscandian hemiboreal natural old broad-leaved deciduous forests rich in epiphytes
- 9050 Fennoscandian herb-rich forests with *Picea abies*
- 9060 Coniferous forests on or connected to glaciofluvial eskers
- 9080 Fennoscandian deciduous swamp woods
- 91D0* Bog woodland
- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*
- 91F0 Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along large rivers

In addition, project involved **4** meadow habitat types

- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates
- 6270 Fennoscandian lowland species-rich dry to mesic grasslands
- 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils
- 6450 Northern boreal alluvial meadows

4 mire habitat types

- 7230 Alkaline fens
- 7110 Active raised bogs
- 7120 Degraded raised bogs still capable of natural regeneration
- 7140 Transition mires and quaking bogs

and **5** fresh water habitat types gained from conservation activities performed by the project

- 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitrichio*
- 3130 Oligotrophic to mesotrophic standing waters with vegetation of *Littorelletea*
- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* sp.
- 3150 Natural eutrophic lakes with magnopotamion of Hydrocharition-type vegetation
- 3160 Natural dystrophic lakes and ponds

Besides valuable habitat types, altogether 38 species of European concern (incl. *Pteromus volans*, *Ciconia nigra*, *Tetrao urogallus* etc.) inhabit project areas, but they also contain potential habitats of several rare species and breeding and feeding sites of many large mammals (*Canis lupus*, *Ursus arctos*, *Lynx lynx*).

PROJECT OBJECTIVE

...To secure a favourable conservation status of forest habitats with Community importance and also species connected to these habitats.

Specific objectives of the project were as follows:

- Compile management plans for 19 forest conservation areas including a large share of priority forest habitat types, but also other habitat types of European concern;
- Implement management plans to secure a favourable conservation status of protected communities;
- Regulate recreational exploitation and tourism of the areas as main dangers to areas' natural values;
- Gather experience in restoration of natural values of less valuable forest communities in these areas;
- Raise public interest in natural forests; to improve nature education, which accompanies higher willingness to protect forests of biological diversity;
- Involve different interest groups to arrange the protection of forest conservation areas.

PROJECT ACTIVITIES

41 project actions can be roughly split into three groups:

- **project management** - getting the project up and running (establishing a system for the daily operations, clearly defining roles and timelines, etc), planning, and subsequently overseeing the course of the project, fulfilling the reporting obligations to the European Commission and managing the finances appropriately;
- **indirect conservation measures** – compilation of guidelines for restoration of forest nature and water regime, management agreements with land-owners, production of educational and informative materials, raising public awareness, arranging seminars and meetings;
- on-site **habitat-related actions** – management, restoration and monitoring of habitats, closing forest roads and compartment lines, setting up the necessary infrastructure for visitors to assure natural development of forest habitats, demarcation of the areas (listed site by site in *Appendix 1*).

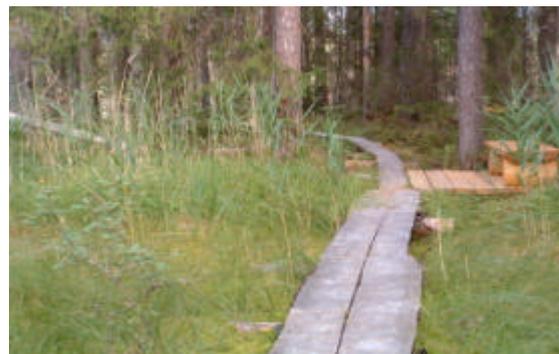
Below there are described project with concrete outputs

Elaborating **management plans** for **19** Natura 2000 sites was the most important tool for long-term preservation of favourable conservation status of habitats. Management plans state the precise conservation measures from single species to communities for each Natura 2000 site. Management plan of one area had been developed before the project. All plans passed also public discussions (*Figure 2*). Implementation of the management plans as the key-objective of a project combines both territory-driven and topic-centred approaches.



Figure 2. Public meeting on Padakõrve management plan

To regulate recreational exploitation and tourism in the most problematic areas, **8** study trails and **17** camping places (*Figures 3 and 4*) were established into the sites, which have suffered from over-frequentation. The locations of recreational infrastructures were very carefully designed. All recreational constructions were developed in close cooperation with local society; existing paths and sites were used as much as possible. At the same time they were attempted to locate in a way to channel visitors away from the most vulnerable nature values and breeding sites of bird species.



Figures 3 and 4. Camping place in Soontaga Nature Reserve and study trail in Teringi Nature Reserve.

With blocking **84** sites on local forest roads the visitors are forced to walk and leave their cars to parking places, which should minimize the visiting impact to sensitive habitats. Closing paths also aids to decrease scattering of stands and avoid disturbance of protected bird species (*Figure 5*).



Figure 5. Closing local forest road.

To stop the negative effects of rather extreme recreational activities, the project carried out the action for fixing eroded sandy soil in the habitat of Wooded dunes. **300 m²** of special net made of coconut fibre was laid down and affixed with wooden sticks, which should prevent soil from further erosion and restrict access to the site for all-terrain vehicles and mountain bikes that was previously practiced, although not allowed (*Figure 6*).



Figure 6. Fixing eroded soil



Figure 7. Restoration cuttings.

The LIFE-Nature funding gave invaluable opportunity to practice **restoration nature values of less valuable forest communities within protection areas**. This experience is of innovative value in Estonian nature conservation. First comprehensive methodology was worked out by Estonian top specialist for restoration of different forest habitats, natural water regime, but also monitoring of effects of the restoration. The restoration activities involved mainly monocultures, where unsustainable management practice had significantly deteriorated nature values. For improvement forest habitats several actions as cutting or enlarging gaps, creating deadwood (*Figure 7*) and stumps and thinning were practiced in **350 ha** of stands being rather poor in terms of biodiversity. The forests restored included 191 ha of pine stands, 107 ha of spruce stands and 53 ha of birch stands. The restoration results to biological diversity and species abundance were assessed with establishing **50** monitoring areas, where the measurements were carried out before and after performing restoration activities. The monitoring objects were the stand layer, undergrowth, lichens, mushrooms and insects. The objectives of the monitoring are to register and follow the elements of ecosystem in species level and to clarify whether the changes are caused by restoration measures or natural succession.

To restore the natural state of drained forest communities on mineral soil, **22** drainage ditches were closed in three sites, which would enable the recovering of natural processes characteristic to these forests. The sites for blocking drainage ditches were precisely determined in nature and mapped beforehand. Only natural materials as sods, soil, old branches, sandbags made of decaying fibre etc were used (*Figure 8*). The blockings had to be precisely adjusted only to slow waterflow avoiding overflow at the same time; maximally imitating natural overgrowing of ditches. Building firm dams would close the ditches capitally, raising the water level suddenly and surrounding forests would decline. Closing ditches gave valuable practical experiences for future, which types of blockings should be used in different conditions and forest communities. Already by the project end the first results of closing drainage ditches can be perceived a year after completing. The ditches have started to overgrow and the straightened stream in Laulaste Nature Reserve (area no 8) has become curving and resemble more natural stream compared to its initial state (*Figure 9*). Further results to surrounding wet habitats – restoration of

species composition - take long time. Vegetation would change after the natural state of water regime is achieved.



Figure 8. Closing drainage ditches.



Figure 9. Semi-natural meadow

Altogether **209 ha of semi-natural meadows**, which had been previously abandoned, were restored and regularly mowed as the result of the project (*Figure 9*). As the meadows were mowed at least three seasons since 2002-2003, the changes in species composition are rather obvious. Young bushes, umbelliferous plants, meadowsweet etc have been replaced with vegetation typical to floodplain meadows. New open patches of landscape attract many animals, which living activities are more or less connected with meadows.

LIFE-Nature funding contributed the development of **3 nature study centres** into areas no 2 Puhatu, 3 Muraka and 5 Saarjõe (Figures 11, 12 and 13 respectively). Study centres are supplied with nature educational expositions and technical equipment for arranging courses. The most frequent visitors of the nature houses are schoolchildren from surroundings and student excursions, also tourists who are in transition. The nature rooms are perfect places for carrying out outdoors study-courses in the frames of nature sciences.



Figures 10, 11 and 12. Study centres in area no 2 Muraka, 3 Puhatu and 5 Saarjõe.

The 28 minutes **study film** in DVD format with the title *Nature Conservation in Estonia* was produced both in Estonian and in English. Film introduces the system and conception of Estonian nature conservation generally, the process of establishing reserves, the types of conservation areas, zoning, principles of habitats and species protection, the idea of Natura 2000 network etc. Active measures and activities of nature conservation management as restoration semi-natural meadows, improving the state of monocultures and fixing the damaged soil are promoted through the clips. The main objective of study film is to spread positive attitudes towards nature conservation by introducing the intentions of habitats protection and Natura 2000 network; and bring strange issues closer to public. Among the

rest, the video is informative tool for avoiding conflicts between nature conservation and private ownership. Very useful tips and suggestions to find compromise between active management and nature conservation are given to private owners, who have nature values in their land units.

1000 leaflets in Estonian and 1000 leaflets in English were printed for each area. About areas no 2 Muraka, 3 Puhatu, 16 Agusalu and 18 Ohepalu 500 copies in English and also 500 copies in Russian was published because of abundant Russian visitors from surroundings. All leaflets contain similar information: map of the site, description of conservation area and its values, pictures of the most characteristic and/or important values and species, brief overview about Natura 2000 habitat types, rules for keeping nature and behaving in the area, the contacts of areas governor and LIFE-logo. The leaflets have the purpose to spread information on LIFE project areas, promote Natura 2000 network, and improve nature education and environmental awareness.

The outer boundaries of all areas, special management zones and areas of restricted movement of the project sites were marked with special nature conservation signs. For spreading information about project areas' nature values information boards have been installed into all 20 area. All of the boards have uniform design and contain similar information: map of the site, description of conservation area and its values, pictures of the most characteristic and/or important values, brief overview about Natura 2000 habitat types, rules for keeping nature and behaving in the area, the contacts of areas governor, LIFE-logo and Natura 2000 logo to promote the Natura 2000 network.



Figure 13. Examples of information boards in project areas

In Laulaste Nature Reserve (project site no 8) the old gravel quarry situating in the middle of conservation area was restored and cultivated by sowing birch for creating feeding site for *Ciconia nigra* nesting in surroundings. The bottom of the quarry had been already under water and inhabited with amphibians, which simplified achieving the objective remarkably.



Figure 14. Creating feeding area for *Ciconia nigra*

Among the rest **6 private** land units in the volume of **49 ha** was purchased during the project in behalf of nature conservation.

Public interest towards nature conservation issues was raised by public awareness and dissemination of results actions as seminars, compiling project web-page (www.metsahoiu.ee) and photographic database, gathering educational materials to home-page. Altogether around 30 presentations were made at the public meetings on introducing management plans and other events connected to the project. The actions dedicated to awareness raising and dialogue aimed to mobilise interest amongst different sectors of society and engage them in project's activities so as to encourage their long term involvement in managing Natura 2000 sites. Also establishment of recreational infrastructures into carefully selected spots were serving interest of raising public awareness.

Summarising it could be said, that Estonia has enriched with 20 protected areas, which protection is excellently arranged and the project has successfully achieved its objective.

Appendix 1. Project activities by areas

Area and its characteristics	Activities carried out
1 Leigri Nature Reserve Area: 457,2 ha Location: Hiiu County Habitats: *7110, 7140, 7230, *9010, *91D0, 9080	1 management plan compiled 4 local roads closed 3,6 ha monoculture stands restored and 4 monitoring plots established 1 information board installed and the whole area marked
2 Muraka Nature Reserve Area: 13 968 ha Location: Ida-Viru County Habitats: 6450, *7110, 7140, *9010, 9050, *91D0, *91E0, 91F0	3 forest roads closed 43,6 ha of semi-natural meadows managed Oonurme study centre established 27,1 km nature trails established 4 information boards installed and the whole area marked
3 Puhatu Nature Reserve Area: 12 320 ha Location: Ida-Viru County Habitats: 3160, 3210, *7110, 7140, *9010, *9020, 9050, *9080, *91D0, 91F0	1 management plan compiled 7 local roads closed Kauksi study centre established 70 km nature trails established 4 camping places established 4 information boards installed and the whole area marked
4 Tellise Nature Reserve Area: 244 ha Location: Jõgeva County Habitats: 3260, 6450, 9050, *9080	1 management plan compiled 25,9 ha semi-natural meadows managed 4 sites of drainage ditches closed 1 access road closed 20,2 ha monoculture stands restored 1 information board installed and the whole area marked
5 Saarjõe Landscape Reserve Area: 1751 ha Location: Järva and Viljandi County Habitats: 3260, 6410, 6450, *9010, 9050, *9080, *91D0	1 management plan compiled 85,1 ha monoculture stands restored and 9 monitoring areas established 10,7 ha semi-natural meadows managed Tagametsa study centre established 15 km study trails established 4 camping places established 2 information boards installed and the whole area marked
6 Ihamaru Nature Reserve Area: 254 ha Location: Põlva County Habitats: 3260, 6450, *9010	1 management plan compiled 1 local forest road closed 13 ha semi-natural meadows managed 1 information board installed and the whole area marked

Area and its characteristics	Activities carried out
7 Kolga Nature Reserve Area: 274 ha Location: Pärnu County Habitats: 2180, 3260, *9010, 91F0	1 management plan compiled 2 local roads closed 300 m² damaged soil restored 2,6 km study trails established 2 camping places established 2 information boards installed and the whole area marked
8 Laulaste Nature Reserve Area: 1066 ha Location: Pärnu County Habitats: *9010, 9050, *9080	1 management plan compiled 1 quarry restored for feeding area of <i>C. nigra</i> 9 drainage ditches closed 8 local roads closed 66,1 ha monoculture stands restored and 10 monitoring areas established 1 information board installed and the whole area marked
9 Vardi Nature Reserve Area: 299 ha Location: Rapla County Habitats: *9010, 9050	1 management plan compiled 2 information boards installed and the whole area marked
10 Pajaka Nature Reserve Area: 201 ha Location: Rapla County Habitats: 6410, 6450, 7230, *9010, *9020, 9050, *91D0	1 management plan compiled 40,2 ha semi-natural meadows managed 1 information board installed and the whole area marked
11 Soontaga Nature Reserve Area: 1226 ha Location: Valga County Habitats: 6450, *9010, 9050, *9080, *91D0	1 management plan compiled 24,4 ha semi-natural meadows managed 8 local roads closed 22,9 ha monoculture stands restored 1,3 km study trails established 2 camping places established 4 information boards installed and the whole area marked
12 Teringi Landscape Reserve Area: 321 ha Location: Viljandi County Habitats: 3160, 7140, *9010, *9080	1 management plan completed 5,2 km study trail established 2 lodging cabins established 1 information board installed and the whole area marked
13 Mõisamõtsa Nature Reserve Area: 224,6 ha Location: Võru County Habitats: 3260, *9010, 9050, *9080	1 management plan completed 2,6 ha of monoculture stands restored and 3 permanent monitoring areas established 1 information board installed and the whole area marked
14 Kääpa Landscape Reserve Area: 2288 ha Location: Jõgeva and Tartu Counties Habitats: 3140, 6450, *9010, 9050, *9080, *91D0	1 management plan completed 3 local forest roads closed 51,3 ha of monoculture stands restored and 6 permanent monitoring areas established 29,1 ha semi-natural meadows managed 3 information boards installed and the whole area marked
15 Padakõrve Nature Reserve Area: 1547 ha Location: Jõgeva and Tartu County Habitats: 7140, *9010, 9050, *9080, *91D0,	1 management plan completed 33,7 ha monoculture stands restored and 15 permanent monitoring areas established 6 km study trails established 3 information boards installed and the whole area marked
16 Agusalu Landscape Reserve Area: 10626 ha Location: Ida-Viru County Habitats: 3150, *7110, 7140, *9010, 9050, *91D0, *91E0, 91F0	1 management plan compiled 18 local forest paths closed 20,3 ha of monoculture stands restored 4 information boards installed and the whole area marked
17 Tudusoo Landscape Reserve Area: 4727 ha Location: Lääne-Viru County Habitats: 3160, *7110, *9010, *91D0	1 management plan compiled 9 drainage ditches closed 21 local forest roads closed 1 information board installed and the whole area marked

Area and its characteristics	Activities carried out
18 Ohepalu Nature Reserve Area: 5813 ha Location: Lääne-Viru and Harju Counties Habitats: 3160, 6210, 6270, *7110, 7140, 7230, *9010, 9050, 9060, *9080, *91D0	1 management plan compiled 4 local roads closed 5 information boards installed and the whole area marked
19 Paunküla Landscape Reserve Area: 619,6 ha Location: Harju County Habitats: 3130, 3140, 3160, *9010, *9020, 9050, *91D0	1 management plan compiled 2 information boards installed and the whole area marked
20 Laiksaare Nature Reserve Area: 403 ha Location: Pärnu County Habitats: *9010, 9050, *9080	1 management plan compiled 5 local forest roads closed 43,7 ha monoculture stands restored and 2 permanent monitoring areas established 1 information board installed and the whole area marked