



**Project N° LIFE2003 NAT/EE/000181**

**FINAL REPORT**

Covering the project activities from 01.11.2002 to 31.10.2006

**RESTORATION OF HABITATS OF ENDANGERED SPECIES  
IN SILMA NATURE RESERVE**

**Data Project**

Project location:	Estonia, Lääne county
Project start date:	01/11/2002
Project end date:	31/10/2006
Total Project duration (in months):	48
Total Budget:	704 215 €
EC Contribution:	504 218 €

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## 1. Summary of the project

The overall objective of the project was to secure maintenance and restoration of the favourable conservation status for coastal and semi-natural habitats of several priority species included in Annex I of the EU Birds Directive, Annex II of the Habitat Directive, and listed in Appendix II to the Bern Convention.

Main results during the project were:

**A. Preparatory actions.** Inventory and monitoring of habitats and species was carried out and it showed development of high quality coastal grasslands on project sites. GIS database was composed and it is available through the internet ([vormsi.lk.ee/life](http://vormsi.lk.ee/life)). Action plans for management of coastal grasslands were compiled in 2003 and renewed in the end of project. Also were established cooperation network between State Nature Conservation Centre Hiiu-Lääne Region, NGO-s, farmers and landowners by signing framework agreements.

**C. Non-recurring management.** Corresponding to the application needed restoring and management equipment (two tractors, two mowers, two rotary rakes, two round balers, three chain saws, three bushcutters, ATV and boat), animals and fences for management of coastal grasslands (157 beef cattle, 100 sheep and 7 horses, 50,8 km of fences) were procured. On Vormsi project site there were restored ten spawning ponds for Natterjack Toad *Bufo calamita*.

**D. Recurring management.** 1091 ha of valuable habitats of European importance restored: Baltic coastal meadows with shallow lagoons for staging sites of Lesser White-fronted Geese *Anser erythropus*, spawning and breeding sites of Natterjack Toad and Nordic alvars and dry calcareous grasslands for breeding sites of Corncrake *Crex crex*. On Vormsi there was restored and taken into further management 194 ha, on Silma 793 ha and on Osmussaare 104 ha of coastal grasslands.

**E. Public awareness and dissemination of results.** For raising of public awareness concerning Natura 2000 issues and integrated management of coastal habitats as a part of sustainable development of rural areas there were performed four workshops and two study visits, also was composed project website (<http://life.silma.ee>), study video "Balance between man and nature", two nature trails and two booklets.

**F. Overall project operation and monitoring.** Well-functioning project team and steering committee worked during the project.

### List of deliverables

Identifiable Products	Action	Date of Completion
Report of inventory and monitoring of habitats and species on project sites which includes data of Natura 2000 species (Annex 1).	A1 and A2	01/10/2006
GIS of the habitats, species and management of coastal grasslands (MapInfo application). Data are accessible through internet <a href="http://vormsi.lk.ee/life">vormsi.lk.ee/life</a> .	A3	Updated 01/10/2006.
Management plans of project sites which include Natura 2000 habitats and sequential management plan (Annex 2).	A5 and A2	31/10/2006
Study video (Annex 9)	E3	01/10/2006
Two booklets (Annex 8)	E4	15/10/2006

## 2. Introduction

Three different project sites, Silma Nature Reserve, Vormsi and Osmussaare Landscape Reserves, are located in North-West Estonia and those sites have slightly different priorities of protection but the following important factors are common to all of those: 1) they are situated on the main flyway of endangered migratory birds; there are many natural and semi-natural coastal habitats of European importance; 2) they are protected by appropriate national legislation as part of national nature protection system; 3) all of the target sites with the bordering areas are proposed by the National Site-Selection Task Force for the Natura 2000 network as future pSCIs and SPAs and they are connected by the future Ramsar Convention area; 4) they are experiencing difficulties of maintaining important semi-natural habitats due to problems of declining economy and practical absence of necessary traditional agricultural activities for the last decade. The main conservation threats at these sites are: 1) low knowledge about directly targeted species and their habitats on project area; 2) natural overgrowth of the coastal meadow habitats, lagoons and islets – habitats of directly targeted species; 3) low level of economy and weak inter-sector and cross-sector cooperation in management of semi-natural habitats; 4) lack of the public awareness.

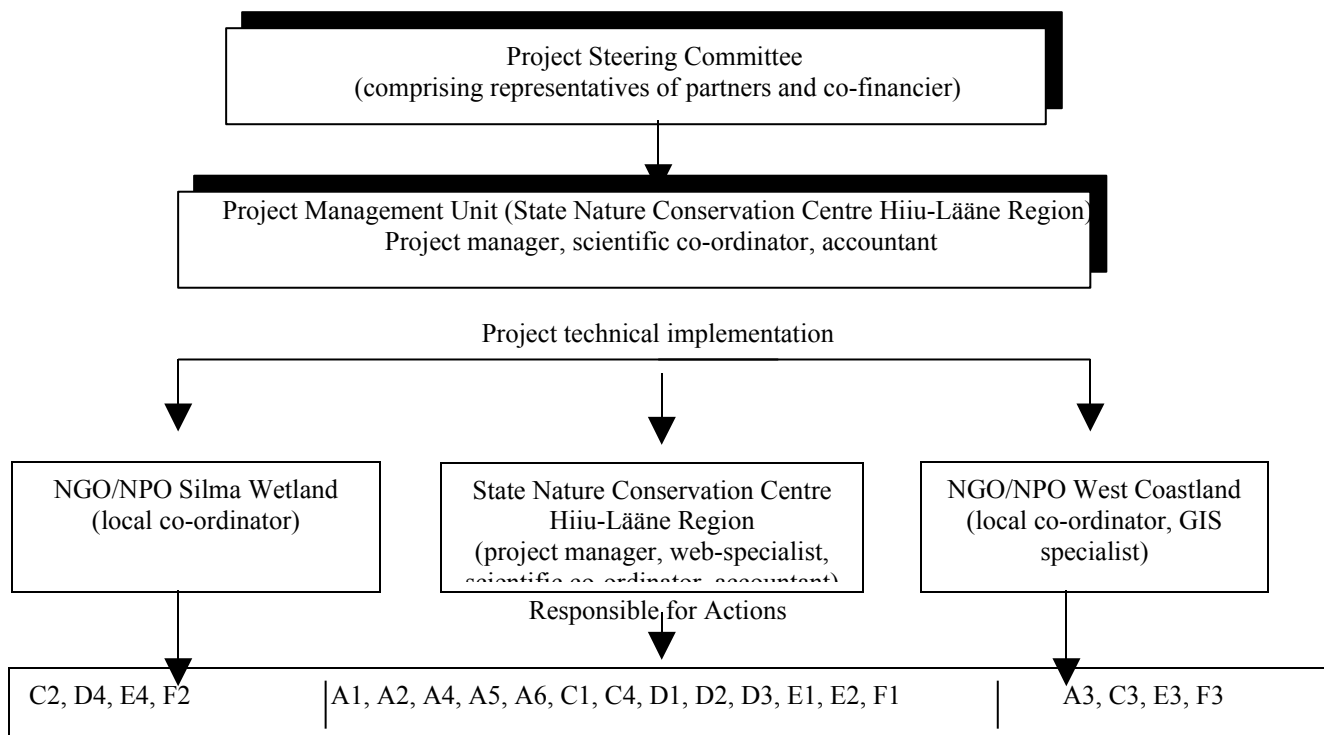
The overall objective of the project was to secure maintenance and restoration of the favourable conservation status for coastal and semi-natural habitats of several priority species included in Annex I of the EU Birds Directive, Annex II of the Habitat Directive, and listed in Appendix II to the Bern Convention. Each project site had some different specific objectives. Activities on the Silma Nature Reserve (Silma project site) were focused on the maintenance and restoring of Baltic coastal meadows (code 1630, Annex I of the Habitat Directive), habitats for the endangered Lesser White-fronted Goose (*Anser erythropus*; Annex I of the Birds Directive). Activities of the Osmussaare Landscape Reserve (Osmussaare project site) were focused on the maintenance of Nordic alvars (code 6280), habitats for the Corncrake (*Crex crex*; Annex I of the Birds Directive). Activities of the Vormsi Landscape Reserve (Vormsi project site) were focused on the maintenance of old shallow coastal lagoons (code 1150) and Baltic coastal meadows (code 1630) with shallow meadow depressions, habitats for the Natterjack Toad (*Bufo calamita*; Annex IV of the Habitat Directive) and Lesser White-fronted Goose. As the activities were planned with regard to the habitats, there were many other species belonging to the endangered and rare lists that gained better living conditions.

Social-economic situation was not contributory for restoration and management of semi-natural habitats before the project, because local farmers stopped grazing of coastal grasslands mainly in 1980 and 1990-s. Although since 2001 Ministry of Environment started to support traditional land-use by paying nature management subsidies, these financial resources were very limited in first years. Many local farmers planned to halt management of coastal grasslands and to direct their finances for intensive agricultural activity. In Silma project site there were grazed in years 2000-2001 only about 100 ha of coastal grasslands. In Vormsi and Osmussaare project sites management activities were extremely scarce.

During the project there were restored valuable habitats of European importance: Baltic coastal meadows with shallow lagoons, Nordic alvars and dry calcareous grasslands. Also were developed a system of wise economic management in co-operation with different sectors as a model of managing areas with similar natural, social and economical conditions and also used experience of internet and GIS in assessment of project activities, monitoring, explaining and making the data concerning endangered species and habitats available to the public.

### 3. LIFE-project framework

Project beneficiary was State Nature Conservation Centre Hiiu-Lääne Region, a former Silma Nature Reserve Administration representative. There were two partners NGO West Coastland and NGO Silma Wetland coordinating several project actions. Organigram of the project was following.



Two additional clauses were applied for the project during the project period. Budget modification was applied to increase sustainability of project by increasing of procurement additional cattle and equipment for restoration and management of coastal grasslands. Application of first additional clause was send to LIFE Unit in 12<sup>th</sup> July 2005. It was accepted in 12<sup>th</sup> September 2005. Second additional clause for changing of project beneficiary – former Silma Nature Reserve Administration was connected into State Nature Conservation Centre Hiiu-Lääne Region – was sent 6<sup>th</sup> of March 2006 and was accepted 12<sup>th</sup> April 2006.

## 4. Detailed report of results

### A. Preparatory actions, elaboration of management plans and/or of action plans

#### Action A1: Inventory and monitoring of habitats and species on project sites

- ◆ Expected results:
  - relevant and background databases,
  - complementary and specified monitoring methodology for monitoring of the effects of management actions on targeted habitats
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne region
- ◆ Timetable: November 2002 – October 2006

Most of available data sources (Land Cadastre, State Nature Conservation Register, formerly composed databases of different inventories, old land use maps, historical management data) containing possible relevant data for the proper set up of the habitat network as foreseen in the project objective were collected, scanned and analysed. Reports and maps composed by different working-groups (Estonian Fund for Nature, Estonian Semi-natural Community Conservation Association) have been collected for describing the habitats. Additional field-works were made for mapping the coastal habitats on project sites and this collected data was digitized. Information about the results of botanical field-work (former works ordered by Silma Nature Reserve, databases of Estonian Fund for Nature, Estonian Semi-natural Community Conservation Association and Institute of Zoology and Botany of Estonian Agricultural University) were also gathered for composing the data of flora. Collected data of fauna contain mostly data about reptiles and birds (data by Estonian Ornithological Society, Estonian Fund for Nature and West-Estonian Bird Club).

For monitoring the effects of management actions on targeted habitats and species there were used a system of indicator species. Methodology and results are described in detail in Annex 1 but here is presented short overview. Monitoring was carried out in two steps: before and after the restoration. Indicator species were determined during breeding season (birds) 15<sup>th</sup> May to 20<sup>th</sup> June or during vegetation period (plants) 15<sup>th</sup> June to 31<sup>st</sup> August. Vascular plants were monitored in Vormsi project site in 2003, on Osmussaare project site in 2004 and on Silma project site both in 2003 (Tagalahe project area) and 2004 (Kudani, Kulani and Tagalahe project areas). The second monitoring was carried out in 2006 on all project sites. Monitoring of birds took place in 2003 on Osmussaare project site and in 2004 on Silma project site. Second monitoring was performed on all project sites in 2006.

Monitoring results shows increase of quality of semi-natural coastal grasslands during project period. Typical plant community of coastal grasslands with *Juncus gerardii*, *Agrostis capillaris*, *Eleocharis sp*, *Scoenus sp*, *Carex sp* and other species in partly developed on many restored sites. The area and abundance of *Phragmites australis* is decreased on all project sites. Diversity of plant species is predominantly increased. On most areas proportion of grassland bird species, *Alauda arvensis*, *Anthus pratensis*, *Vanellus vanellus*, *Tringa tetanus*, *Motacilla flava*, is increased and proportion of reed and brush species are decreased.



Some results of monitoring target species **Lesser White-fronted Goose** *Anser erythropus*:

**In 2004** migratory observations of Lesser White-fronted Geese were made from 10<sup>th</sup> April to 15<sup>th</sup> May. Two individuals were seen feeding in the morning 20<sup>th</sup> of April on the pastures six kilometres to the east from Silma project site and flying to daily resting site on Tahu Bay (Silma project site) at 11:15. On the 11<sup>th</sup> of May one White-fronted Goose was registered to come to resting site on Saunja Bay from feeding site in east. Since during summer 2004 restored grasslands were taken into use by migratory birds as feeding sites (ducks, gees) or stopping and feeding sites (waders, pipits, larks). **In 2005** migratory observations of Lesser White-fronted Geese took place from 16<sup>th</sup> April to 10<sup>th</sup> May. On 5<sup>th</sup> May two adult birds were seen on the managed coastal meadow in Tahu close to Silma project site. On 7<sup>th</sup> May four adult Lesser White-fronted Geese were seen on the grassland in direct nearness of the project area in Tahu. On 8<sup>th</sup> May two adult geese were observed on the field of Kulani in direct nearness of the Life-project area. Those birds stayed overnight on the Tagalahe project area in Silma Nature Reserve. **In 2006** migratory observations of Lesser White-fronted Geese took place from 16<sup>th</sup> of April to 12<sup>th</sup> of May and also in autumn. One observation was made on 22<sup>nd</sup> September on Silma project site on Tahu bay where two adult individuals were staging.

Silma and Vormsi project sites are regularly used for stop-over area for Lesser White-fronted Geese. Seeing the population of this species is only up to 100 individuals in our region it is not able to flatter any big flocks of Lesser White-fronted Geese to stop-over. As a result of Silma LIFE-Nature project up to 5% of population of Lesser White-fronted Geese are using grasslands restored during the project as a staging site during migration.

#### **Complementary works during project**

Three expeditions of international Earthwatch program project Baltic Island Wetlands and Wildlife were carried out on Vormsi and Silma every summer during project period. Vegetation types of wet grasslands were mapped, data on birds and mammals were collected. The co-ordinator of this project is Brighton University in UK, local co-ordinator is NGO West Coastland.

Several academic actions are in progress on Silma and Vormsi project sites. (1) Marju Erit prepared her fieldwork plan for her PhD studies in 2004, which will be carried out on Silma project site. Aim of the study is to compare the impact of restoration of grasslands to the bird fauna in conditions of different management regimes. Grasslands around Tahu Bay are divided into 5 grazing and 5 mowing sites, with area about 23 ha each. This devising was used in preparing of the action plan for project site. This research last until 2009. (2) Antonia Wanner from Kiel University is carrying out her PhD studies in the topic of management influence to the biodiversity of coastal grasslands. Study sites are on Vormsi and Silma project sites. (3) Maureen Berg from Brighton University is carrying out her PhD studies on the topic of management influence and different disturbance to the biodiversity of wet coastal grasslands on Vormsi and Silma project sites.

Co-operation project “Establishing biodiversity monitoring network to inform Estonian coastal wetland management” funded by Darwin Initiative (2004-2007) is underway. The project aims are to establish a network of stakeholders and to select sites for coastal wetland monitoring to form environmental policy for biodiversity in West Estonia and generally for increasing the capacity of wetland monitoring in Estonia. Several meetings with specialists were carried out in Vormsi and Matsalu. Six permanent monitoring quadrates were set up on Silma and Vormsi coastal grasslands on Life-Nature project sites.

**Action A2: Compiling digital databases following instructions and requirements of Natura 2000 network**

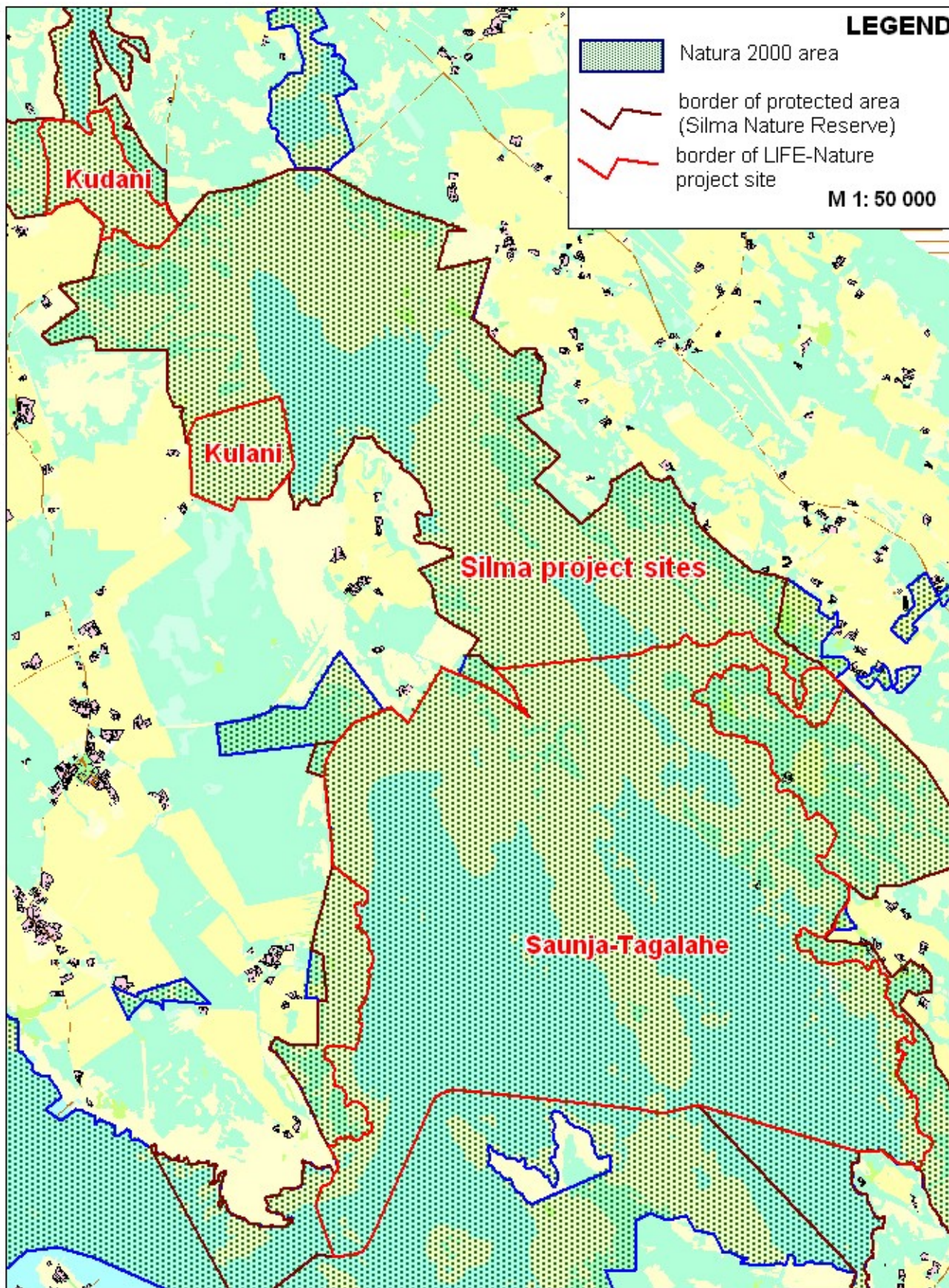
- ◆ Expected results: appropriate database for proposed Natura 2000 network sites
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: February 2002 – March 2003;  
May 2006 – October 2006

Spatial database was completed using MapInfo program and it allows to connect needed data of European Union Natura data-forms with other spatial data and to visualise the result by using GIS. As the project species and habitats are directly targeted to Natura 2000 network, all instructions and requirements have been followed in signing system and digitizing data. All project sites have been proposed for future Natura 2000 areas as SPA and pSCI already in 2004, data are forwarded to European Commission by Estonian Ministry of Environment. Proposed Natura 2000 areas on project sites are shown on maps on pages 11-13.

Principally database of the project areas can be divided into five categories: 1) general geographical information, 2) habitats 3) vegetation 4) fauna, 5) historical land use. All the data covering species, habitats and general characteristics of different areas correspond to the structure of EC database (EMERALD). As the project sites are almost on areas already protected by national law, there is no problems foreseen for defining the areas as Natura 2000 areas. Data on Hosby is used in proposal to change/widen borders of Vormsi Landscape Reserve and this proposal was made to Ministry of Environment. Draft of renewed protection prescriptions of Vormsi Landscape Reserve is compiled, passed open discussion, approved by Ministry of Environment and ready for legal reading and ratification for Estonian Government.

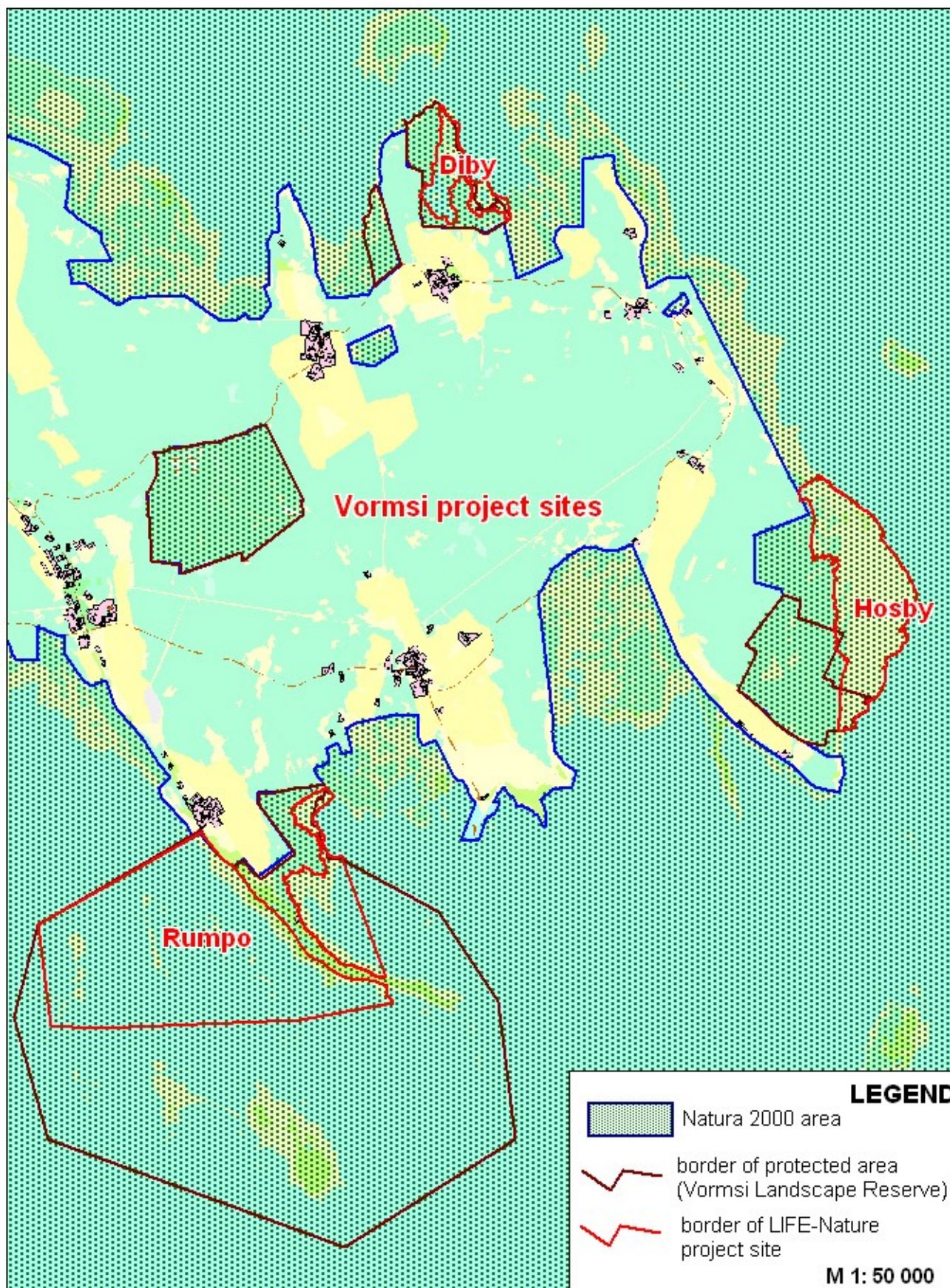
The database was demonstrated on the meeting with representatives of Life-Nature programme that took place on the 28<sup>th</sup> of June in 2005 on Vormsi. In 2006 correctives were made into database of semi-natural habitats in Estonia. Data collected by Silma LIFE-Nature project inventories were used. Semi-natural habitats data are forwarded by State Nature Conservation Centre also to Estonian Agricultural Register and Information Board (PRIA) who will partly continue management of semi-natural habitats using Estonian national finance.

### Natura 2000 areas on Silma project site

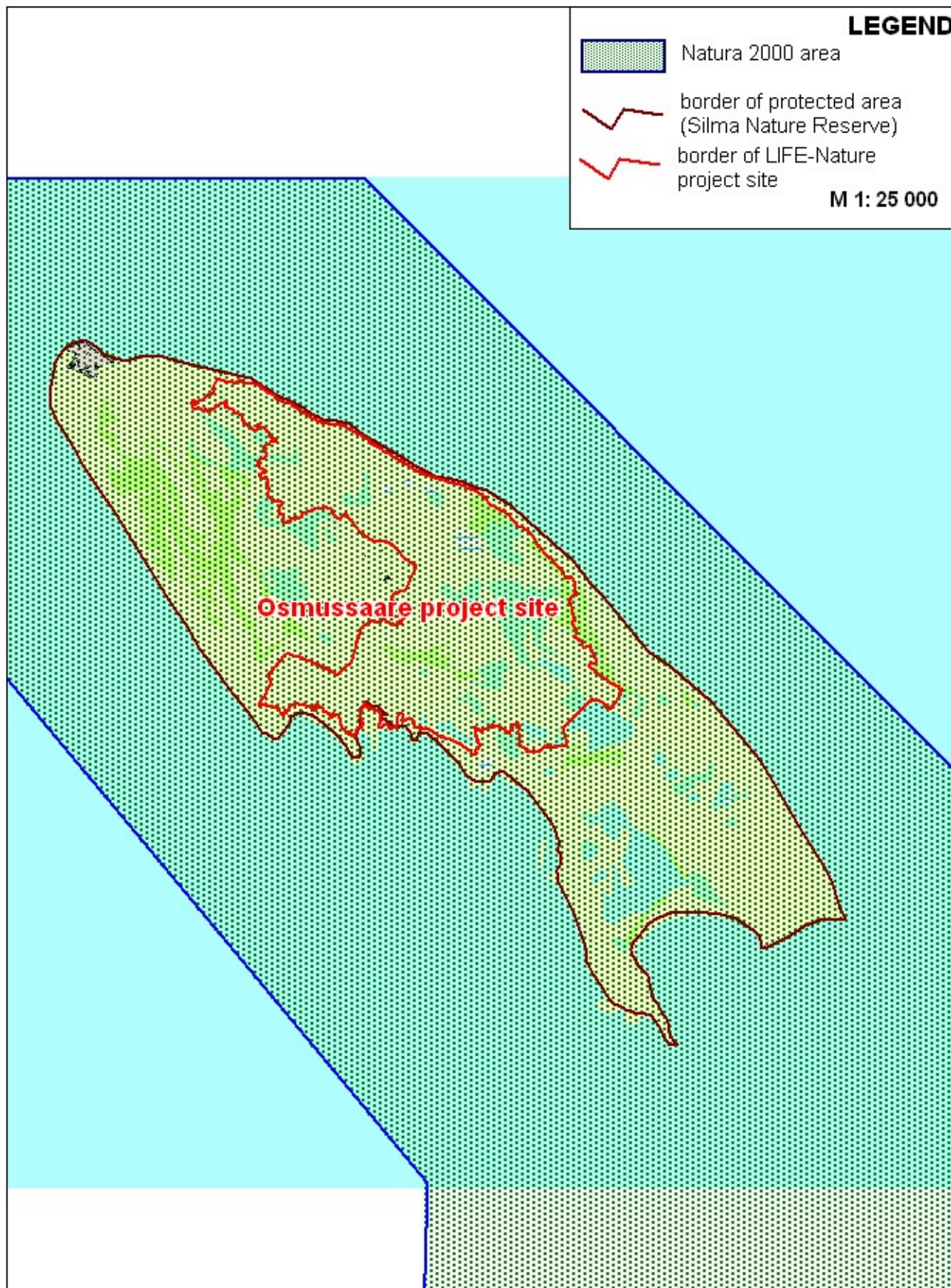




### Natura 2000 areas on Vormsi project site



### Natura 2000 areas on Osmussaare project site



### Action A3: GIS development for site management

- ◆ Expected result: GIS for project sites and bordering areas
- ◆ Responsible for implementing: NGO West Coastland
- ◆ Timetable: May 2003 – October 2006

GIS is a system of organising, analysing and illustrating spatial data, and is good to use on areas that have complicated combinations of nature and human activities. The system connects different databases and directs results of inventories and monitoring into one visualised system of spatial data. Therefore NGO West Coastland prepared interactive GIS which were connected also to internet. All relevant gathered data during actions A1 and A2 was scanned or digitized and interactive GIS was compiled. Needed hardware and software was procured. Various GIS software was used creating GIS. Technical implementation was made by NGO West Coastland personnel Toomas Puurmann and Marko Puurmann.

GIS was ready in December 2004 and existing data was placed in local server and connected to internet ([www.vormsi.ee/Life](http://www.vormsi.ee/Life)). Due to restructuring Estonian nature conservation system – all former local conservation Administrations (including Silma Nature Reserve Administration) were concentrated from January 2006 into one institution (State Nature Conservation Centre, SNCC) – existing web page was moved to SNCC's server and is available and operating on new address [vormsi.lk.ee/life](http://vormsi.lk.ee/life).

GIS was actively used by project personnel to guide restoration and management activities. The web site allows project participants to browse needed files with collected data. It creates an opportunity for using GIS possibilities for co-ordinating and monitoring work on different sites also through internet. To demonstrate the project activities and results mainly to local people, but also to all the others, the data is available as thematic maps. New data was and will be added also in future into GIS annually.

### Action A4: Preparation of procurement of grazing animals, fences, equipment and machinery

- ◆ Expected results: Best options for the equipment and animals necessary for the management actions under the project will be clarified and contracts for purchase signed resulting in readiness for the actual procurement
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: November 2002 – October 2003;  
November 2004 – January 2005.

The need for procurement of machinery or animals was specified on April 22<sup>nd</sup> 2003 at the meeting between farmers active on the areas of Silma Nature Reserve and Osmussaare Landscape Reserve and on April 23<sup>rd</sup> in the meeting for former and potential new partners active on Vormsi project site. Possibilities for procurement animals and machinery established by the project were introduced. As a result of the meetings it was agreed that choice of the animals will be made by certain farmers with a general advice given by project team. Procurement of suitable

animals took place on the initiative and responsibility of local farmers by a certain contract in which the species, age and registration number will be described.

Prices for procurement of machinery had been asked and offers gathered since October 2003. For the procurement of tractor and the mowers different offers were examined and experiences of farmers about the quality of different devices were considered in 2003 and beginning of 2004.

Time interval between project applying (composing the budget) and real action of buying was two years; therefore prices of agricultural technique rised substantially:

- ✓ The prices of technique rised because Estonia joined European Union and also because of rapid (up to 10% in a year) economic growth in Estonia.
- ✓ Before the purchase recommendations and experiences of farmers about working quality and endurance were considered. Due to a decision was made for buying another model of cutting machine (rotor mower Taarup model 2424, € 4602) which is more suitable for natural grassland management than preliminary proposed model (Saphir KM186, € 2560.00). Taarup mower was little bit more expensive cutter but share of quality and cost was more reasonable.

Because of marked situation changed and to assure the sustainability of the project by budget modifications first additional clause of project was applied in 2005. Sustainability and continuity of our project is based mostly on local farmers and their capability to manage the herds that are started with the project, assure the increase of number of animals in the herds and the long-lasting management of re-established coastal grasslands.

There was a need for a procurement of additional equipment (tractor, two rotary rakes and two round balers) and beef cattle to assure sustainability of the restoration and management efforts. The aim of the procurement of additional technique and animals were: 1) to make sure that mowing of all meadow areas can take place during a busy hay-making period and grazed area will increase at least up to 50% on all meadows; 2) to save on additional transportation costs of technique in travelling between two project areas – Silma on mainland and Vormsi on island. As a result of accepted additional clause there were restored due to additional equipment expected area of coastal grasslands (1091 ha) and area under grazing was enlarged to 69% in 2006.

### **Action A5: compiling the action plans for project sites**

- ◆ Expected results: action plans for each project site (3 plans)
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: February 2003 – April 2004;  
May 2006 – October 2006.

For each project site (Vormsi, Osmussaar and Silma) a detailed action plan was developed using MapInfo software and first printout was attached to interim report covering period October 2003 to September 2004. Action plan contains information on natural conditions, current situation and management, number of the grazing animals, landowner, also possible and existing threats and solutions are described. More detailed descriptions have been done about sites where nature protection subsidies are paid. Work was done both by computer analysis and fieldwork, based on the outcome of information from actions A1-A4. Also every farmer was personally associated with and possibilities of management were discussed.



Actions plans were composed according to the database of Natura 2000 (A2), to the management plans of protected areas and to the data of different inventories (A1). Action plan compiled in 2003/04 consist next thematic maps with tables: (1) distribution of NATURA 2000 habitats, (2) detailed description of land use type (pasture or hayfield), covered area by bushes, target species, threats to the habitat and goal for every grassland area, (3) landowners database with map of location of property (on Osmussaar island there are only state owned land), (4) management data in 2001 and 2002, (2) management in 2003, (6) schedule for widening management areas 2004–2006, (7) detailed management schedule and regime for every grassland area and (8) location of fences.

Completed plans were part of management plans of protected areas and lasted for 3 years (during project time) and the renewal of action plans was made in 2006. The revised action plans are added to final report (Annex 2) and these will last from 2007 to 2009 and contains: (1) distribution of NATURA 2000 habitats; (2) detailed table of description of land use type (pasture or hayfield), covered area by bushes, target species, threats to the habitat and goal for every grassland area; (3) former land use and management data 2001–2002; (4) management data during project period (2003-2006); (5) management perspective after the project (2007-2009). Compiling of last topic was discussed with local farmers to assure the sustainability of restoration and management activities.

#### **Action A6: Co-operation network between nature protection administration, local NGO-s, farmers and landowners**

- ◆ Expected results: cooperation network with basic-contract between three counterparts and management agreements ensuring site management
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable:           November 2002 – October 2003;  
                              August 2004 – October 2004;  
                              August 2005 – October 2005.

Silma LIFE-Nature project involved three counterparts: the beneficiary (State Nature Conservation Centre Hiiu-Lääne Region) as a state institution, local non-governmental organisations as project partners (NGOs Silma Wetland and West Coastland) and private structures (farmers, landowners and other entrepreneurs). The network was formulated with a framework agreement (with rights and obligations) between all counterparts and considered valid when signed.

For management of coastal meadows on the project areas contracts of nature management subsidies were signed according to the Act of Minister of Environment by State Nature Conservation Centre Hiiu-Lääne Region in 2006 (before restructuring of Estonian conservation system by Silma Nature Reserve Administration). Owner of the land as well as the user of the land is connected with the project by basic-contract. Signing the basic-contract means that land-owner permits maintaining and research work on the land in his/her possession for the fulfilment of the project. State Nature Conservation Centre Hiiu-Lääne Region has an additional obligation to inform the land-owner about the results of the work. Information is also available on project web pages <http://life.silma.ee> and [vormsi.lk.ee/life](http://vormsi.lk.ee/life). An important part was deliberations and explanatory work. Several workshops were organised for framers to introduce aims of the project

(see under action E1). Existing interests of all partners were gathered and it is not to be confined only to project sites but is seen as a question of wider management in order to ensure long run management.

At the moment there are only two cases in which the land is formulated as state owned land for nature conservation purposes (on Silma project site), the contracts for the land use in every case have been signed between land user and land owner or the local government (representative of the state for giving a temporary permit for land use on state owned land). When land is formulated as state owned for nature conservation purposes, State Nature Conservation Centre has a right to sign agreement on land use.

For using the technical device belonging to the project a contract is signed on every special case for a certain job to be completed on a certain area. Text of the agreement clarifies conditions for using and maintaining machinery, contains obligation of taking financial responsibility to farmer or anyone else using machinery. With farmers who have been given the animals of the project to be taken care of, have been signed the contracts for animal care, according to which the farmer can have the herd until a certain time. The contract clarifies conditions for maintaining animals, contains obligation of taking financial responsibility to farmer or anyone else taking care of animals.

The letters with introduction about Life-Nature project and proposed activities on the coastal areas were sent to the landowners during the years 2004 and 2005. The addresses of landowners living somewhere else in Estonia were confirmed during the February 2005 and additional letters with explanations were sent at the end of March. Most of land in Vormsi project site is so called still state owned and by Estonian legislation in that cases annual contract for land management for agricultural purposes is signed by municipality government and land user.

The project areas of Silma Nature Reserve, Vormsi Landscape Reserve and Osmussaare Landscape Reserve are protected areas that have valid protection regulations. Restrictions on LIFE-Nature project areas accrue from valid protection rules and legislations and were introduced in detail in 4<sup>th</sup> progress report (covering period March 2005 to November 2005; Appendix 1). Hosby meadow that is not yet a part of Vormsi Landscape Reserve is designated as Natura 2000 site. The protection rule enacts the goal of protection, one of the goals on these protected areas is to restore and preserve semi-natural habitats. It is necessary to maintain semi-natural habitats (with the help of mowing, grazing, cutting of bushes) to help to remain the communities of the species. According to Estonian Nature Protection Law<sup>1</sup> landowner have no rights to stop restoration and maintenance work on the nature protection areas (including Natura-sites) that are directed by the administrator of the protected area. Thus, according to the Nature Protection Law landowner can not stop the maintenance of his/her land that remains part of the protected area and meadows will be maintained as it is written to the action plan.

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<sup>1</sup> Estonian Nature Protection Law (adopted 10.05.2004) § 17 section 8: If the owner of the land does not agree to do necessary restoration/management work determined with the protection rule or will not come to an agreement with the administrator of the protected natural object in the details of needed works, the landowner has no rights to stop the administrator to arrange this work (in Estonian "*Kui kinnisasja valdaja ei nõustu kaitse-eeskirjaga määratud vajalikku tööd tegema või ei jõua tööde tegemise osas kaitstava loodusobjekti valdajaga kokkuleppele, ei ole tal õigust takistada valitsejal seda tööd korraldama*"t).

## C. Non-recurring management

### Action C1: Procurement of the machinery and equipment for mowing and bush cutting and restoring meadow habitats

- ◆ Expected results:
  - purchased equipment needed for habitat management: two mowers, three bush cutters, three chain saws, two Tractor Belarus, two rotary rakes, two round balers, Suzuki Grand Vitara, ATV and boat with engine.
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region.
- ◆ Timetable: November 2003 – April 2004;  
August 2004 – January 2005;  
November 2005 – January 2006

During the project there were procured several machinery and equipment for mowing and bush cutting and restoring meadow habitats (see photos in Annex 3). In 2004 there were procured tractor Belarus MTZ 820, two mowers model Taarup 2424, three Husqvarna chainsaws model 55, three Husqvarna bush cutters C25RX, ATV Honda model TRX500FA, boat Nordic Terhi with outboard Honda 30 horsepower motor. In February 2004 was leased Suzuki Grand Vitara XL7 which leased using LIFE finances until July 2006 and was afterwards bought using self-financing by State Nature Conservation Centre Hiiu-Lääne Region. Project car was leased using LIFE fund contribution in value of 17207 € (in application was 17214 €) and residual value in sum of 12577 € was paid by beneficiary using self-financing. In the future the car will be necessary to continue management of semi-natural habitats (Baltic coastal meadows and Nordic alvars) and will be used as other project equipment at least for next five years only to fulfil purposes of conservation activities.

After approved project modification in 12<sup>th</sup> September 2005 there were procured also several machinery and equipment: two rotary rakes Taarup 9138, round baler Feraboli FF50, used round baler Agro 1200 and tractor Belarus MTZ 920,3. Project modification was necessary to increase the sustainability of the project: procurement of extra machinery and herd to increase mowing and grazing intensity. Some delay in procuring of equipment was caused by financial reasons: project last payment was loaned from Estonian Environmental Investment Centre and financing was decided rather late, in 13<sup>th</sup> December 2005. Therefore last purchase was made before the coastal meadows restoration season in the beginning of July 2006. According to national coastal meadows management prescriptions it is not allowed to mow meadows during birds breeding season that is until 15<sup>th</sup> of July.

Tractors, mowers, rotary rakes and round balers had been given to the use of a three different local farmers by a special contract according to which they have to complete restoration and management works on the project sites and handle the consequences of damage of equipment. All equipment was used to perform restoration and maintenance of Baltic coastal meadows, Nordic alvars and shallow lagoons and will be used at least next five years to increase management efforts of high conservational value of semi-natural habitats.

Procured machinery was distributed accordingly to restoration areas between project sites: on Vormsi there are Tractor MTZ 920,3 with Taarup rotary rake and mower, also one chainsaw and bush cutter. There are round baler Agro, chainsaw and bush cutter on Osmussaar. Feraboli round baler was used both on Silma and Vormsi project sites. Other equipment was used on Silma project site. Motorboat was used during organising project actions in Osmussaare project site. After completing the project procured equipment will remain in the possession of State Nature Conservation Centre Hiiu-Lääne Region and will be used for maintaining meadows of three

*LIFE2003 NAT/EE/000181 Restoration of habitats of endangered species in Silma Nature Reserve*

different project sites after the project. Beneficiary is public organisation and can not earn any profit using procured equipment according to the laws of Estonian Republic.

Using NGO West Coastland self-financing there was procured small rotor-cutting machine and ATV which were necessary for managing semi-natural grasslands on Vormsi island. Equipment was used mostly for management of Rumpo coastal grasslands.

## **Action C2: Procurement of animals and fences for grazing on Silma and Osmussaare coastal grasslands**

- ◆ Expected results:
  - optimal grazing load on the project site will be ensured
  - 119 cattle procured for Silma project site
  - 6 cattle procured for Osmussaare project site
  - 20 km of fences installed
- ◆ Responsible for implementing: NGO Silma Wetland.
- ◆ Timetable: February 2003 – April 2004;  
November 2004 – April 2005.

In order to avoid overgrowth of meadows grazing becomes essentially important. Grazing is also important after primary restoration: best practice is to graze coastal meadows after cutting reed and bushes. There are not enough financial possibilities for farmers to procure herd needed for efficient management of meadows and therefore LIFE-Nature fund's finances were extremely important. Procured animals will be used in future for management of semi-natural habitats on Silma Nature Reserve and Osmussaare Landscape Reserve.

In the frames of the project 125 beef cattle of four different breed and two Estonian horses were bought (see photos in Annex 3). Distribution of procurement between years is shown in table 1 page 19. Six scotch cows were taken to Osmussaare project site; others were distributed between Kulani, Kudani and Saunja-Tagalahe project areas in Silma project site. Horses were bought using co-financing of NGO Silma Wetland and were used for grazing Tagalahe project area. Horses were also trained for mowing with traditional horse mower but also to use them as span on nature trail created during action E4 in Saare village. Beef cattle have been given to four farmers to be taken care of and horses to one farmer. All the animals have been bought from farmers from different localities of Estonia, scotch was bought from Danish. In 2006 procured animals were used together with local farmers cattle for grazing great area of coastal meadows: in Silma project site 420 ha of Baltic coastal meadows and in Osmussaare project site 24 ha of Baltic coastal meadows and Nordic alvars. According to timetable some procurement delay was caused by financial reasons: project last payment was loaned from Estonian Environmental Investment Centre and financing was decided in 13<sup>th</sup> December 2005. This action includes NGO Silma Wetland co-financing in amount of 21 250 €.

Special contracts were signed with farmers who take care of animals (cattle, sheep, horses) procured during project. Animal keeping contract include following aspects: 1) the animals are on the risk of farmers own account; 2) farmer has obligation to keep a proper data of animals; 3) farmer has to maintain the size of delivered herd; 4) farmer has to graze coastal meadows on project sites at least from 15<sup>th</sup> June till 20<sup>th</sup> September; 5) farmer has to return the herd, if the contract will be not renewed; 6) farmer must return the herd with the same number of cattle,

sheep or horses that were delivered to him/her at the beginning of the contract; 7) returning animals can not be older than was the oldest animal delivered to the farmer at the beginning of the contract; 8) contracts are valid until 31.10.2007 and will be then renewed for next five years. According to SAP and other LIFE-Nature fund regulations project partners will use procured animals only for conservational purposes, for management of coastal grasslands.

The local veterinarian controls every year procured animals keeping conditions, the health of the animals and composes then report to Estonian Agricultural Register and Information Board. It means that only the farmer who assures proper animal keeping conditions can keep the project animals.

Table 1. Number of procured animals for grazing Baltic coastal meadows and Nordic alvars in Silma and Osmussaare project sites.

Year	Number of procured animals		
	Silma project site		Osmussaare project site
	cattle	horses	cattle
2003	13	0	0
2004	48	2	0
2005	17	0	6
2006	41	0	0
<b>TOTAL</b>	<b>119</b>	<b>2</b>	<b>6</b>

Installation of fences started in 2004. Mostly were installed barbed wire fences but also electric fences. Total sum of established fences was 32 050 meters in Silma project site and 7530 meters in Osmussaare project site (table 2). Estonian Ministry of Environment as co-financier of this project supported this action in total 24 295 €. LIFE contribution for procurement of materials for fences was 8851 €. Materials for fences were bought mostly from local farmers and entrepreneurs. Fences are shown on maps under actions D3 and D4.

Table 2. Distances of installed fences in different project areas in Silma and Osmussaare project sites.

Name of project site and meadows		According to updated action plan 2006 (m)	Installed fences (m)
<b>Silma project site</b>	Kudani meadow	5900	5900
	Kulani meadow	2860	2860
	Tagalahe and Saunja bay meadows	23290	23290
	<b>TOTAL in Silma</b>	<b>32050</b>	<b>32050</b>
<b>Osmussaare project site</b>		<b>7530</b>	<b>7530</b>

In 9<sup>th</sup> January 2005 was heavy storm in Estonia and West Estonian coastal areas were flooded. In Silma project site was destroyed 3,2 km of fences. Restoration of these fences was financed by Estonian Environment Investment Centre and fences were reinstalled from April till June in 2005.

### **Action C3: Procurement of the animals and fences for grazing on Hosby, Diby and Rumpo coastal grasslands, Vormsi project site**

<p>◆ Expected results:</p> <ul style="list-style-type: none"> <li>- optimal grazing load on the project site will be ensured;</li> <li>- 5 horses, 100 sheep and 32 cattle for grassland grazing procured;</li> <li>- 5 km fences installed.</li> </ul> <p>◆ Responsible for implementing: NGO West Coastland.</p> <p>◆ Timetable: August 2003 – April 2004; November 2004 – April 2005</p>
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According to project modification which was accepted by European Commission on 12<sup>th</sup> of September 2005 there were procured total 32 beef cattle, 100 sheep and 5 horses for grazing three different project areas in Vormsi project site (see photos in Annex 3). Procured animals were distributed between seven local farmers and three project areas in Vormsi. Numbers of procured animals during project are shown in table 3. According to timetable some procurement delay was caused by financial reasons: project last payment was loaned from Estonian Environmental Investment Centre and financing was decided in 13<sup>th</sup> December 2005.

Table 3. Number of procured animals for grazing Baltic coastal meadows and Nordic alvars on Vormsi project site.

Year	Number of procured animals		
	cattle	sheep	horses
2003	4	0	0
2004	11	42	0
2005	2	17	3
2006	15	41	2
TOTAL	32	100	5

Special contract were made with farmers who take care of animals (cattle, sheep, horses) procured during project. Animal keeping contract include following aspects: 1) the animals are on the risk of farmers own account; 2) farmer have obligation to keep a proper tab of animals; 3) farmer have to maintain the size of delivered herd; 4) farmer have to graze coastal meadows on project sites from 15<sup>th</sup> June till 20<sup>th</sup> September; 5) farmer have to return the herd, if the contract will be not renewed; 6) farmer must return the herd with same number of cattle, sheep or horses that were delivered to him/her at the beginning of the contract; 7) returning the animals the animals can not be older than was the oldest animal delivered to the farmer at the beginning of the contract; 8) contracts are active until 31.10.2007 and will be then renewed. Procured animals will be used in future for management of semi-natural habitats on Vormsi Landscape Reserve.

The local veterinarian controls every year procured animals keeping conditions and the health of the animals and composes then report to Estonian Agricultural Register and Information Board. It means that only the farmer who assure proper animal keeping conditions can keep the project animals.

Installation of fences started in 2004. Mostly were installed barbed wire fences but also electric fence. Total sum of established fences in Vormsi project site was 11 260 meters (see table 4 on page 21). Estonian Ministry of Environment as co-financier of this project supported this action in total 5072 €. LIFE contribution for procurement of materials for fences on Vormsi project site

was 6297 €. Materials for fences were bought mostly from local farmers and entrepreneurs. Fences are shown on maps under actions D3 and D4.

Table 4. Distances of installed fences in Vormsi project site.

Name of project site and meadows		According to updated action plan 2006 (m)	Installed fences (m)
<b>Vormsi project site</b>	Diby meadow	2160	2160
	Rumpo meadows	5300	5300
	Hosby meadow	3800	3800
<b>Total in Vormsi</b>		11260	11260

In 9<sup>th</sup> January 2005 was heavy storm in Estonia and West Estonian coastal areas were flooded. In Vormsi project site was destroyed 5 km of fences: in Rumpo 2,2 km and in Hosby 2,8 km fences. Restoration of these fences was financed by Estonian Environment Investment Centre and fences were reinstalled from April till July 2005.

#### **Action C4: Cleaning shallow depressions and former lagoons for *Bufo calamita* in Rumpo, Diby and Hosby, Vormsi**

- ◆ Expected results:
  - mosaic of coastal habitats, new breeding and migrating sites for waders and other coastal birds
  - suitable spawning areas and system of habitats for *Bufo calamita* and other amphibians,
  - 10 shallow ponds restored.
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne region.
- ◆ Timetable: August 2003 – October 2003;  
August 2005 – October 2005.

Former shallow lagoons on Vormsi project site that were overgrown with reed or other emergent vegetation were consequently no longer functioning as lagoons nor had a high biodiversity value. Therefore shallow lagoons were carefully restored during project by partial sediment and reed removal. Lagoons which had high biological value were not disturbed.

Hosby meadow in Vormsi project site was cleaned during the 2003/2004 winter (see action D1). Old reed and other emergent vegetation was smashed using special mulcher. Totally 71 ha were cleaned for preparing the restoration of special breeding ponds for Natterjack Toad (*Bufo calamita*). In spring grazing with cattle started to avoid area from overgrowth. As grazing pressure was not enough in summer 2004, additional mowing was performed in August 2004. According to the decisions of the experts suitable depressions (ponds with low water level) were restored on Rumpo and Hosby project areas during December 2005. Both on Rumpo and Hosby project areas there were created two spawning ponds for Natterjack Toad. In August and September 2006 on Hosby project area there was restored extra six ponds for Natterjack Toad.

Delay of completing this action was caused by very wet season in 2004. This hindered using the machinery on Hosby meadow. Reintroduction practice in Estonia shows that very important factor for Natterjack Toads is suitable hibernating places. During the time of project planning

that information was absent. This is the reason why we changed places of spawning ponds for toads. Because of absent of suitable hibernating places in Diby project area there are no reason to create spawning ponds for Natterjack Toads. In Rumpo area toads can use old stone walls and stone basement of summer houses close to created ponds. On Hosby area ponds for reintroduction of Natterjack Toad are planned between sandy coastal ridges where toads can hibernate in sandy soil.

In 2002 was composed "Management plan for *Bufo calamita* in Lääne County" where the activities needed for creation of the habitat of *Bufo calamita* on Vormsi Island was described. According to the plan re-introduction will take place after cleaning of shallow lagoons and creation of special ponds and active grazing of meadows. Our task in Vormsi was to remove reed from lagoons (C4) and to ensure recurring management – selected reed removal (D1) and grazing (D2). For now these tasks are executed and natural conditions for Natterjack Toad are suitable. Specialist will carry out the re-introduction of Natterjack Toad in next years. Brood for re-introduction will be taken from the nearest populations of *Bufo calamita*, which are Hara and Veskijärve (Nõva) in Lääne county. As introduction of *Bufo calamita* has been successful in Estonia since 2000 the same methods will be used also on Vormsi. But re-introduction will depend on productivity of nearest populations, for example spring of 2006 was very dry and productivity of Natterjack Toad was very low. Therefore was not able to shift any spawn of toads.



## D. Recurring management

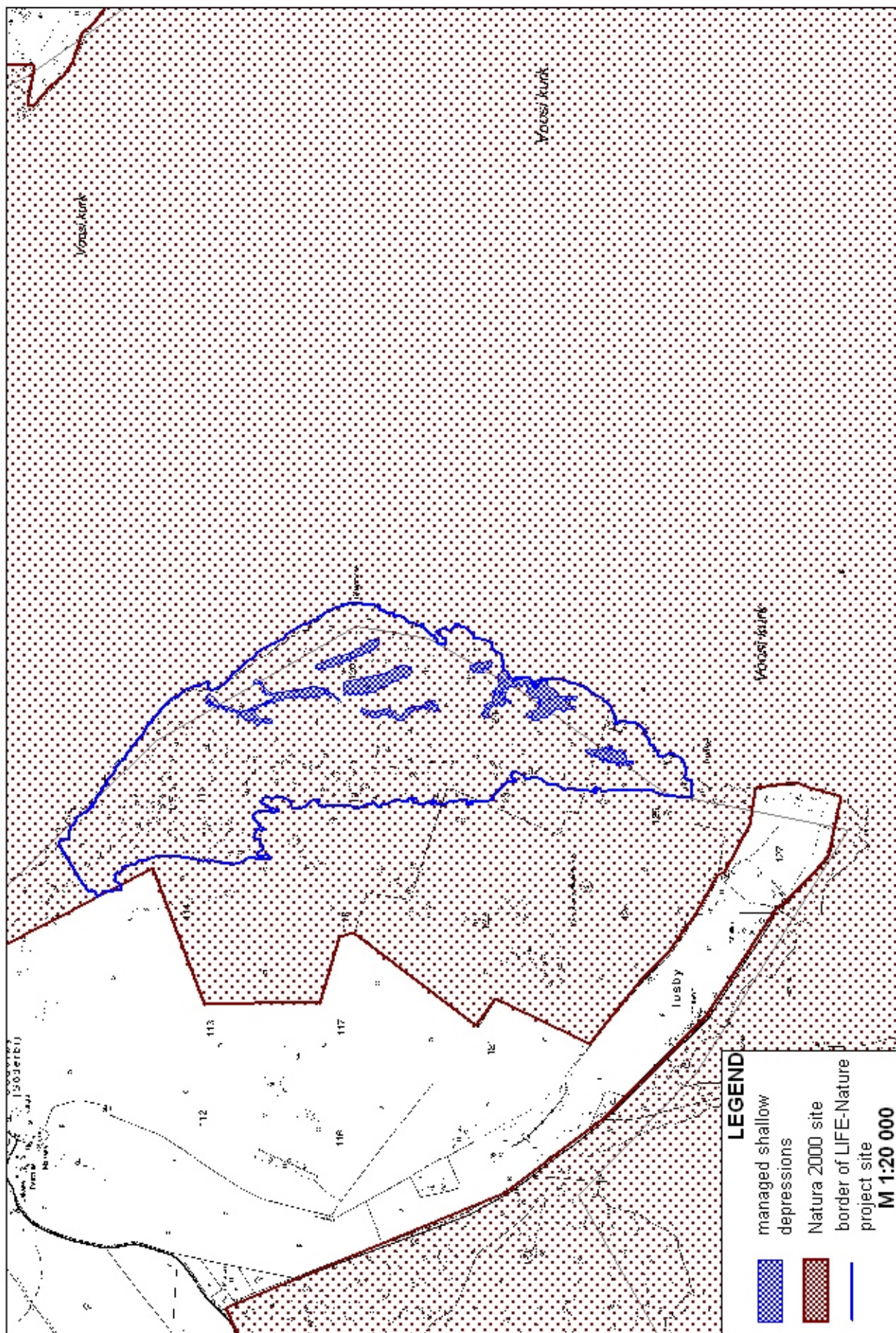
### Action D1: Management of coastal areas with old shallow lagoons on Vormsi site

- ◆ Expected results:
  - ca 10 ha of reed removal from the shallow lagoons and coastal depressions
  - maintenance of mosaic of coastal habitats where low-grass meadows are intersected by shallow lagoons with open water and patches of reed.
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: August 2004 – April 2006

Shallow lagoons in Hosby meadow in Vormsi were before the project overgrown with up to three metres high reed. Lagoons were firstly cleaned during the winter 2003/2004 (see photos in Annex 4). Mulcher was used for smashing reed.

Next years, 2004-2005, shallow lagoons and coastal depressions were once a year mowed during dry seasons (mid-summer or occasionally dry early spring). In 2006 the lagoons were mowed twice: in April and from July to September. Since 2004 Hosby meadow was also grazed and cattle pleasingly ate probably because of nutrient content firstly vegetation from shallow lagoons and coastal depressions (see photos in Annex 4). As a result there was well managed about 10,5 ha of mosaic coastal areas with shallow lagoons (map on next page) which is suitable staging place for Lesser White-fronted Geese and waders, spawning area for Natterjack Toad and feeding area during breeding season for many waders (Redshank *Tringa totanus*, Lapwing *Vanellus vanellus* and others).

Managed shallow depressions in Hosby meadow, Vormsi project site



## Action D2: Grazing and mowing of the coastal grasslands on the Vormsi project site

### ◆ Expected results:

- 190 ha of coastal grasslands managed (1630, 6210, 6280) on Rumpo, Hosby and Diby coastal areas and breeding areas for *Bufo calamita* and staging places for *Anser erythropus* maintained in long run, as habitats for numerous other priority species
- restoring coastal meadows with short grass and with a long open waterline on Hosby will establish with Silma coastal grasslands a net of staging and feeding sites for *Anser erythropus*

◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region

◆ Time planning: May 2003 – October 2006.

On Vormsi project site 129 ha of coastal grassland (codes 1630, 6210, 6280) were managed in 2004. In 2005 132 ha and in 2006 **194 ha** of coastal grasslands were restored and under management. Restored areas are from now on suitable staging place for Lesser White-fronted Geese and waders, spawning area for Natterjack Toad and feeding area during breeding season for many waders (Redshank *Tringa totanus*, Lapwing *Vanellus vanellus* and others). Long open waterline of Hosby meadow together with Silma coastal grasslands operate as a net of staging and feeding sites for Lesser White-fronted Geese. This action was co-financed by Estonian Ministry of Environment in total 9159 €.

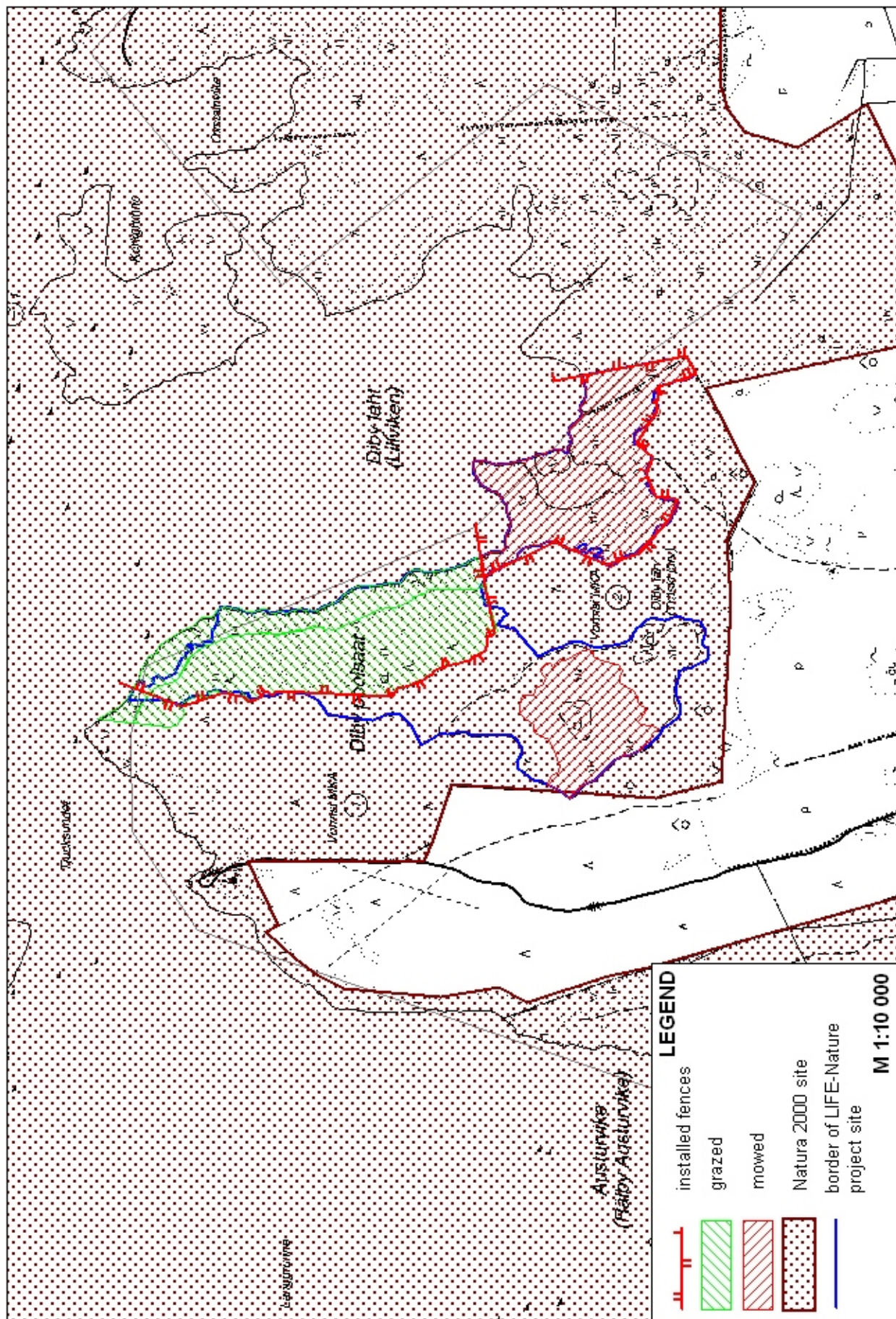
**Diby area** (map on page 26, photos in Annex 4) – in 2005 6 ha coastal meadow was mowed twice and in the summer 2006 fences were installed and grazing started using sheep on 14 ha of alvar and coastal grassland. In summer 2006 14 ha of coastal meadow area was once mowed. Combined mowing and grazing was used to achieve faster and more effective results in restoration works. By the end of the project was restored and taken into further management **24 ha** of alvar and coastal meadow area.

**Hosby area** (map on page 27, photos in Annex 4) – restoration of large coastal meadow area started in autumn and winter 2003/2004. 71 ha of reedy area were mowed. Fences installed and from summer 2004 grazing started using beef cattle. In 2005 and 2006 partially additional mowing was performed to get a better result, reduce reed growth and keep meadow low-grassed. Totally **106 ha** of coastal meadow is restored and managed during LIFE-Nature project. Large meadow area is by now extremely valuable and suitable breeding and staging place for many species listed in Birds Directive Annex I.

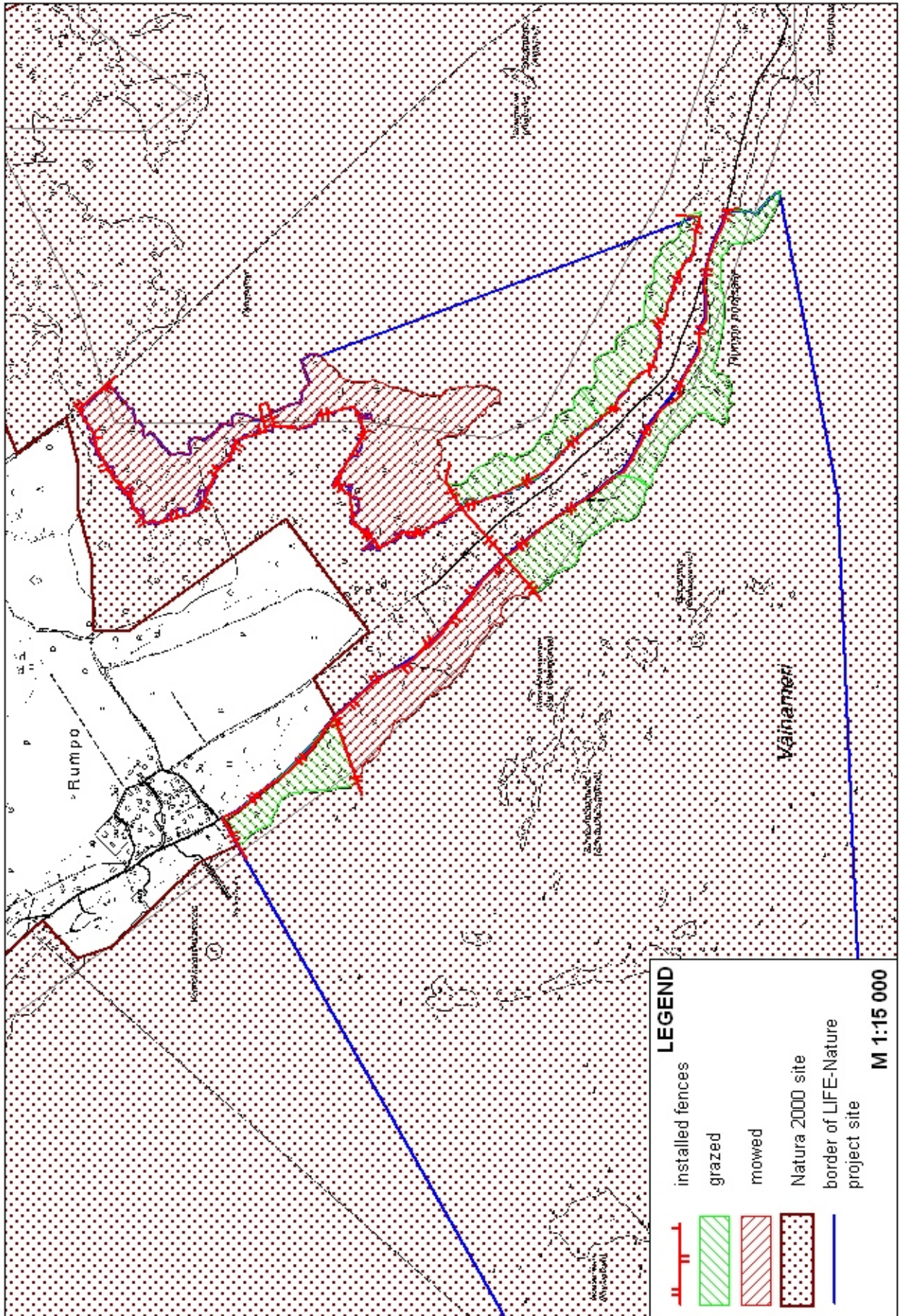
**Rumpo area** (map on page 28, photos in Annex 4) – **64 ha** are restored: grazed and partly mowed every year. Rumpo grasslands are divided into 8 parts, 5 of them have been under grazing and mowing at least two years using cattle, sheep and horses. Other parts were mowed both in 2005 and 2006, fences were installed in 2006. Grazing started in late season 2006 and will continue during next years. Partially additional mowing was necessary on grazed areas to get the better results. In summer 2006 last part of meadow area was taken under management and 26 ha were mowed.

To restore breeding and nesting sites for coastal birds (especially for ducks and waders) reed beds areas were cut in 2004 on 7 islets and in 2005 and 2006 on 10 islets in Hullo Bay, Rumpo project area. Reed was cut twice during reed flowering time in July and August. Work was done in the frames of the project “Management of islets on Silma Nature Protection Area” financed by the Estonian Environmental Investments Centre.

Action D2 - grazing and mowing of coastal grasslands in Vormsi project site



Action D2 - grazing and mowing of coastal grasslands in Vormsi project site



### Action D3: Grazing and mowing of coastal grasslands on Silma project site

- ◆ Expected results:
  - 780 ha of coastal grasslands managed (1630, 6210), areas for Natterjack Toad *Bufo calamita* and staging places for Lesser White-fronted Geese *Anser erythropus*, in the long run, as habitats for numerous other priority species
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Time planning: May 2003 – October 2006.

Due to procured equipment and animals but also due to quite dry summer there were restored and managed **793 ha** of coastal grasslands in Silma project site in 2006 and established purpose therefore fulfilled. Restored and managed area was growing rapidly since 2004 when summer was wet and management therefore more complicated. Management efforts during the project are also shown on figure 1. 424 ha on meadows (54% of Silma project site) were grazed in 2006 and partly mowed at the end on grazing season to reduce vegetation (mainly reed) growth. Other areas were only mowed once or twice a year, depending natural and weather conditions. In 2007 grazing area will expand additionally 53 ha. In 2003 farmers had altogether ca 130 cattle and ca 100 sheep on the meadows, in 2004 196 beef cattle and 54 sheep, in 2005 ca 230 beef cattle and 120 sheep, in 2006 ca 260 beef cattle and 120 sheep. Restored areas are for now suitable staging place for Lesser White-fronted Geese and waders, spawning area for Natterjack Toad and feeding area during breeding season for many waders (Redshank *Tringa totanus*, Lapwing *Vanellus vanellus* and others). Together with Hosby meadow Silma coastal grasslands operate as a net of staging and feeding sites for Lesser White-fronted Geese. This action was co-financed by Estonian Ministry of Environment in total 75 536 €.

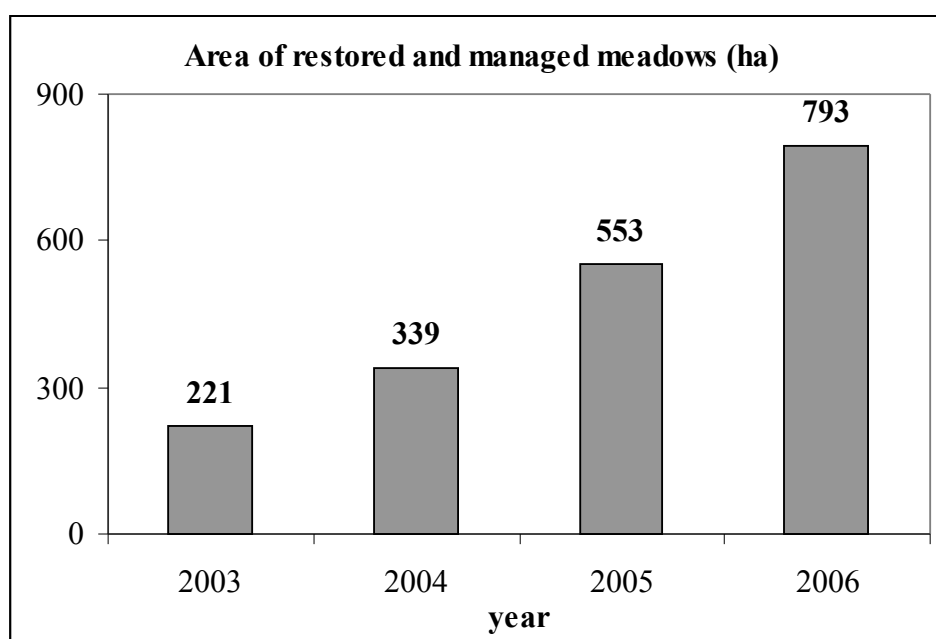


Figure 1. Restored and managed coastal grasslands area (ha) in Silma project site.

There were three different meadow areas in Silma project site and management efforts during the project were following.

**Kudani area** – in result of LIFE-Nature project activities **96 ha** of meadows were restored and for now well managed (see map on page 31, photos in Annex 4). Whole area is grazed since 2003 and partly mowed every year. Also some bushes were cut in several years on several hectares. For grazing both sheep and cattle were used (on average 30 cattle and 100 sheep). To

avoid the spread of young pines on the pasture additional mowing was used. Meadow is now suitable breeding and staging place for many species listed in Birds Directive Annex I. Management of Kudani meadow will surely continue in future.

**Kulani area** – result of the LIFE-Nature project **79 ha** of meadows were restored and well managed (see map on page 31, photos in Annex 4). At the beginning of the project some area was tufted and made management complicated. The disc harrow was used to smooth these tufts several times in 2003 and 2004. Since 2004 whole meadow was grazed using on average 40 cattle but partially additional mowing was necessary to get the better result. Western and centre part of meadow is very valuable to now and suitable breeding place for many Bird Directive Annex I species (Lapwing *Vanellus vanellus*, Redshank *Tringa totanus*, Curlew *Numenius arquata*).

**Tagalahe area** – result of the LIFE-Nature project **618 ha** of meadows were restored and managed (see map on page 32, photos in Annex 4). Area covers two big complexes of the meadows – one is around Tahu bay and the other on the eastern shore of the Saunja bay. Restoration started in 2003 using mowing and grazing. In 2006 were first time mowed 145 ha of meadows. For now 249 ha are grazed but partly mowed every year to gain better results. In 2006 there were 160 beef cattle on the Tagalahe meadows.

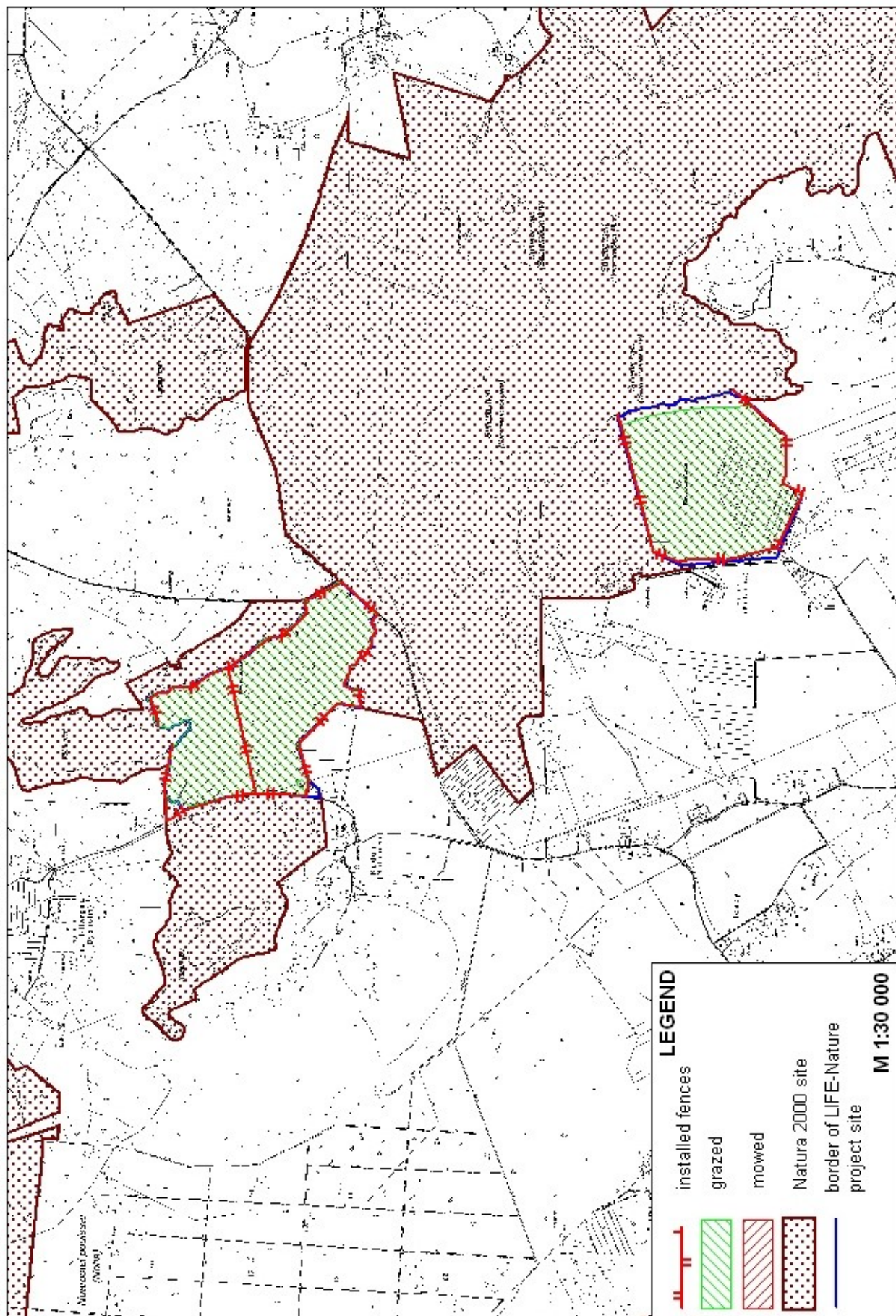
To restore breeding and nesting sites for coastal birds (especially for ducks and waders) reed bed areas were cut on five islets of Saunja and on two islets of Tahu Bay since 2003. This work has been done every year and reed was cut twice during reed flowering time. Work was done in the frames of the project “Management of islets on Silma Nature Protection Area” financed by the Estonian Environmental Investments Centre.

#### **Action D4: Management of alvars, their bordering coastal grasslands and lagoons on Osmussaare project site**

- ◆ Expected result: 103 ha nordic alvars, dry calcareous grasslands and coastal meadows managed
- ◆ Responsible for implementing: NGO Silma Wetland
- ◆ Time planning: May 2003 – October 2006.

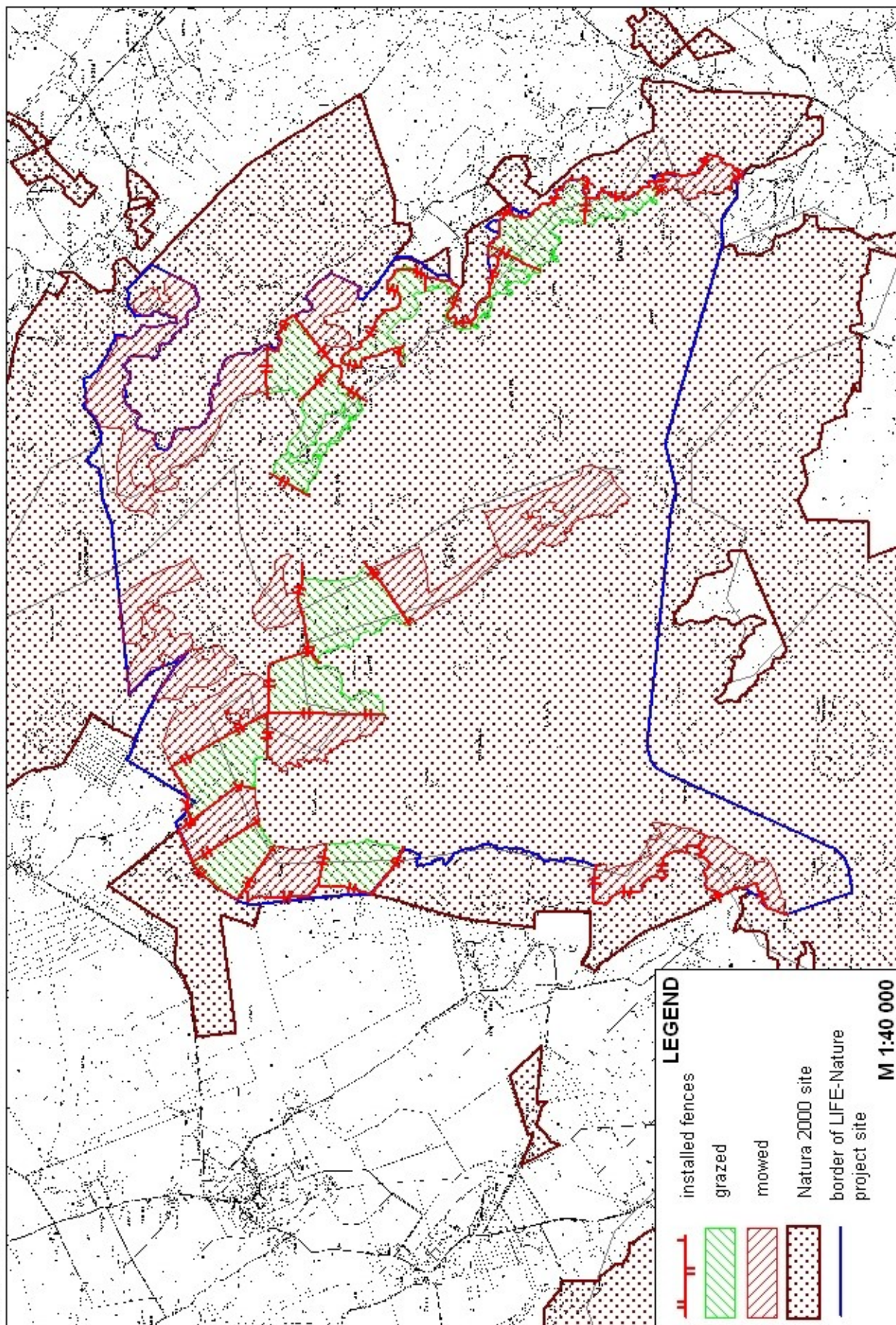
In the end of project at Osmussaare project site were restored and managed 104 ha of Nordic alvars, dry calcareous grasslands and coastal meadows (see map on page 33, photos in Annex 4). In 2003 were managed together 60 ha with mowing and grazing with 118 sheep, in 2004 64 ha with mowing and grazing with ca 120 sheep, in 2005 78 ha with mowing and grazing with ca 150 sheep and in 2006 104 ha with mowing and grazing with ca 180 sheep and 6 scotch cattle. Management efforts were mostly performed using nature management subsidy paid by Ministry of Environment. This action was co-financed by Estonian Ministry of Environment in total 10 041 €. Restored areas are now valuable and suitable breeding sites for Corncrake *Crex crex* and many other species listed in Birds Directive Annex I.

Action D3 - grazing and mowing of coastal grasslands in Silma project site

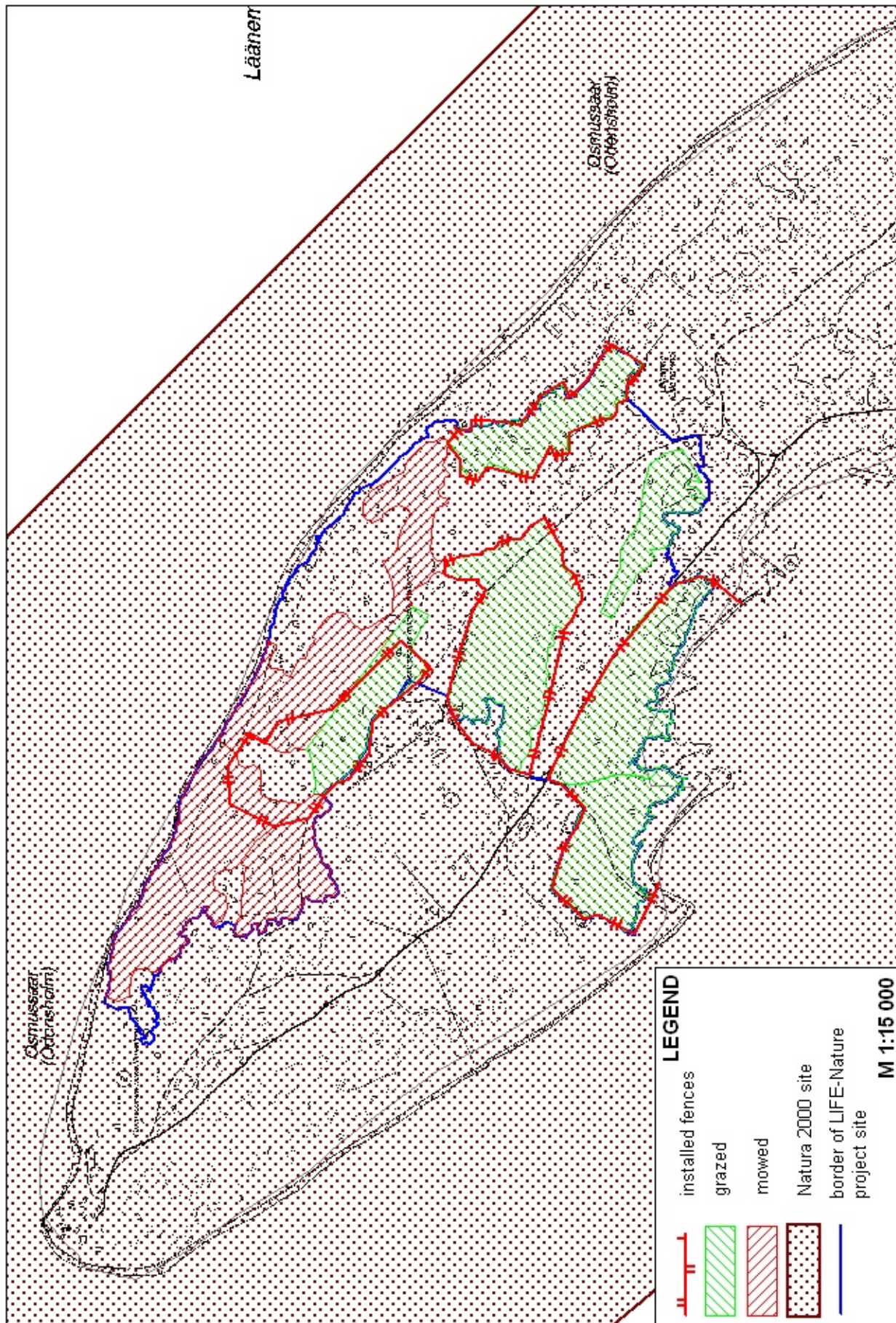




Action D3 - grazing and mowing of coastal grasslands in Silma project site



Action D4 - management of alvars, their bordering coastal grasslands and lagoons on Osmussaare project site



## E. Public awareness and dissemination of results

### Action E1: Organising workshops and study visits

- ◆ Expected results:
  - 4 workshops and 2 site visits will be carried out to improve public awareness concerning Natura 2000 issues and integrated management of coastal habitats as a part of sustainable development of rural areas.
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: May 2003 – October 2003;  
November 2005 – April 2006.

According to project application there were carried out 4 workshops and 2 study visits to improve public awareness concerning Natura 2000 issues and integrated management of coastal habitats as a part of sustainable development of rural areas. List of participants of workshops were added to interim reports. Firstly two introductory information days on integrated coastal management were held out in 2003:

- 1) 22<sup>nd</sup> of April at Saare manor where 7 local farmers participated;
- 2) 23<sup>rd</sup> of April at Rumpo field station of Vormsi Landscape Reserve where 6 local farmers were participated.

Results of these two introductory discussions were: 1) farmers specified their possibilities and interest on management areas, their suggestions were used in compiling the action plans for areas; 2) principal agreement with the farmers that choosing of animals is their duty; 3) necessity of technique was specified.

Two workshops were organized in 2004:

- 1) 28<sup>th</sup> of February at Saare manor were held out workshop for landowners of LIFE-Nature project areas. Present activities and future plans were introduced. Also there was a general discussion about coastal meadows management, nature management subsidies, LIFE-Nature project activities, values and management of coastal grasslands. Questions were answered and active discussion took place.
- 2) 2<sup>nd</sup> of March was workshop with reed cutting companies and farmers. Main topic was reed cutting on Silma Nature Reserve and on Life-Nature project sites, value of reed for living environment as well as for local people. Questions were answered and different aspects of reed-cutting as well as nature conservation were discussed. Because most of the meadows are overgrown with reed the interests of the reed cutters and their possibilities to cut the reed were discussed.

The first study visit for farmers from Vormsi, Silma and Osmussaare project sites took place on the 11<sup>th</sup> of November 2004. There were 14 participants and they become acquainted with Häädemeeste LIFE-Nature project activities: management efforts and methods were introduced by Marika Kose (Häädemeeste LIFE project manager) and active discussion took place about restoration and management of semi-natural habitats. One of the main topics was possibilities to use reed burning as a restoration means in Silma LIFE-Nature project areas.

Second study visit for farmers was on 17<sup>th</sup> of February in 2006 to Hiiumaa. Participants visited Coastal Research Centre Arhipelaag and two sheep-farms. Main aims were to gain and also share sheep breeding experience, get information about possible sheep procurement from Hiiumaa and open discussions about grazing improvement of semi-natural habitats was performed.

Third workshop was organized on 19<sup>th</sup> of December 2005. Estonian conservationist, farmers, inspectors of environment, members of project partners and scientist were participated. General overview of project situation was performed and discussion about next year plans was made. Project manager and project staff was encouraged by participants to accelerate project activities to accomplish established objectives. Due to project budget modification which was approved by European Commission on 12<sup>th</sup> of September 2005 all project actions were enforced.

On the 28<sup>th</sup> of January 2006 4<sup>th</sup> workshop with 10 participants took place on Vormsi Rumpo Information Centre. Discussion of management of semi-natural grasslands was held and summer 2006 plans were argued. Topic was concentrated to sheep breeding as a main grazing method in Vormsi Island and also about general management of semi-natural habitats.

### **Complementary works during the project**

There were several additional meetings where project ideas and activities were introduced. Silma Life-Nature project objectives and Natura 2000 issues were introduced in Saxby and Kersleti village meetings on the 30<sup>th</sup> July 2003. Public meeting of landowners and entrepreneurs on the island took place with a main subject being further land use. Practical possibilities for co-operation with nature conservation realisable by the project were introduced. 34 entrepreneurs, farmers and landowners of the island participated in the meeting.

On the 7<sup>th</sup> and 26<sup>th</sup> of October 2004 workshop for Vormsi Nature guides was held. Nature values and project ideas were introduced among general topics. Training was financed by Estonian Environment Investment Centre, organised by former Silma Nature Reserve Administration. On the 16<sup>th</sup> of October 2004 meeting with project partners was held on Vormsi. There was participated in discussion Stefan Thorssell, agri-environmental expert of WWF Sweden. On the 1<sup>st</sup> of December 2004 workshop for tourism and handicraft people was organised on Vormsi. Project partners and WWF Sweden experts Jan Wigsten and Eva Andersson participated. On the 22<sup>nd</sup> of February and 6<sup>th</sup> of June 2006 meetings of Life project partners was held on Vormsi. Main topic was discussion about coastal meadows management, planned activities, nature management subsidies, use of project equipment and machinery and further activities.

### **Action E2: Establishment of project web-site**

- ◆ Expected result: Operational and simple to use project web-site with an active feedback.
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: May 2003 – October 2006

Project web-site is operating since 5<sup>th</sup> December 2003 and it is both in Estonian and in English. It is located at <http://life.silma.ee>. Web master was during whole project Marko Valker. In 2003 the structure of webpage was following: main page, project sites, project description, project objectives, news, contacts of personnel, archive and links. From main page there was able to move on three different project sites (Silma, Vormsi and Osmussaar) where was described figured habitats and species, presented some photos and overview of until now management was given.

Next years there was added periodically recent data. In 2004 improvement of graphics was made. Links of coastal grasslands management and also LIFE-Nature projects ongoing in Estonia were added. To improve knowledge of restoration and management of coastal grasslands

and also to direct people to visit Silma LIFE-Nature project webpage there were published two articles in local newspaper. Also were supplemented picture gallery and other visual material as maps of management areas were added. In 2005 were improved descriptions of project sites concerning Natura 2000 habitats. Project sites were divided smaller units as different project areas (Rumpo, Hosby, Diby, Kudani, Kulani, Tagalahe, Osmussaar). Management maps and new photos were added. In 2006 webpage was renewed: achieved results and maps about restored and managed areas, also photos of activities were added. Published booklets about Silma and Vormsi nature trails were set up on webpage.

Composing project webpage HTML-redactor Microsoft Frontpage 2000 was used. For processing of pictures and designing of graphics Adobe Photoshop 8,0 and Microsoft PhotoEditor was used. To increase attendance of project webpage it was registered on bigger web-search pages (Neti; www-värk). During the first years, 2003 and 2004, there were made on average 200-300 visits from different IP addresses per month. More than 80% visits were made from Estonia but visits were made also from 25 foreign countries. Since the beginning of 2005 average amount of visits from different IP addresses per month was 400-500. Number of visits increased substantially during first months in 2005 and stayed quite stable during remained project period.

**Action E3: Production of a study-video about management of Natura 2000 site “Balance between Man and Nature, example of the project”.**

- ◆ Expected result: Study-video about Natura 2000 area management (about 15-20 minutes broadcast-quality video in Estonian and English is distributed on DVD-s).
- ◆ Responsible for implementing: NGO West Coastland
- ◆ Timetable: February 2004 – October 2006

During the 2003 and 2004, the natural situation and conditions of project areas in Vormsi as well as at Silma Nature Reserve were documented by taking wide-format (6x12 cm) panoramic photos on transparency film as well as by aerial and landscape shots using digital equipment. The material collected was later used to illustrate actions undertaken in the project areas and was used for audio-video purposes (for PowerPoint presentations, aerial shots for video, booklets about nature trails).

In 2005 and 2006 was collected most of the materials for study video. Film named as “Balance Between Man and Nature” (Annex of this report) was compiled by OÜ Profilm. Study video is on DVD in Estonian with English subtitles. Study video is 33 minutes long and it includes different aspects of restoration and management of coastal grasslands: historical and natural description, aerial shots of Vormsi project areas, restoration of mosaic coastal grassland, creation of shallow ponds for Natterjack Toad, interviews with farmers, landowners and project staff members. Altogether it gives public overview about sustainable management of coastal grasslands.

There were both made 100 copies in Estonian and with English subtitles. Film was distributed to project partners: to 12 local farmers, 3 municipalities and seven members of steering committee. DVD was sent also to several semi-natural habitats managers and other LIFE-project involved persons. Local schools and libraries, also to Ministry of Environment and NGO-s were sent also project DVD-s. The original tape of the film is located in Hullo village on Vormsi Island.

## **Action E4: Creating nature trails on representative sites (demo sites) and compiling booklets**

- ◆ Expected results:
  - Two operating nature trails: on Vormsi and Silma
  - Booklets (2) with information and maps about nature trails
- ◆ Responsible for implementing: NGO Silma Wetland
- ◆ Timetable: November 2005 – October 2006

According to project application there were created two nature trails, one in Silma and second in Vormsi project site on Hosby meadow. Both in Silma and Vormsi the contribution by Environmental Investments Centre was also used to compile these nature trails. Two booklets in A1 format were made: 1) 2000 copies of booklet which introduce nature of Vormsi, LIFE-Nature project areas and Hosby nature trail; 2) 1000 copies of booklet which introduce Silma Nature Reserve, LIFE-Nature project and established nature trail in Saare village. Both booklets are attached to this final report.

First draft of Silma Nature trail was made in 2003. Hiking trail that was established in Saare village on Silma Nature Reserve is composed of two parts. First 1.5 km is a wooden trail through the reed bed. Wooden trail takes the hiker to a shade where he/she can observe birds without disturbing them on the small lagoon. Shade is built from reed and there are also information tables about birds that can be seen from the shade. More additional information tables about life in reed and its management was set up at the beginning of the trail as well as additional tables in the middle of the track about different plants, bird and animal species one can meet during the walk. The other part of created trail is 7 km long horse-riding track through different types of coastal landscapes. In this part of the trail activities and results of LIFE-Nature project are demonstrated: two information boards about coastal grasslands biota and management were installed.

Nature Trail in Vormsi was established in 2006. During winter 2005/06 small bird watching tower on Hosby meadow was built. There were installed two A0 format information boards on nature trail: 1) at the beginning of trail a board about natural conditions and management of coastal meadows; 2) close to bird watching tower was installed information board which introduces different coastal grassland birds, plants and also Natterjack Toad.

Extra information boards (3) in A1 format using Estonian Environmental Investment Centre contribution was installed in Rumpo, Diby and Saunja-Tagalahe project areas. There is also introduction and summary of Silma LIFE-Nature project. Natura 2000 and LIFE logos are also used on information boards. On all project sites were installed small information boards, together 31, with LIFE logos which includes text “European Union LIFE-Nature fund supports management of this meadow in frames of project LIFE2003NAT/EE/000181 “Restoration of Habitats of Endangered Species in Silma Nature Reserve””. Photos of section E activities are presented in Annex 5.

## F. Overall project operation and monitoring

### Action F1: Overall co-ordination and management of project actions

- ◆ Expected result: smooth and co-ordinated management of the project
- ◆ Responsible for implementing: State Nature Conservation Centre Hiiu-Lääne Region
- ◆ Timetable: November 2002 – October 2006

Project management group was nominated in November 2002:

- Ivar Ojaste – project manager
- Elle Puurmann – scientific co-ordinator
- Aili Kaljusaar – book-keeper

Due to restructuring Estonian conservation system – Silma Nature Reserve Administration and other similar governmental institutions were united in January 2006 into State Nature Conservation Centre – project manager changed twice during the project. In February 2006 Mr Ivar Ojaste proceed his work in State Nature Conservation Centre central office as a species conservation specialist. Ms Annika Liivak who worked since September 2003 in NGO Silma Wetland as local co-ordinator of Silma and Osmussaare project areas was working as project manager from February to September. Then she left to maternity leave and as project manager worked for last months Mr Renno Nellis. Other long term personnel were constant during the project.

Steering committee was nominated in November 2002. Members of steering committee were:

- Ülo Loorens – Director of Oru municipality government
- Ülo Kalm – Director of Noarootsi municipality government
- Olari Taal – member of Estonian Parliament, entrepreneur
- Kaja Lotman –director of State Nature Conservation Centre Hiiu-Lääne Region, former vice director of Matsalu Nature Reserve Administration
- Tiit Randla – specialist of State Nature Conservation Centre Hiiu-Lääne Region, former director of Silma Nature Reserve Administration
- Valeri Štšerbatõh – Estonian Environment Inspectorate, chief inspector of West-Estonian Department
- Riinu Rannap – Ministry of Environment department of nature protection,
- Ahto Kokk – veterinary, Vormsi.

Steering committee gathered three times during the project: 1) on 9<sup>th</sup> October 2003 were introduced main objectives and planned actions, 2) on 18<sup>th</sup> November 2004 were discussed about situation of project and project modification which was accepted by European Commission in 12<sup>th</sup> September 2005, 3) third steering committee meeting was planned to take place in February 2006 but because of changing of project manager and due to conservational reform in Estonia it was held out in 11<sup>th</sup> October 2006 and overview of results of LIFE-Nature project was presented.

Scientific coordinator Elle Puurmann did participate in Sweden in Öland in an international LIFE-Nature project seminar “Coastal meadows and Wetlands in the Agricultural Landscape of Öland” that took place in 10-13 May, 2005. Workshop for co-ordinators Life–Nature projects in Estonia was held on 7 May 2003 on Centre of Silma Nature Reserve. The aim of this workshop was to exchange experiences in coordinating LIFE-Nature projects, project implementation and reporting. A study-trip to a project area took place.

## **Action F2: Local co-ordination of the project activities on Silma and Osmussaare project sites**

- ◆ Expected results: smooth and co-ordinated management of the project on Silma and Osmussaare
- ◆ Responsible for implementing: NGO Silma Wetland
- ◆ Timetable: November 2002 – October 2006

Project activities on Silma and Osmussaare were organised by the local co-ordinator, which was appointed in November 2002 but because of delay of signing LIFE-Nature project contract was hired in September 2003. Local co-ordinator was until February 2006 Ms Annika Liivak and from February to September 2006 Mr Renno Nellis.

11.–12. June 2004 there was an international seminar “Management and protection of the coastal meadows” in Matsalu, where Annika Liivak made performance about LIFE-Nature project in Silma Nature Reserve. 17.–18. August 2004 an international workshop about Life-project’s co-operations took place in Finland Helsinki, where Annika Liivak participated. Annika Liivak did participate also in Sweden in Öland in an international Life-Nature project seminar “Coastal meadows and Wetlands in the Agricultural Landscape of Öland” that took place in 10-13 May, 2005.

## **Action F3: Local co-ordination of the project activities on Vormsi project site**

- ◆ Expected results: smooth and co-ordinated management of the project on Vormsi
- ◆ Responsible for implementing: NGO West Coastland
- ◆ Timetable: November 2002 – October 2006

Project activities on Vormsi Island were managed by the local co-ordinator, who was appointed in November 2002 and hired in September 2003. Local co-ordinator was Mr Meelis Mägi. Salary of local coordinator on Vormsi was co-financing of NGO West Coastland, in total 20 712 € .



## 5. Evaluation, conclusions and sustainability

### The project management, success and failures

Implementing of Silma LIFE-Nature project activities suffered slightly because of restructuring of Estonian conservation system – Silma Nature Reserve Administration and other similar governmental institutions were united in January 2006 into State Nature Conservation Centre (SNCC) – and therefore the project manager changed twice during the year 2006 and this induced also more than monthly delay submitting the final report to European Commission. Some delay to finish several actions was caused also by financial reasons: project last payment was loaned from Estonian Environmental Investment Centre and financing was decided quite late, in 13<sup>th</sup> December 2005, only 10 months before the end of the project. Although during last year were carried out several complicated actions and about 30% remained restoration works SNCC and project partners managed to fill all actions according to project application. Restoration actions were able to implement greatly due to accepted project modification for procurement of additional technique and beef cattle.

### Comparison against the project-objectives

Actions named in project application were enforced in needed scale.

### Environmental benefits, policy and legislation implications

Due to the project the maintenance of the favourable conservation status for coastal and semi-natural habitats of several priority species included in Annex I of the EU Birds Directive and Annex II of the Habitat Directive is secured in micro-scale. Data collected during action A1 was used to develop borders of Natura 2000 sites in Estonia and also to specify borders of Vormsi Landscape Reserve. All relevant data about species and habitats under conservation was used and will be used in future to compile management plans for Silma Nature Reserve, Vormsi and Osmussaare Landscape Reserves.

### Innovation, demonstration value

Created nature trail was used already before opening and after printing of booklets it increased even more. Thereby was improved exploitation of nature trails by local people, also people from city of Haapsalu. Silma Nature Reserve and Vormsi Landscape Reserve are actively also visited by foreign people and many nature tourists will visit created nature trails. Restored coastal meadows were demonstrated and will continue to demonstrate as successful management practice to intensify actions to secure favourable conservation status of semi-natural coastal grasslands in Estonia and also in Europe. Distribution and presenting of project study film “Balance Between Man and Nature” will improve to achieve this goal.

### Socio-economic effects

Thanks to LIFE-Nature project the Estonian traditional land-use recover from low level in local scale. Project improved situation in local socio-economic context. More than ten local farmers got great motivation to continue the maintenance of coastal grasslands and now they estimate the value of coastal grassland habitats of European importance. In further improvement of restoration and management of coastal grasslands there will benefit as employee more people than only farmers.

### Sustainability

After the end of LIFE-Nature project the paying of nature management subsidies in nature reserves and Natura 2000 areas to restore and maintain semi-natural habitats will continue. At the same time all the grasslands on the project sites are referred to Estonian Agricultural Register

*LIFE2003 NAT/EE/000181 Restoration of habitats of endangered species in Silma Nature Reserve*

and Information Board (PRIA). Through this institution EU's agricultural subsidies to manage agricultural lands will be paid. The auditors of Estonian Agricultural Register and Information Board are monitoring payment of these two subsidies do not cover (nature management subsidy and EU's agricultural subsidies). These subsidies are the first resources to continue the management of restored coastal grasslands. State Nature Conservation Centre has due to LIFE-Nature project contribution sufficient technique to manage the meadows also using national budget if subsidies are not paid or some farmers will stop their maintenance activities.

After LIFE conservation plan is presented in Annex 2 on thematic maps. There is shown management of restored coastal grasslands during next three years (2007-2009) but in view of established network of twelve active farmers who mainly maintain coastal grasslands there will be no serious problems seen in future for sequential maintenance work due to following: 1) nature management subsidies will be paid also in near future, 2) when payments of nature management subsidies halt then farmers can apply EU's agricultural subsidies from Estonian Agricultural Register and Information Board (these two subsidies do not overlap), 3) in near future coastal grasslands will be used onward as an alternative grasslands for hay-making and grazing because real agricultural lands will be mainly used for breeding of cereal and other crops; 4) during recent years Estonian citizens have been started to evaluate the eco-beef which has grown on natural grasslands. Although there is now only one meat industry putting this eco-meat on market but in near future people will probably consume more eco-products including eco-beef which has been grown for example on coastal meadows and then the motivation of cattle breeding and grazing of natural grasslands will improve even more.

#### Long term indicators of the project success

The monitoring of habitats and species on project sites will continue to evaluate the success of project activities during longer period than three years. Project success will be measured in future by collecting periodically distribution and multitude data about Birds Directive Annex I species on project sites but also species under protection by Estonian Nature Protection Law. Also will be periodically collect data about distribution of habitats listed in Annex II in Habitats Directive to measure succession and effects of coastal grassland management activities. Complementary academical research named under action A1 will continue and results of these researches will also show the success of project restoration and management activities. Those results will be presented in journals of academic publications on national or/and international level but also on project webpage <http://silma.life.ee>.