



LIFE (LIFE 13 ENV/LT/000189) project VivaGrass (V14060PKMH)

Contract no: 4-12/43

Assessment of semi-natural grassland management during the last 20 years in Lūmānda municipality

FINAL REPORT

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1. Introduction

Final report of contract between Estonian University of Life Sciences and Argo Peepson (contract no: 4-12/43, 15.04.2015) is giving an overview of the following completed services as of 28.02.2016:

1. Analysis of the implemented measures on grasslands' management in Estonia and in the former Lümada municipality during the last 20 years and compilation of recommendations for long-term management measures for semi-natural grasslands;
2. Analysis of conducted interviews with stakeholders (farmers, land-owners, nature conservation, tourism, politicians, planners etc.) on values of semi-natural grasslands and on management practices (last 20 years);
3. Analysis of changes in socio-economic parameters in former Lümada municipality;
4. Exploring how better promote values of semi-natural grasslands in the strategic documents (spatial plans, management plans etc.);
5. Presentation of a paper on "20 years of grassland management in the Vilsandi National Park, Saaremaa island, Estonia" at the meeting "Enhancing Economic Viability of Grasslands by Green Farming in Europe, International workshop Latvia 27-29 (31) May 2015.

2. Measures on grasslands' management in Estonia and in Lümada municipality during the last 20 years and recommendations for long-term management measures for semi-natural grasslands

2.1. Measures on grasslands' management in Estonia and in former Lümada municipality during the last 20 years

Measures on grasslands' management in whole Estonia

Semi-natural grasslands (e.g. alvars, wooded meadows, wooded pastures, coastal meadows) are the result of a centuries-long moderate human impact – mowing and grazing. Semi-natural habitats are very rich in biodiversity and they are threatened in Europe as well as in Estonia. In addition to biodiversity value, they have great value also in Estonian culture and landscape. Management of semi-natural grasslands encompasses centuries of work traditions of rural people, which are closely related to culture and heritage (Talvi, T. and Talvi, T., 2012). On semi-natural habitats there can be often found signs of previous human activity and landscape elements like stonewalls, pasture roads, old barns etc. which are all related to "sense of place" for rural population.

The area of semi-natural habitats has been decreased dramatically during the last century. At the beginning of 20th century, it is estimated that there were about 1 800 000 hectares of semi-natural habitats in Estonia. For now, only about 130 000 ha have been preserved, therefrom about 75 000 in protected areas (State Audit Office, 2015; EMoE, 2013). The most important reason for this is intensification of agriculture which has led to either cultivation or abandonment. About 60% of the grasslands have been overgrown with woods or shrubs,

20% have been cultivated and 5% have been affected by urbanisation (construction, infrastructure etc.). Also drainage systems created during Soviet period destroyed habitats and are still affecting the habitats (EMoE, 2014).

An estimated of at least 60 000 hectares of semi-natural habitats need to be preserved, of which at least 45 000 hectares need to be maintained regularly by the year 2020 and the remaining 15 000 ha by 2030, according to the Estonian Nature Conservation Development Plan 2020 (NCDP; EMoRA, 2015).

As of 2011, approximately 2 000 ha of alvars and only 700 ha of wooded meadows were maintained in Estonia, which is too small area to ensure the preservation of these habitat types. About 2 000 ha of dry and fresh meadows, 9 000 ha of coastal meadows and 7 000 ha of alluvial meadows were managed and about 1500 ha of wooded pastures regularly grazed (2010). By 2020, the areas of maintained habitats foreseen by the NDP are:

- wooded meadows at least 3 300 ha,
- alvars 7 700 ha,
- coastal meadows 10 800 ha,
- alluvial meadows 12 200 ha,
- wooded pastures 1 650 ha,
- dry and fresh meadows 6 290 (EMoE, 2012).

Semi-natural habitats are located on state land, unreformed land (the remaining land after land reform which will be formed as state-owned land), private land and municipal land. On state land under protection are located approximately 25 000 hectares of semi-natural habitats, in addition about 12 000 ha of semi-natural habitats on unreformed land, which makes about half of the total semi-natural habitats under protection. Some of the state land is rented out for use by private owners. Approx. 38 000 hectares of semi-natural habitats are located on private land. Conservation works on protected areas are divided between two entities – the Environmental Board and State Forest Management Centre (State Audit Office, 2015).

As the production of the semi-natural habitats is lower compared to cultivated grasslands and management of these habitats is more difficult and expensive, management of these habitats would be very questionable without financial support, because the income of managers of those habitats would be insufficient without the support. For example, in 2007–2013, the share of support for management of semi-natural habitats formed 25–41% from the net profit of the farms (ARC, 2015). Therefore, different support measures for management and/or restoration of semi-natural habitats are applied in Estonia since 1995:

- In **1995**, in Matsalu National Park, with help of WWF Sweden the first actions were taken to support farmers (beef cows acquisition and payments for management per „animal day“).
- In **2001–2003** agri-environment pilot project (national funding, Ministry of Agriculture) was launched in 3 municipalities in Estonia: Lümada and Kihelkonna municipalities in Saaremaa and Põlva municipality in Jõgeva county. Budget for the whole pilot

project (included several activities, also environmentally friendly management of the whole farm, restoration of stonewalls and support for restoration of agricultural land (incl. semi-natural habitats)) was about 160 000 euros. There were 39 support applicants in Lümända/Kihelkonna, but only a few applicants (and hectares) for restoration of semi-natural habitats.

- Nature conservation support is paid to farmers and land managers by the state since **2001**. It is targeted to *restoration* of semi-natural habitats in protected areas and *management* of semi-natural habitats in protected areas *outside* Natura 2000 (Natura 2000 from year 2004) areas. Support was paid from the budget of the Ministry of Environment through administrations of protected areas and through county environmental boards. Whole budget was 1.2 million euros/year. For example, 17 500 ha of semi-natural habitats were managed, 1900 ha restored and 165 000 m of fences created by 2005 (Estonian Ministry of Environment).
- During RDP **2004–2006** management of semi-natural habitats was supported indirectly through support for areas with environmental restrictions (Natura 2000).
- In **2007**, support for maintenance of semi-natural habitats was implemented from Estonian Rural Development Plan 2007–2013 agri-environment scheme.
- Support for maintenance of semi-natural habitats continues during RDP **2014–2020**.

The overall objective of the **RDP measure** was to ensure the favourable status of semi-natural habitats located in Natura 2000 areas. Budget for the measure amounted for about 26.8 million EUR. During programming period 2007–2013 whole budget of Estonian RDP was about 935 million EUR, of which Axis 2 budget was 334 million euros. Thus budget for maintenance of semi-natural habitats formed <10% of total Axis 2 measures.

There were two support rates used: for the maintenance of a wooded meadow 238 EUR/ha/year and for all other semi-natural habitats 185 EUR/ha/year (EMoA, 2007). There were more than 870 beneficiaries who managed more than 24 000 hectares of semi-natural habitats. Management support was applied for managing of about 1/3 of all semi-natural habitats in Natura 2000 areas. However, the number of beneficiaries as well as area managed (2014) remained below the targets set – 1500 beneficiaries and 35 000 hectares respectively (ARC, 2015), most probably because of low support rate and too demanding management requirements in relation to support rate per hectare.

During 2007–2013 also EU structural funds were used for maintenance of semi-natural habitats. European Regional Development Fund (ERDF) investments were used for establishment and maintenance of nature conservation infrastructure in protected areas, renovation of the infrastructure which creates possibilities for visiting natural objects of protected areas, restoration of habitats on protected areas and acquisition of herds required for preservation of habitats.

ERDF funded biodiversity and landscape preservation during the period 2007–2013 with ca 22 million euros. Support included broad spectre of activities from drawing up of management and action plans, development of infrastructure, but also habitat restoration and livestock acquisition for management of habitats. Budget included also other activities

such as control of alien species, restoring and reconstruction of protected parks and reconstruction of visitor infrastructure (EMoE, 2014).

In addition, EU LIFE Nature programme funds are used in Estonia for implementation of several projects related mainly to restoration of semi-natural habitats on Natura 2000 areas. During 2007–2013 in total of about 41 million euros were directed to conservation of semi-natural habitats from the state budget and EU funds. From the entire support aimed at the maintenance of semi-natural habitats, the highest share of all finances forms EAFRD. During 2007–2013 support of EAFRD was about two times higher compared to all other sources together.

Overall objective of the new RDP 2014–2020 agri-environment-climate measure “*Support for the maintenance of semi-natural habitats*” is to improve the status of semi-natural habitats and associated species, improve the quality of maintenance, increase the area of habitats managed by animals, maintain the status of species related to semi-natural habitats and maintain and enhance biodiversity and landscape diversity. Budget for the measure foreseen is about 40.2 million EUR. In the current programming period, the payment rates are more differentiated, depending on type of the habitat and also management type (mowing or pasturing). Payment rates are from 85 euro/ha/year (mowing of other types) up to 450 euro/ha/year for mowing of wooded meadows. If habitat complies with CAP Pillar I support requirements, it is possible to apply *additionally* also for direct support on that land – this was not possible during 2007–2013 period. Target set for 2020 is to support management of 40 000 hectares of semi-natural habitats (EMoRA, 2015).

Measures and experiences on management of grasslands in the former Lümada municipality

Management of grasslands in the former Lümada municipality has been carried out and implemented following the time-frame described above. However, some additional remarks are described as follows.

In the former Lümada municipality there are 1990 hectares of semi-natural habitats (2014), the highest share of the habitats form coastal meadows (34%), alvars (28%) and boreo-nemoral grasslands (17%, Figure 1). About 40% of all habitats (about 790 hectares) were managed by 2014 (Figure 2). When compared to 2008 (about 170 hectares), the managed area has been increased almost 5 times. Decline compared to the year 2012 has been most probably related to RDP support measures (5-years commitments) of some big land user. The area restored has been about 40 hectares during recent years.

Areas are grazed mainly by beef cattle (Aberdeen Angus, Hereford, Highland cattle), but also sheep. Only a few farmers breed horses.

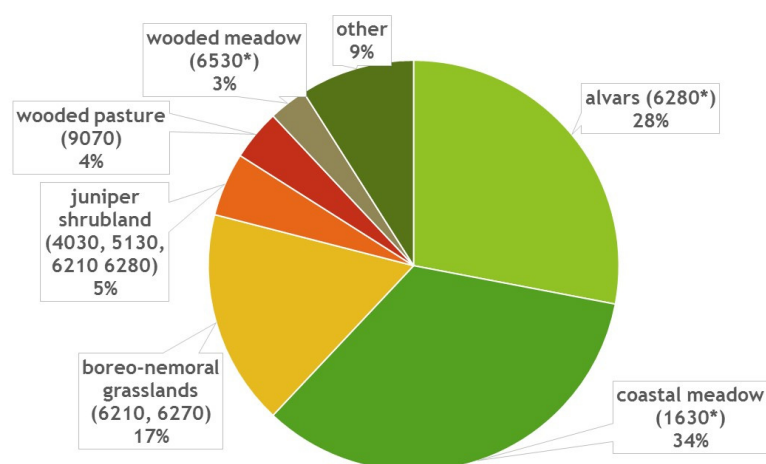


Figure 1. Types of semi-natural habitats present in Lümada municipality. Source: Environmental Board (2015)

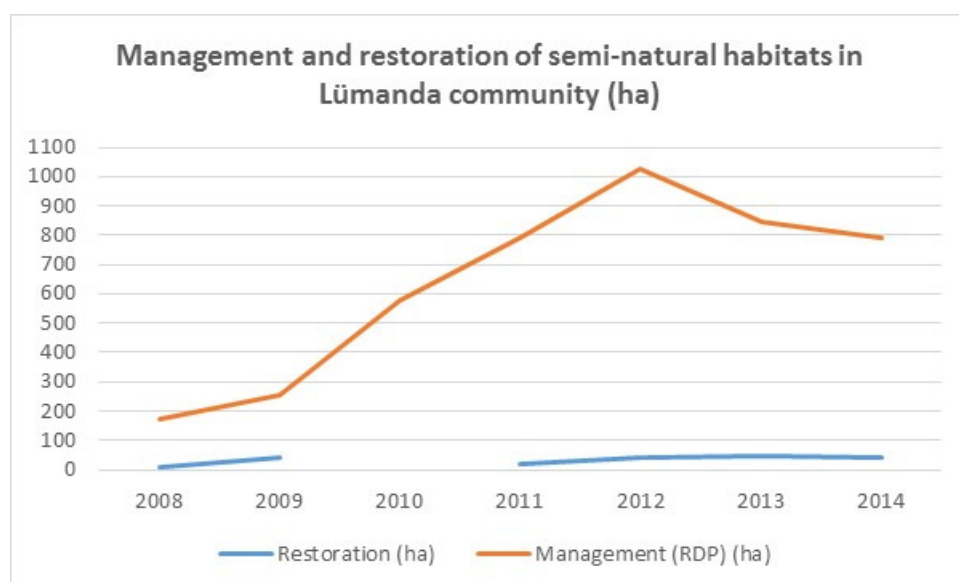


Figure 2. Management and restoration of semi-natural habitats in Lümada community, 2008 – 2014. Source: Environmental Board (2015)

During 2007–2013 programming period, EU structural funds (through Environmental Investment Centre) were used for several projects targeted at maintenance of semi-natural habitats, e.g. NGO Laherand for habitats' management in Riksu (19 154 euros) and NGO Ökoabi for preservation of semi-natural habitats in Vilsandi National Park (100 917 euros).

There are some bigger agricultural enterprises and land managers active in Lümada municipality, mostly specialized on sheep production and managing several hundreds of hectares of agricultural land with up to over 1000 sheep. For example, since 2008 Saaremaa Ecovillage farm is managing up to 300 ha of coastal pastures on Vilsandi island. There are also other farmers (e.g. Endel Raun) managing large areas of semi-natural habitats, especially coastal meadows.

Other initiatives in former Lümända municipality include work camps organised by Estonian Fund for Nature and Environmental Board for restoration of semi-natural habitats (cutting junipers etc.). Work camps are also in Viidumäe Nature Reserve (restoration and mowing of wooded meadows).

Impacts of the measures

According to the Mid-Term Evaluation of Estonian RDP 2007–2013 (Ernst & Young, 2010) RDP measure “Support for the maintenance of semi-natural habitats” has been successful and was fulfilling its objectives (the measure helps to maintain biodiversity and landscape diversity and to ensure the continuous management of the areas). Authors note that the support only comprises Natura 2000 areas although there are also valuable semi-natural habitats outside the Natura 2000 network.

Agricultural Research Centre (ARC) has evaluated implementation of the semi-natural habitats’ support measure of the ERDP, including economic indicators. Evaluation shows, that support is very important for farmers’ income and large areas of these habitats would not be managed without support as the yield of semi-natural grassland is much lower than yield of cultural grasslands, there are also several restrictions on mowing timing, animal density etc.

As specific monitoring of habitats and species is not carried out for the impact evaluation, only data from indirect sources (such as the state environmental monitoring programme) are used (ARC, 2015). Thus it is not possible to evaluate direct impacts of support measures for semi-natural habitats. However, by the 2015 evaluation report (for the year 2014) the maintenance requirements of the measure (for example later mowing, removal of cut grass) are helping to ensure the characteristic structure and function of the habitats and favourable conditions for the species (Ernst & Young, 2010). But despite of the increase of the managed area, some decline in the abundance of some species related to semi-natural habitats (e.g. Natterjack Toad) has been registered due to inappropriate or inadequate management. The state of some types of the habitats (e.g. coastal and floodplain meadows) has improved in recent years thanks to management and restoration works, but condition of wooded meadows and alvars is still not satisfactory (ARC, 2015).

2.2. Recommendations for long-term management measures for semi-natural grasslands

For safeguarding long-term management of semi-natural habitats, several measures and actions need to be put in force in complex. Every measure is not important as such, but long-term sustainability can only be reached, if complex of measures and activities will be implemented. The following main recommendations are based on Action Plan of Semi-Natural Habitats (EMoE, 2013), National Audit Office (NAO, 2015) and on information and recommendations collected from stakeholders.

1. Socio-economic trends and issues

Socio-economic situation can be described through concept of *rural vitality* which is a complex entity of social, cultural and economic dimensions that cover employment, promotion of competitive production, keeping socio-cultural heritage and traditions (Cooper *et al.*, 2009; EUoLS, 2012). Rural vitality is not only related to agriculture, but also other sectors like tourism. Due to diversification of socio-economic structure in rural areas, development of these areas is affected by complex of policies like RDP, regional policy, spatial planning, social services, fiscal policies and by other (external) factors. Management of semi-natural habitats can be beneficial for both biodiversity and local economy through production of beef cattle and sheep on semi-natural grasslands and nature tourism related to these areas.

One of the most crucial issues in the former Lümada municipality is **population decline** and **aging**. According to the analysis of Estonian University of Life Sciences, depopulation risk settlements include 36% of Lümada area while in Estonia general it is 20% and on protected areas 30%. During 2000–2011, depopulation in Lümada area was higher compared to Saaremaa and Estonia in general. Aging is characterised also by the fact that average age of randomly selected farmers (7) for interviews (see page 16) was about 60 years.

Creation of jobs (not only seasonal) and **investments into infrastructure** (internet, roads) are therefore essential for sustainability of the area. As creation of jobs and infrastructure is related to **increase of residential areas**, it should be carefully planned to avoid conflicts with nature objectives, incl. semi-natural habitats, and also semi-natural areas with high potential for restoration should be identified.

2. Consistent management of areas in use and management quality

Consistent management of semi-natural habitats can be currently ensured only through EU and national financial support. For the period 2014–2020 it is planned to invest from state budget, EU structural funds (ERDF and Cohesion Fund (CF)) and RDP measures about 65 million euros for restoration and management of semi-natural habitats (State Audit Office, 2015). As during 2014–2020 programming period it is possible to receive also CAP Pillar I support on the land supported from RDP measures, 12 million euros will be available in addition by the estimations of Estonian Ministry of Rural Affairs (Figure 3). For the current period the share of EAFRD will be the highest (about 50% of overall expenditure), but also the role of CF will be quite essential (21.4 million euros).

Additional finances should be searched also through e.g. LIFE programme, which is mainly targeted at restoration of habitats but also contributing substantially to the increase of public awareness about semi-natural habitats.

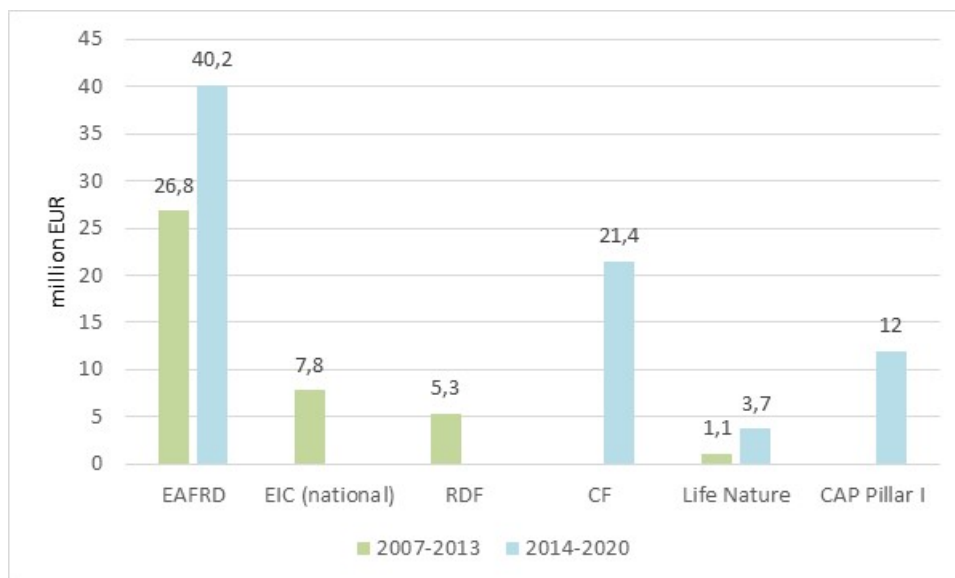


Figure 3. Financing of support for protection of semi-natural habitats in Estonia 2007–2013 and planned expenditure for 2014–2020. Source: State Audit Office, 2015; Estonian Ministry of Rural Affairs, 2015

As National Audit Office (NAO, 2015) is of the opinion that maintenance and restoration of semi-natural habitats is not effective in Estonia, recommendations made by NAO should be taken into account when planning future management measures. Main observations of NAO include:

- area that was actually maintained, was 30% less than planned for 2013 and there are also important problems related to the quality of maintenance of the habitats;
- about 25% of the semi-natural habitats restored with different support schemes from 2007–2012 have not been maintained since restoration, or the quality of maintenance is not meeting the requirements;

Main reasons for unsuccessful maintenance and restoration of semi-natural habitats are low motivation of support measures (low support rate per hectare in relation to management requirements), division of conservation activities in protected areas between different state agencies (e.g. Environmental Board, State Forest Management Centre).

- Situation when for farmers it is **more favourable to apply for forestry support** (semi-natural habitat is overgrown with scrub) should be **avoided**, in order to not “tempt” farmers to abandon the semi-natural habitat.
- It is really important to **assure necessary maintenance quality** of the habitats. According to the data of NAO, about 50% of areas inspected do not comply with the requirements (about 10% of the recipients of the support for management of semi-natural habitats have been inspected). For the habitats, **mixed grazing** of different species (beef cattle, sheep) is favourable, but difficult to organise for several reasons (support requirements, organic-non-organic, need for cooperation of farmers etc.).
- In addition, **support rates should be in balance with the requirements**. Stricter quality requirements require also higher support rates; otherwise farmers are not interested to apply for support and the set objectives will not be reached. It is also important to follow traditional techniques when managing semi-natural habitats, e.g.

coastal and flooded meadows must be kept free of reed and bushes etc. Mechanisms for excluding of different “schemes” developed *only* for applying subsidies without real farming should be implemented. The real manager should receive the support, not the owner or the one who rents the land. It should be also noted, that 1/3 of Lümada area is already under protection, therefore implementation of any (additional) restriction must be considered very carefully.

- Beside management support, also **investments into the development of infrastructure and equipment** are needed (machinery, sheds for animals and hay, fences, access roads, bridges etc.).

3. Ecosystem services and public goods approach¹

Ecosystem services and *public goods* approach should be more widely introduced. This could be way of development which aims to relate products (meat, milk, wool, hay) and services (tourism, nature education; use of hay in boiler plants and biogas plants) with the environmental and social values of the habitats and allow to ensure profitability of farming in long-term even *without* subsidies. Also innovative marketing solutions and tourism-related activities should be further developed.

Also Lääne-Saare municipality sees currently semi-natural habitats as **value for local employment** (management/restoration of semi-natural habitats) and **tourism** (nice landscape, different related services).

There are already innovative and successful examples like NGO Liivimaa Lihaveis (Beef cattle of Livonia) which is a farmers NGO established in 2010. Liivimaa Lihaveis is a non-profit organisation led by producers of Angus and Hereford beef cattle from different Estonian regions. Liivimaa Lihaveis is actively promoting consumption of grass-fed beef and environmental benefits related to this, e.g. management of valuable semi-natural grasslands (www.liivimaalihaveis.ee). NGO is dealing with whole value chain (production-processing-marketing, including cooperation with restaurants) of grass-fed beef production. Most of the grasslands they use are semi-natural habitats.

4. Awareness and training

More attention should be paid to increasing awareness about semi-natural habitats and their values and importance. This includes using of various information materials, social media and trainings for farmers. Communication should be targeted not only at land-owners and managers, but also at wider public, tourists, local people, schools etc.

In addition to farmers, a lot more attention should be put on training of agricultural advisors. Training of farmers is especially important to ensure the proper management and quality of maintenance. Better awareness also ensures that semi-natural habitats are more valued

¹ See for example: <http://www.openness-project.eu/sites/default/files/SP-Public-Goods.pdf>;
<http://pegasus.ieep.eu/resources-list>.

which in turn leads to better promotion and inclusion of values of semi-natural grasslands into the strategic documents (spatial plans, management plans etc.) as these include only aspects important for the society.

All kind of **community activities** for restoration and management of semi-natural habitats should be initiated and encouraged.

5. Land ownership-related issues

About 50% of the Estonian semi-natural habitats on state land have not been maintained and state has not organised the conservation work in areas where there are no interested maintainers or there was not possible to rent out the land to possible maintainers (National Audit Office, 2015; EMOE, 2013). Most valuable semi-natural habitats currently on state land should remain in state ownership.

On private land, the state should implement the possibility (foreseen by the Nature Conservation Act) to organise management for the owner, if the owner is not able or does not wish to perform the work. The state should also be more active in informing farmers and landowners about the habitats (both private and state land) and possibilities to find financing, cooperation possibilities etc.

It is difficult to get contact with landowners, especially those abroad. Some of the land-owners are not willing to rent the land, because they are waiting for more favourable time for selling the land.

3. Analysis of conducted interviews with stakeholders (farmers, land-owners, nature conservation, tourism, politicians, planners etc.) on values of semi-natural grasslands and on management practices

3.1. Methodology

In total, 15 interviews on values of semi-natural grasslands and on management practices in last 20 years were conducted in August-September 2015 with different stakeholders of the former Lümada municipality: farmers and land-owners; administration (local government representatives, planners, environmentalists); local people; representatives of tourism sector (Table 1). For interviews a special semi-structured questionnaire was developed in co-operation with Estonian University of Life Sciences (separate questionnaires for farmers/land-owners and other stakeholders). In addition, short questionnaire was left to the accommodation facilities for filling-in by guests. Marys Toomse, A BSc student of Estonian University of Life Sciences was involved for distribution of questionnaires and assisting. In total, 42 questionnaires were received back for further analysis.

Table 1. Number of stakeholder semi-structured interviews and filled-in questionnaires by tourists

No of stakeholder semi-structured interviews:	
farmers and land-owners	7
administration	3
local people	3
representatives of tourism sector	2
Total:	15
Questionnaire for visitors:	42

Interviewees (farmers, landowners, local people) were selected randomly, other stakeholder groups were selected according to the prepared interview plan to be able to involve all the relevant stakeholders. Most of emphasis was put on farmers and land-owners when selecting stakeholders, in order to collect information on real practical experiences in management of semi-natural habitats.

Questions in questionnaires covered themes like importance/valorisation of semi-natural habitats, main obstacles and motivators for management of these habitats, people's opinions about the values of the habitats, management practices and future prospects about the management possibilities of semi-natural habitats.

Questionnaire for farmers included specific questions about management of semi-natural habitats, main obstacles and drivers and information about most important changes in management of these habitats during last 15-20 years. Questionnaires are provided in Annex 2.

All answers of the interviews and questionnaires were entered into database. Answers were analysed in detail and used for completing other tasks foreseen (to present and analyse the implemented measures on management of grasslands, analysing socio-economic parameters, exploring how better promote values of semi-natural grasslands in the strategic documents (spatial plans, management plans etc.).

3.2. Results

3.2.1. Questionnaires for visitors

Questionnaires were left to the accommodation facilities of former Lümada municipality during summer 2015 for filling-in by guests, distributed and collected by the BSc student of Estonian University of Life Sciences. In total 42 questionnaires were received back for analysis.

55% of respondents were male, 45% female, average age of respondents was 43.3 years. 95% of respondents were local tourists from Estonia (therefrom about 40% from Saaremaa), other 5% from Finland, but have summerhouse in Saaremaa and thus also familiar with local culture, nature and landscapes.

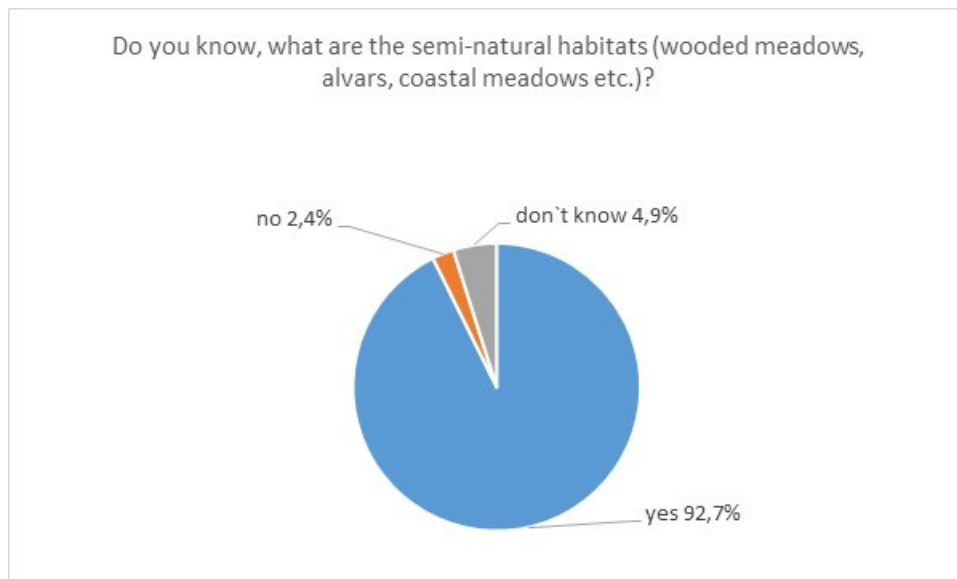


Figure 4. Tourists' knowledge about semi-natural habitats, (n=42)

Very high share, about 93% of respondents stated that they know what semi-natural habitats (wooded meadows, alvars, coastal meadows etc.) are and only about 2% does not know what these are, another about 5% are not sure or do not know (Figure 4). These results show high knowledge of tourists about semi-natural habitats which is also supported by the fact that more than 80% of them have actually visited some of the habitats (taking pictures, walking, looking for orchids, learned biota of the habitat, taking sunbath on coastal meadow etc.). About 14% do not know if they have been on some semi-natural habitat (Figure 5).

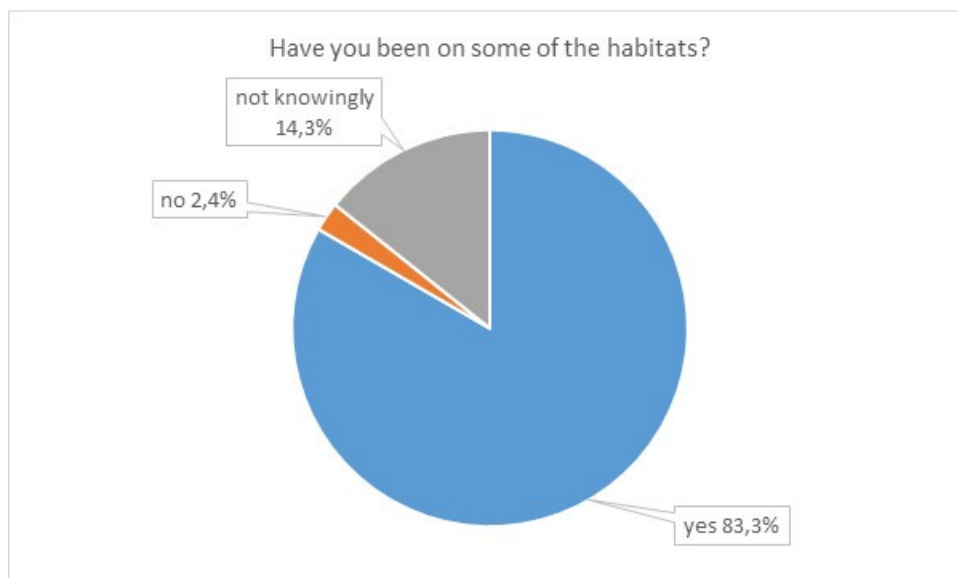


Figure 5. Answers to the question „Have you been on some of the habitats?“, (n=42)

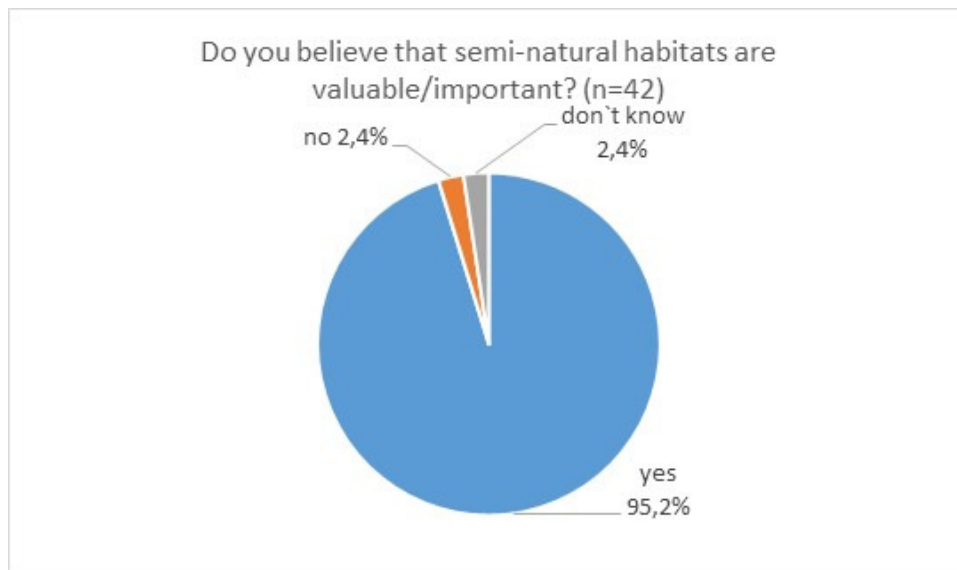


Figure 6. Valorisation of semi-natural habitats, (n=42)

Almost all respondents (40; 95.2%, Figure 6) believe that semi-natural habitats are valuable/important, one person did not answer to that question and for one respondent semi-natural habitats are not important (without further explanation). Semi-natural habitats are valuable/important for respondents mainly because of (bio)diversity, (rare) species and balance of nature. Several respondents link the importance/value with management (avoidance of overgrowing with shrubs and bushes) and culture/heritage. Some of the respondents pointed out also beauty and peculiarity of the habitats. About 74% of respondents think that semi-natural habitats have a special value for local people (Figure 7), but about 21% are not sure or were not able to answer that question.

Only one respondent did not know, if semi-natural habitats are characteristic to Saaremaa landscapes, all others feel that semi-natural habitats are quite (46.3%) or very characteristic (51.2%).

To conclude, the knowledge about values of semi-natural habitats is very high, people are familiar with the habitats and their value/importance. This can partly be explained by the fact that high share of the respondents (40%) were from Saaremaa.

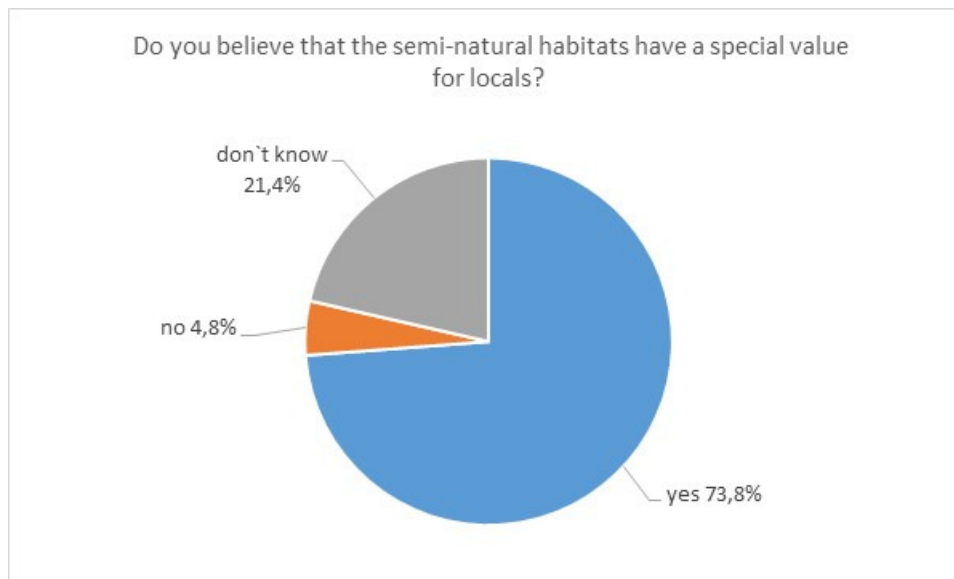


Figure 7. Answers to the question „Do you believe that the semi-natural habitats have a special value for locals?“, (n=42)

Only one respondent did not know if the semi-natural habitats need to be managed, all others found it necessary. More than 90% feel also that the management of the habitats should be supported by national and European Union subsidies as values related to semi-natural habitats are not interest of private persons or farmers, but of all society and therefore use of public money is perfectly justified. Many respondents also pointed out that land users might not have resources (finances, machinery and labour) available for management.

Responsible for the management should be primarily the land owner (or land owner together with state or state agency and local government). Somewhat surprisingly, quite many respondents see that local government should be responsible for organising management and/or supporting it.

At the same time, respondents had difficulties to evaluate what impact the presence of semi-natural habitats has on land prices: 45% of respondents was not able to answer that question. About 50% (Figure 8) of all respondents felt that semi-natural habitats probably increase land prices and only one person felt that land price would rather decrease. It should be noted, that increase of land prices is only the case if semi-natural habitats are managed and not overgrown with shrub and bushes.

Maintenance of semi-natural habitats is by the opinion of respondents most positively influenced by scientists and nature protection activists, followed by state. Negative influence have above all agricultural producers, most probably it is seen as consequence of land abandonment. By the opinion of respondents, local government has the least influence in the maintenance of semi-natural habitats.

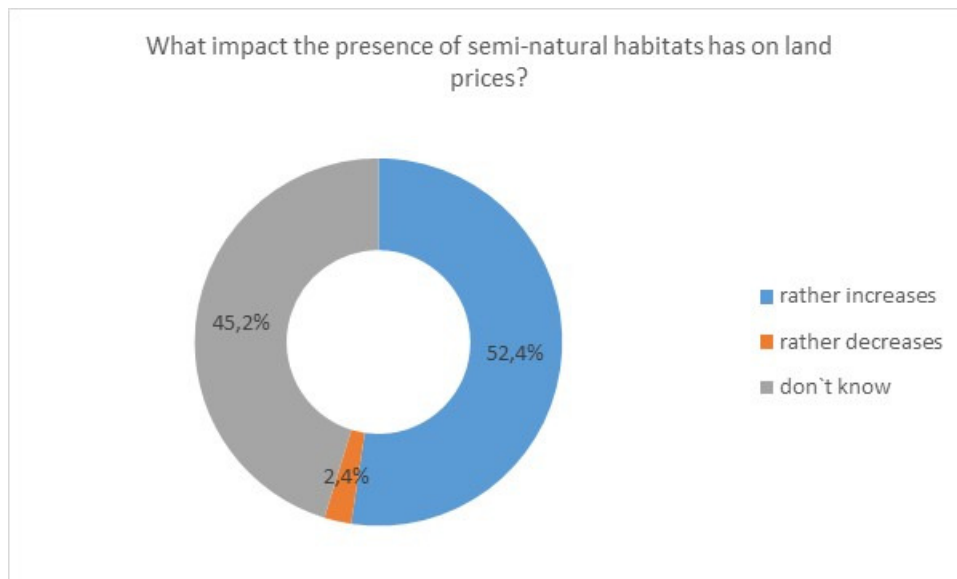


Figure 8. Impact of presence of semi-natural habitats on land prices, (n=42)

3.2.2. Interviews with farmers and land-owners

Interviews with randomly selected farmers and land-owners (n=7) were conducted in August-September 2015. Questions for farmers include among other also specific information about semi-natural habitats they own or rent, management of semi-natural habitats, main obstacles and drivers and information about most important changes in management of these habitats during last 15-20 years.

Average age of the farmers was 58.4 years (5 male, 2 female), all respondents were with secondary/secondary-specialised education and had in average 24.4 years of experience in agriculture, managing in average 20 ha of semi-natural grasslands (mostly alvars, coastal meadows and wooded meadows; in total from under 10 ha up to over 200 ha). Total agricultural land use of the farmers was from ~10 ha up to 800 ha. 4 farmers were operating on land under nature protection (Natura 2000, nature reserve), but location on protected area does not hinder (or hinders only slightly) their daily activities.

Most of the farmers were specialised in sheep production (herds with less than 20 up to 1100 sheep), fewer in beef production (herds with under 10 up to 30) or breeding both sheep and beef. Several of interviewed farmers are organic farmers.

All the farmers consider semi-natural habitats important/valuable and also find that these habitats are very valuable or slightly valuable for local people. Importance/value is related to landscape maintenance, it means farmers see that semi-natural habitat is important/valuable when it is managed. All farmers also feel that semi-natural habitats are very much or pretty characteristic for Saaremaa and agree that these habitats are important for tourism. Most of the farmers manage (mowing or grazing) their semi-natural habitat regularly, one of them discontinued less than 5 years ago because of too difficult management requirements related to ERDP semi-natural habitats' management support.

One farmer discontinued management partly on wooded meadow, because mowing was not possible anymore as the meadow was dug up by wild boars.

Farmers were asked about **most important changes in management of semi-natural grasslands in the last 15 years**. To conclude, following aspects were mentioned:

1) Different support schemes (esp. RDP) introduced have been very important to be able to manage semi-natural habitats. For most of the farmers, continuation would be not possible without support or will only be possible in much smaller extent.

2) Bigger land users have purchased/leased the semi-natural grasslands of smaller farms/farmers that cannot or are not able to manage.

There are few really big farms/agricultural enterprises using more than 1000 hectares of agricultural land, including several hundreds of hectares of semi-natural grasslands. At the same time bigger farms/agricultural enterprises complain, that sometimes it is not possible to rent land as there are land-owners (especially those living abroad) who are not willing to rent the land as they are afraid that they lose their property (through some “schemes”, nationalisation etc.). At the same time, they are often not able or willing to manage the land.

3) Higher share of habitats (compared to 90`s) are managed, visual appearance of landscapes is thus substantially improved, especially on coast where large areas of meadows dropped out of use after collapse of Soviet regime in 1991.

4) Aging of farmers, lack of successors.

Many farmers complain that they do not have any successors after they quit farming as young people move outside Saaremaa to bigger cities (Tallinn, Pärnu) or even abroad and are not interested in farming.

5) Population of wild boars has increased significantly, they dug up large areas of grasslands and after that it is not possible to continue the management (mowing) of these grasslands.

Population of wild boars is increasing constantly in Saaremaa causing problems for farmers already for years. Farmers do hope that authorities will take proper action in order to control wild boar population in Saaremaa. However, recent decisions and actions taken concerning swine fever will most probably change the situation more favourable to farmers.

There have been problems in recent years also with wolves, especially for sheep breeders who bear the damage caused by attacks of wolves.

Most important **factors motivating to manage semi-natural habitats** are:

- 1) financial support,
- 2) products (e.g. hay),
- 3) landscape beauty, biodiversity.

Less important factors include: 1) habits; 2) moral obligation/mission; environmental knowledge 3) Reputation of the farm/enterprise; maintaining village life.

Most important **factors hampering management of semi-natural management** are:

- 1) costs are higher than income,
- 2) bureaucracy (related to application for management support), high age;
- 3) lack of successors.

Pasturing, hay and other products, subsidies and managed landscape were mentioned as profits related to management of semi-natural habitats by all farmers. Only few farmers mentioned in addition quality of life and diversity of nature.

All farmers managing continuously semi-natural habitats have also applied support from RDP (Agricultural Registers and Information Board, ARIB) and/or through national financing (Environmental Board). For all the farmers support is very or pretty important for continuation. For 4 farmers (57.1%) support forms 10-25% of the overall farm income, for 2 farmers (28.6%) 5-10% and for one farmer less than 5% (Figure 9).

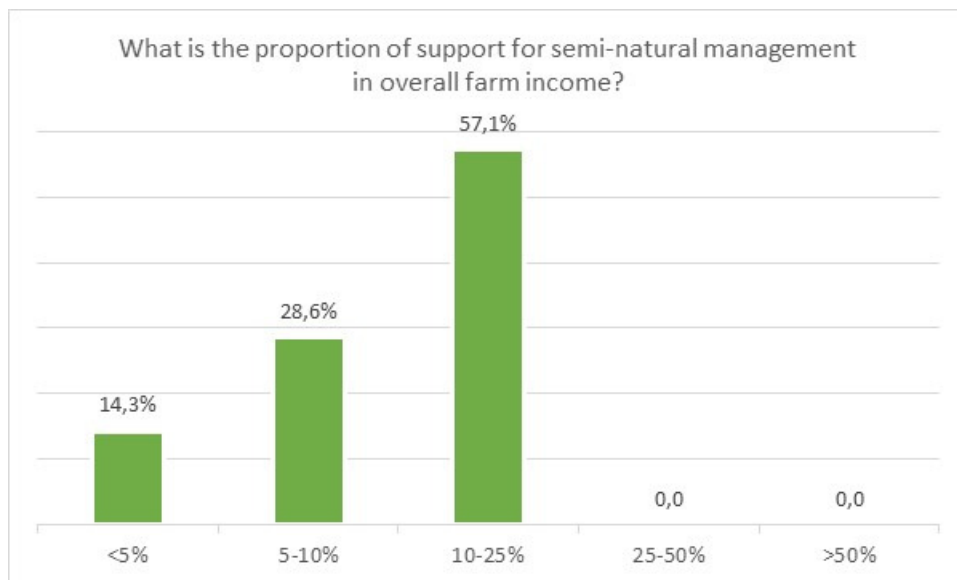


Figure 9. Proportion of support for semi-natural management in overall farm income, (n=7)

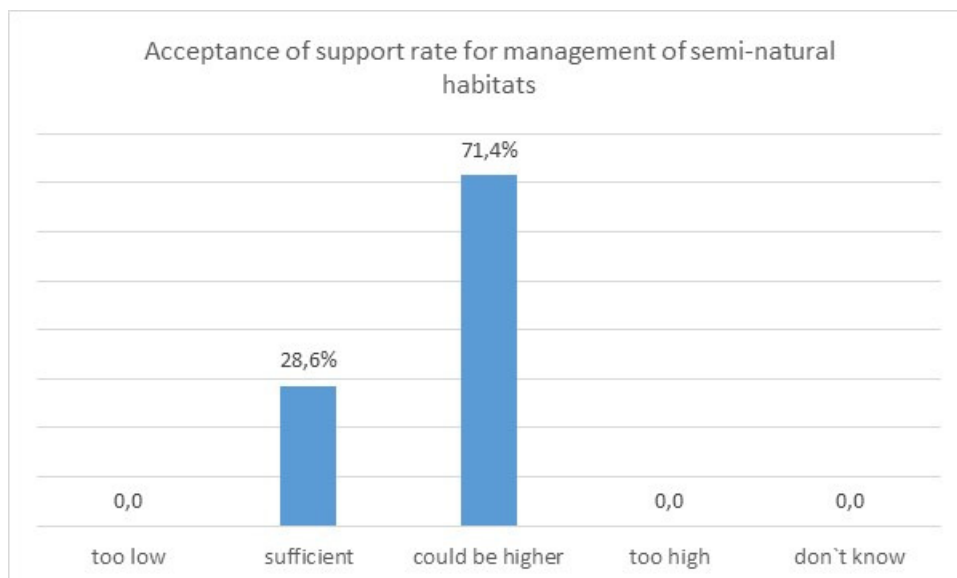


Figure 10. Acceptance of support rate for management of semi-natural habitats, (n=7)

None of the farmers considers support rate for management of semi-natural habitats too low or too high, highest share of farmers (5, 71.4%) feels that support rate could be higher while for 2 farmers (28,6%; Figure 10) support rate is sufficient.

Sufficient support rate could be for farmers for management 150-250 (500 euro/ha for wooded meadow) euro/ha and for restoration 300-500 euro/ha.

2 farmers (28.6%) would not continue management without financial support while 4 farmers (57.1%) would continue in smaller extent. One farmer could not answer this question. None of the farmers would continue management in the same extent (Figure 11).

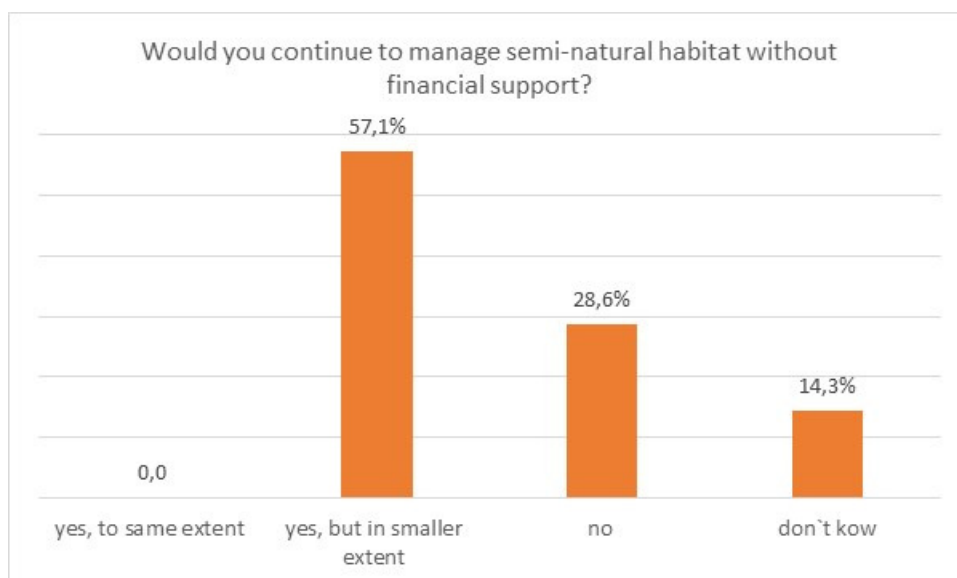


Figure 11. Continuation of management of semi-natural habitats without financial support, (n=7)

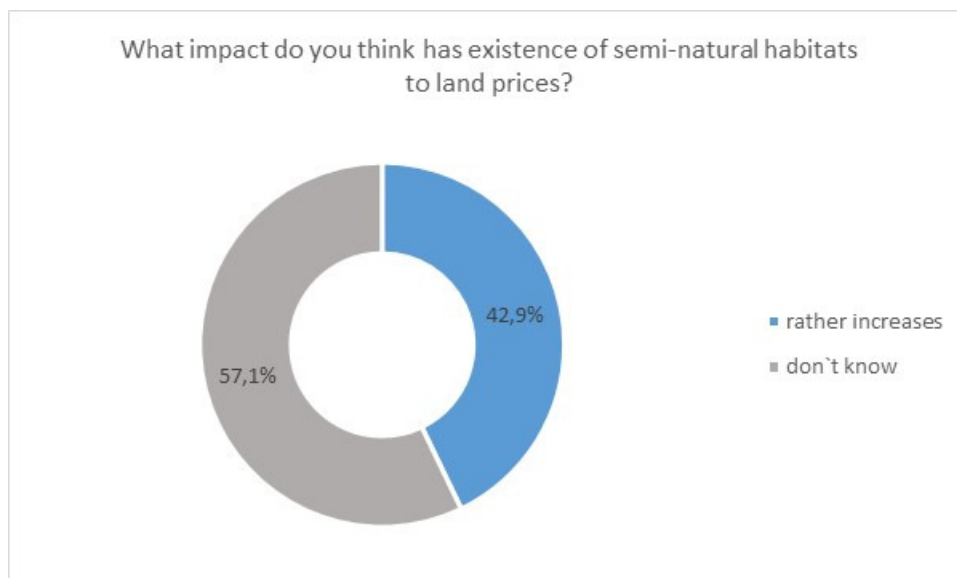


Figure 32. Impact of presence of semi-natural habitats on land prices, (n=7)

57.1% (4 farmers) did not have any opinion how presence of semi-natural habitats influences land prices, 3 (42,9%) farmers thought that presence of semi-natural habitats rather increases land prices. This result shows that for farmers, this question is not straightforward, but is more complex and depends on several factors (management, ownership, location etc.).

Farmers were asked also how people in neighbourhood feel about management of semi-natural habitats. They pointed out, that opinion is positive in general, people are happy with managed landscapes. From the negative side, occurrence of “entrepreneurs” who are only interested in support and not real farming was pointed out.

Farmers were asked to assess influence of different parties (state, local government, farmers, land owners, scientists, environmentalists, agricultural advisors) upon management of semi-natural grasslands. Farmers see themselves as strongly positive party upon management of semi-natural habitats, land owners, state and agricultural advisors as positive; environmentalists and local government as positive rather than negative. Scientists have no impact upon management of semi-natural habitats by the opinion of interviewed farmers.

Management of semi-natural habitats in long-term is only possible to safeguard through bringing young people to the countryside and increasing the interest in agriculture. This, of course, can only be done through substantial socio-political decisions and efforts. Farmers feel also that it is very important to establish clear link between agricultural production and available support measures to avoid creation of “schemes” only directed to receive EU support and not real farming.

3.2.3. Interviews with other stakeholders

Interviews with other stakeholders (8 in total; administration (local government representatives, planners, environmentalists), local people and representatives of tourism sector) were conducted in August-September 2015. The main aim of the interviews was to collect different views on issues related to management of semi-natural habitats and additional information.

Most of the results (especially about values, characteristics and importance) are consistent with those of farmers, but there are also differences which are summarised as follows.

For other stakeholders, most important **factors that could motivate management of semi-natural habitats** are significantly different from farmers' opinions:

- 1) beauty of landscapes, maintaining village life, financial support;
- 2) reputation of the farm/enterprise;
- 3) biodiversity, products (e.g. hay).

At the same time most important hindering factors of management of semi-natural habitats were quite similar to those opinions of farmers.

50% (4) of the stakeholders were of the opinion that occurrence of semi-natural habitats should increase the price of the land while 37.5% (3) did not know the answer. One person (local resident) believed that semi-natural habitats will rather decrease the land price.

All of the respondents were of the opinion that management of semi-natural habitats should be supported from national and EU support.

For safeguarding management of semi-natural habitats in long term, it is important to support animal husbandry, support measures should be long-term, not project based. Long-term managers of state land should have possibility to buy or rent the land with more favourable price. It should be also possible to define by legislation that landowners not able or willing to manage semi-natural habitats should give the land for rent to others willing to manage or should let local government/state or other land managers to carry out management works on their land.

The opinions on the role of semi-natural habitats in strategies, development plans and planning were different. Interviewees working in administration considered the role of semi-natural habitats in planning to be little. Local residents assessed it as important or very important. Most probably the question was not fully understandable for stakeholders having little knowledge about strategies, development plans etc. In future, the issue of semi-natural habitats should be directly mentioned and emphasised in strategies and development plans.

Influence of state and land-owners upon management of semi-natural grasslands was assessed most positively. Also the role of environmentalists and scientists was assessed as

more positive compared to views of the farmers. Less influence was attributed to local government and agricultural advisors.

3.2.4. Summary

Very high share, about 93% of visitors know what semi-natural habitats are, more than 80% of them have also actually visited some of the habitats. For more than 95% of visitors, semi-natural habitats are valuable/important, mainly because of (bio)diversity, (rare) species and balance of nature; for farmers, semi-natural habitat is important/valuable when it is managed.

More than 70% of tourist questionnaires' respondents think that semi-natural habitats have a special value for local people, almost all feel that semi-natural habitats are quite or very characteristic for Saaremaa. All farmers and other stakeholders also feel that semi-natural habitats are characteristic for Saaremaa and agree that these habitats are important for tourism.

More than 90% (100% of farmers and other stakeholders) find that semi-natural habitats need to be managed and it should be supported by national and European Union subsidies. Management should be organised primarily by land owner (together with state or state agency and local government). Quite many respondents see that local government should have bigger role in organising management and/or supporting it.

About 50% of respondents think that that presence of semi-natural habitats rather increases land prices, but only in the case if semi-natural habitats are managed and not overgrown with shrub and bushes.

Maintenance of semi-natural habitats is by the opinion of respondents most positively influenced by state, scientists and nature protection activists. Local government and agricultural advisors were assessed as less influential.

As for factors motivating to manage semi-natural habitats, views of farmers and other stakeholders are somewhat different. For farmers, most important factors are: financial support, products (e.g. hay) and landscape beauty, biodiversity. For other stakeholders, beauty of landscapes and maintaining village life are most important, followed by financial support, reputation of the farm/enterprise, biodiversity and products (e.g. hay).

Most important factors hampering management of semi-natural management are: costs are higher than income, bureaucracy (related to application of management support), high age and lack of successors.

For all the farmers support for management of semi-natural habitats is important for continuation. For about 60% of interviewed farmers support forms 10-25% of overall farm income, for about 30% 5-10%. Most of the farmers would not continue management

without financial support or would continue only in smaller extent. None of the farmers would continue management in the same extent.

Management of semi-natural habitats in long-term is only possible to safeguard if young people are willing to stay in the countryside and are interested in farming. All the support measures should be long-term and long-term managers of state land should have advantage in buying or renting the land.

Support measures should be defined and implemented in the way that creation of “schemes” only directed to receive EU support would be avoided and real land managers (farmers) would be supported.

It is also very important to enforce in legislation that in the case if the land owner or manager is not able to manage semi-natural habitats, local government/state or other land managers should have the possibility to carry out management works on their land. On state land, state must organise the management.

4. Analysis of changes in socio-economic parameters in Lümada municipality

For changes in socio-economic parameters (demographic data, info on farming activities, agriculture and touristic infrastructure etc.) during the last decades in Lümada municipality, some of the data was collected for giving input for researchers of Estonian University of Life Sciences who are responsible for deep analysis of socio-economic parameters and for designing/modelling of full production and consumption chain. The following data was provided:

- number of pupils per school (trend in time period 2004-2014);
- number of tourism companies by types (accommodation, handicraft etc.), number of full-time and part-time, seasonal workers of these companies;
- number of accommodation facilities (hotel, guest house, camping, tourism farm);
- number and length of hiking trails, information objects, touristic objects.

Overview of the collected data is given in Annex 3.

5. Exploring how better promote values of semi-natural grasslands in the strategic documents (spatial plans, management plans etc.)

When looking at different strategies, spatial, development and management plans adopted at national, county or municipality level, it becomes clear that in large majority semi-natural habitats are addressed only slightly and/or as part of wider nature/biodiversity values and objectives. Exceptions here is **Nature Conservation Development Plan until 2020** (EMoE, 2012) and obviously **Action Plan of Semi-Natural Habitats** (EMoE, 2013) which treat this issue thoroughly.

For example, **Estonian National Sustainable Development Strategy until 2030 "Sustainable Estonia 21" (2005)** does not mention semi-natural habitats directly, however term „biodiversity objects“ is used. **National Spatial Plan "Estonia 2030+"** states that *"The preservation, conservation and sustainable utilisation of valuable landscapes partly contribute to the objectives of the functioning of the green network, for they include, amongst other things, natural value, semi-natural biotic communities and the like. Measures to preserve and utilise valuable landscapes (including traditional agricultural landscapes) referred to in the counties' thematic plans need to be considered when new plans are prepared"*.

Thematic plan „Environmental Conditions Directing Settlement and Land Use“ of county plans defines green network and valuable landscapes where semi-natural habitats certainly have an important role. **Saaremaa County General Plan. Environmental conditions for Settlement and Land Use (2007)** states therefore that *"As a mitigation measure should be possible to keep all the natural and semi-natural habitats, as well as rows of trees, hedges and stonewalls, ditches, etc."*. **Saare County Development Strategy 2020 (2014)** is mentioning semi-natural habitats, as aspect of "greening" of horizontal approach of increasing competitiveness of the county.

When looking at municipality level, **Comprehensive Development Plan of Lümada Municipality 2017 (2006/2007)** stated that *"Meadows should be keep open by mowing, brush cutting and/or grazing, to ensure beautiful views, biodiversity and accessibility"*. More detailed is the **Development Plan of Lääne-Saare Municipality (2015)** which defines objective to be achieved: *"Increased environmental awareness among the population about /.../ semi-natural areas and management of protected areas, organizing information days, relevant events and competitions"*. It also states specifically that *"Semi-natural habitats of Lümada area will be restored and maintained"*.

Going back to the state level, **State Budget Strategy 2014–2017 (2013)** is again only generally mentioning that *"Protection of natural values, preservation and restoration of endangered species and habitats, management of semi-natural communities and control of alien and problematic species has to be ensured"*. Other national-level development plan **Estonian Renewable Energy Development Plan until 2020** does not mention, surprisingly, semi-natural habitats at all. Development Plan is only mentioning that *"The potential amount of energy from natural and semi-natural grasslands is unclear"*.

Consequently, it is obvious that values of semi-natural habitats, their protection need and objectives have only somewhat marginal role in current strategies and development plans. Most of the documents do not refer to semi-natural habitats at all, others refer only indirectly, as part of landscape or biodiversity. For better promotion of values of semi-natural grasslands, semi-natural habitats need to be mentioned in the strategic documents separately and specifically as unique elements of nature and culture, highly important not only on national level, but also on a European level and globally.

The most important aspects, also by the opinions of the interviewed stakeholders, in order to better promote values of semi-natural habitats in strategic documents are following:

1. Raising awareness and sharing of information

General knowledge and information about semi-natural habitats, their values and importance is still quite low. More information is needed and awareness raising as well as positive examples about management of semi-natural habitats, because planning and other strategic documents **only include aspects valued by the society**.

2. Specific information on semi-natural habitats

As already described, current strategic documents, even they mention semi-natural habitats, do not *specifically* describe the values, importance and protection needs and measures. If we want to better explore issues related to semi-natural habitats, it is important to avoid general definitions like “biodiversity objects” and give special and specific information about their values and importance.

3. Specific requirements and measures

Not only the values and importance of semi-natural habitats need to be covered in strategic documents, but in order to achieve real results, also specific requirements to reach long-term sustainability of the habitats and concrete measures need to be defined and included to all relevant strategic documents.

6. Presentation of a paper on “20 years of grassland management in the Vilsandi National Park, Saaremaa island, Estonia ” at the meeting Enhancing Economic Viability of Grasslands by Green Farming in Europe, International workshop Latvia 27-29 (31) May 2015

Paper “**20 years of grassland management in Western Saaremaa, Estonia**” was presented at the international workshop “Enhancing Economic Viability of Grasslands by Green Farming in Europe” in Plosti, Latvia on May 28 (see Annex 1).

Overview on 15-20 years of grassland management in Lümada area in Western Saaremaa was given. Lümada area and semi-natural communities present there were described, also overview on development of support system for management of semi-natural habitats as well as management of semi-natural habitats in Lümada area including problems related to it.

7. Summary

In the report “Assessment of semi-natural grassland management during the last 20 years in Lümända municipality” we analysed the implemented measures on the grasslands management in Estonia and in the former Lümända municipality during the last 20 years. An analysis, based on interviews with stakeholders (farmers, land-owners, nature conservation, tourism, politicians, planners etc.) on values of semi-natural grasslands and management practices, was compiled. Also trends in socio-economic parameters of the municipality and reflection of semi-natural grasslands, and their management measures in the strategic documents (spatial plans, management plans etc.) were analysed. Recommendations for long-term management measures for semi-natural grasslands were compiled.

In the former Lümända municipality there are 1990 hectares of semi-natural habitats (2014), the highest share of the habitats form coastal meadows (34%), alvars (28%) and boreo-nemoral grasslands (17%, Figure 1). About 40% of all habitats (about 790 hectares) were managed in 2014 (Figure 2). Compared to 2008 (about 170 hectares), the managed area has been increased almost 5 times. Decline compared to the year 2012 is most probably related to RDP support measures (5-years commitments) of some big land user. About 40 hectares of semi-natural habitats have been restored during recent years.

Interviews with randomly selected farmers and land-owners were conducted in August-September 2015.

According to the interviews with farmers the most important factors of motivating to manage semi-natural habitats are:

- 1) financial support;
- 2) products (e.g. hay);
- 3) landscape beauty and biodiversity.

The most important factors hampering management of semi-natural habitats are:

- 1) management costs are higher than income;
- 2) bureaucracy (related to application for management support);
- 3) high age and of farmers and lack of successors.

For the stakeholders (local government representatives, planners, environmentalists, local people and representatives of tourism sector) the most important factors that could motivate management of semi-natural habitats are significantly different from farmers' opinions:

- 1) beauty of landscapes, maintaining village life, financial support;
- 2) reputation of the farm/enterprise;
- 3) biodiversity, products (e.g. hay).

At the same time the most important factors hindering management of semi-natural habitats were quite similar to those opinions of farmers. 50% of the stakeholders were of the opinion that occurrence of semi-natural habitats should increase the price of the land while 37.5% did not know the answer.

According to analyses of data of the Statistics Estonia and interviews with visitors, farmers, local habitants the following conclusions could be made:

- 1) Very high share, about 93% of visitors know what semi-natural habitats are, more than 80% of them have also actually visited some of the habitats. For more than 95% of visitors, semi-natural habitats are valuable/important, mainly because of (bio)diversity, (rare) species and balance of nature; for farmers, semi-natural habitat is important/valuable when it is managed;
- 2) More than 70% of tourist questionnaires' respondents think that semi-natural habitats have a special value for local people, almost all feel that semi-natural habitats are quite or very characteristic for Saaremaa. All farmers and other stakeholders also feel that semi-natural habitats are characteristic for Saaremaa and agree that these habitats are important for tourism;
- 3) Different support schemes (esp. RDP) introduced in Estonia since 2004 have been very important to be able to manage semi-natural habitats in Lümada. More than 90% (100% of farmers and other stakeholders) find that semi-natural habitats need to be managed and it should be supported by national and European Union subsidies. For most of the farmers, continuation would be not possible without support or would only be possible in much smaller extent;
- 4) Bigger land users have purchased/leased the semi-natural grasslands of smaller farms/farmers who cannot or are not able to manage;
- 5) Higher share of habitats (compared to 90's) are managed, visual appearance of landscapes is thus substantially improved, especially on coast where large areas of meadows dropped out of use after collapse of Soviet regime in 1991;
- 6) Aging of farmers, lack of successors and population decline are the most important factors hampering management of semi-natural habitats. Settlements with depopulation risk include 36% of Lümada area while in Estonia general it is 20% and on protected areas 30% in average. During 2000–2011, depopulation in Lümada area was higher compared to Saaremaa and Estonia in general.

The most important aspects, also by the opinions of interviewed stakeholders, in order to better promote values of semi-natural habitats in strategic documents are:

- 1) raising awareness and sharing of information;
- 2) specific information on semi-natural habitats;
- 3) specific requirements and measures.

8. References

1. Centre for Ecological Engineering (2016). Socio-economic, socio-political and institutional drivers of PG/ESS provision and appreciation in respect of agriculture and forestry. Country report: Estonia. PEGASUS WP3 Report.
2. Cooper, T., Hart, K., Baldock, D. (2009). Provision of Public Goods through Agriculture in the European Union. Report Prepared for DG Agriculture and Rural Development, Contract No 30-CE-0233091/00-28, Institute for European Environmental Policy.
3. Ernst & Young Baltic AS (2010). Mid-term evaluation of the Estonian Rural Development Plan 2007-2013.
http://www.agri.ee/sites/default/files/public/juurkataloog/MAAELU/seirehindamine/vahearuanne/2011/Kokkuvottev_report_ENG_LOPLIK.docx.
4. Estonian Agricultural Research Centre (2015). On-going evaluation of Axis 2 of Estonian Rural Development Plan 2007–2013. Report (in Estonian). Estonian Agricultural Research Centre, Tartu.
http://pmk.agri.ee/pkt/files/f32/Aruanne_2014_aasta%20kohta_2_juuni_2015.pdf.
5. Estonian Ministry of Agriculture (2007). Estonian Rural Development Plan 2007–2013. Estonian Ministry of Agriculture.
http://www.agri.ee/sites/default/files/public/juurkataloog/MAK/RDP_2007-2013_mod_2008aug_3_.doc.
6. Estonian Ministry of Agriculture (2014).
<http://www.agri.ee/et/pollumajandustoetuste-infopaevad-2015-otsetoetused-ja-uus-maaelu-arengukava>.
7. Estonian Ministry of Economic Affairs. Estonian Renewable Energy Development Plan until 2020.
https://www.riigikantselei.ee/valitsus/valitsus/et/valitsus/arengukavad/majandus-ja-kommunikatsiooniministeerium/Eesti_taastuvenergia_tegevuskava_aastani_2020.pdf.
8. Estonian Ministry of Environment (2005). Estonian National Strategy on Sustainable Development. Sustainable Estonia 21.
https://riigikantselei.ee/sites/default/files/content-editors/Failid/estonia_sds_2005.pdf.
9. Estonian Ministry of Environment (2012). Nature Conservation Development Plan until 2020. <https://www.cbd.int/doc/world/ee/ee-nbsap-v2-en.pdf>.
10. Estonian Ministry of Environment (2013). Action Plan of semi-natural habitats (in Estonian). http://www.keskkonnaamet.ee/public/PLK/PLK_tegevuskava130913.odt.
11. Estonian Ministry of Environment (2014). V National Report to the Convention of Biological Diversity. <https://www.cbd.int/doc/world/ee/ee-nr-05-en.pdf>.
12. Estonian Ministry of Finance (2013). State Budget Strategy 2014–2017.
<https://www.riigikantselei.ee/valitsus/valitsus/et/uudised/Failid/2013/Riigi%20eelarvestrateegia%202014-2017%20l%C3%BChikokkuv%C3%B5te.pdf>.

13. Estonian Ministry of Rural Affairs (2015). Estonian Rural Development Plan 2014–2020. Estonian Ministry of Agriculture.
<http://www.agri.ee/sites/default/files/content/arengukavad/mak-2014/mak-2014-v14-2015-01-27.odt> (in Estonian).
14. Estonian Ministry of the Interior (2013). National Spatial Plan “Estonia 2030+”.
<https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>.
15. Estonian University of Life Sciences (2010). Estonian Rural Development Plan 2007–2013 Leader measure analysis and evaluation of awareness about the Leader at the local level. Report (in Estonian).
http://www.agri.ee/sites/default/files/public/Leader-meetme-uuringu-aruanne_25102010.pdf.
16. Lääne-Saare Municipality (2015). Development Plan of Lääne-Saare Municipality 2015–2023 (2030) (in Estonian).
<https://www.riigiteataja.ee/aktilisa/4201/0201/5005/lisa.pdf#>.
17. Lümada Municipality (2006/2007). Comprehensive Development Plan of Lümada Municipality 2017 (in Estonian).
<http://www.laanesaare.ee/failid/%C3%9Cldplaneering/L%C3%BCmanda/Yldplaneering.pdf>.
18. [Saare County Government \(2014\). Saare County Development Strategy 2020 \(in Estonian\).](#)
<http://saare.maavalitsus.ee/documents/180293/1198709/Saare+maakonna+arengustrateegia+2020%2C%20uuend+2015.pdf/135dfc3c-449a-4d2e-872e-908b4e294008>.
19. State Audit Office (2015). State action to ensure the preservation of semi-natural habitats. (in Estonian). http://www.keskkonnaamet.ee/public/RKTR_2344_2-1.4_2106_001-2.pdf.
20. Talvi, T. and Talvi, T. (2012). Semi-Natural Communities. Preservation and Management. Ministry of Agriculture. Viidumäe – Tallinn.
http://www.keskkonnaamet.ee/public/PLK/poollooduslikud_kooslused_ENG.pdf.

Annex 1. Presentation of paper “20 years of grassland management in Western Saaremaa, Estonia” at the international workshop “Enhancing Economic Viability of Grasslands by Green Farming in Europe” in Ploesti, Latvia.

Enhancing Economic Stability of Grasslands by Green Farming in Europe
Lancis, 26-29 May 2015

Number of Children	Percentage
1 child	60%
2 children	30%
3 children	10%

Number of Children	Percentage
0	12.5%
1	25%
2	37.5%
3	12.5%
4	7.5%
5	2.5%
6	0.5%

- **Walsingham NP:** oldest (earliest date) (first listed and named in the literature) founded in 1910, since 1993 Walsingham National Park
- **Area** of 337.8 km² in total, 71.3 km² by land, aquatic, 163 islands, woods and tundra
- **Vegetation** grassland, colonies of E. nest, 247 species of birds, 174 of them also nest (Eisenmann, 2003)
- **Widemouth NR:** oldest and highest part of Scaevola island 76 m tall. Established in 1957, area of 25 km²

- Land reform
- EU
- Depopulation, emigration
- Economic viability

	ESTONIA, TOTAL	PROTECTED AREAS	LOVAXIA
1. Empty and with high de-population risk settlements, %	5	10	8
2. With medium de-population risk settlements, %	5	11	12
3. With smaller de-population risk settlements, %	7	9	16
1+2+3	20	30	36

...and consequences

- About 10% of agricultural land out of use (2001)

Type of habitat	1990s	2000
Wooded meadows, ha	800 000	1500
Akars, ha	44 000	9000
Wooded meadows, ha	100 000	15 000
Wooded pastures, ha	200 000	3000



Changes in nature protection administration

- Reorganisation of Estonian nature protection system and administrative management:
 - 1994 - Act on Protected Objects of Nature
 - 2006 - State Nature Protection Centre
 - 2009 - Environmental Board



Development of support system for management of SMH

- 1995 Matsalu NR, WWF Sweden
- 2001-2003 Agri-environment pilot project (national funding, ministry of Agr.)
 - 160 000 eur budget
 - 39 beneficiaries in Lääne- ja Kihelkonnas
- Support for restoration of agricultural land (incl. semi-natural habitats)
 - Only few applicants/hectares
- Restoration of stonewalls



Development of support system for management of SMH

- 2001-2006 support for management of semi-natural habitats (national funding, ministry of Env.)
 - Valuable areas, also outside of protected areas (Natura 2000 from year 2004). Whole budget 1.2 mln eur/year
 - 17 500 ha managed, 1900 ha restored, 165 000 m of fences (2005)



Development of support system for management of SMH

- RDP 2007-2013
- Since 2007 part of Estonian RDP
 - Support for management of wooded meadows: 238,07 eur/ha
 - Other communities: 185,98 eur/ha
 - Managed 27 000 ha and restored 3 000 ha (2013)



Development of support system for management of SMH

- RDP 2014-2020
 - Support for management of wooded meadow: 450 eur/ha
 - Wooded pasture: 250 eur/ha
 - Meadows with juniper: 250 eur/ha (grazing), 185 eur/ha (mowing)
 - Other habitats: 150 eur/ha (grazing) 85 eur/ha (mowing)



Development of support system for management of SMH

- RDP 2014-2020
 - Additional possibilities for coastal meadows with higher management requirements
 - Some habitats (e.g. wooded meadows) are eligible for Single Area Payment



Other instruments

- Support for restoration of SMH in protected areas through Ministry of Envir.
- 2007-2012 restored 8000 hectares



Other instruments

- ERDF projects: animals, machinery
- State Environmental Investments Centre: animals, machinery, fences
- Projects of Environmental Board
- LIFE Nature (e.g. 2001-2003 10 projects, incl. for management of semi-natural habitats)
- Work camps (Estonian Fund For Nature, Estonian Semi-natural Community Conservation Association)



What has been done in Lümamäe?



What has been done in Lümamäe?

Year	Restoration (ha)	Management (RDP) (ha)	
2008	10,1	172,53	
2009	47,1	252,84	
2010		578,09	
2011	19,97	792,58	
2012	43,31	1026,7	
2013	44,43	847,92	About 40% of all SMH managed
2014	44,11	792,58	



What has been done in Lümamäe?

- Since 2008 Saaremaa Ecovillage farm is managing up to 300 ha of coastal pastures on Vilsandi island
- Work camps (Estonian Fund For Nature/Environmental board) for restoration (cutting jumpers etc.)
- Work camps also in Vindumäe NR (restoration and mowing of wooded meadows)



Practical problems - view from farmers' side

- Long-term commitments (5 years)
- Bureaucracy, difficult support schemes
- Technical requirements (dates etc.)
- Use of hay?



Practical problems - view from administration side

- Contracts with land owners
- Overgrowing with bushes and need in bigger areas
- Bureaucracy, difficult support schemes
- Technical requirements (dates etc.)



Key to the future

- Global economy
- EU policy developments
- Economic profitability: other possibilities than agricultural-environmental payments?
- Bioenergy?



Thank you!

argopeepson@gmail.com

Annex 2. Questionnaires

VivaGrass interview: management and values of semi-natural habitats

Gender

☐ Male

☐ Female

Age _____ a

Education:

☐ basic

☐ high school

☐ secondary specialised

☐ university/college

Residence:

Field of activity:

1. Do you know what are semi-natural communities?

☐ yes

☐ no

☐ don't know

2. Do you believe that semi-natural habitats are valuable/important?

☐ yes

☐ no

☐ don't know

If "yes", why?:

.....

.....

.....

3. Do you believe that the semi-natural habitats have a special value for locals?

☐ yes

☐ no

☐ don't know

4. To what extent are the semi-natural habitats characteristic to Saaremaa landscapes?

not at all	only little	quite characteristic	very characteristic	don't know

5. Are semi-natural grasslands important for tourism?

not at all	only little	quite characteristic	very characteristic	don't know

6. Do you think that semi-natural habitats should be managed?

- ☐ yes
☐ no
☐ don't know

If "yes" then who should manage these habitats?:

.....

7. Which of the following factors could motivate to manage semi-natural habitats and to what extent?

	not at all	little	substantially	significantly	don't know
Landscape beauty					
Biodiversity					
Reputation of the farm/enterprise					
Maintaining village life					
Traditions					
Financial support					
habits					
Products (e.g. hay)					
Tourism					
Moral obligation/mission					
Environmental knowledge					
Other (specify)					

8. Which of following factors hamper management of semi-natural habitats and to what extent?

	not at all	little	substantially	significantly	don't know
Expenses exceed income					
Problems with rental contracts					
Bureaucracy					
Lack of time					
Lack of successors					
High age					
Lack of animals					
Yield of semi-natural habitats is low					
Activity/inactivity of environmentalists					
Reduction or termination of farming					
Other (specify)					

9. What impact do you think has existence of semi-natural habitats to land prices?

decreases	no impact	increases	don't know

10. Do you think that management of semi-natural habitats should be supported by national and EU support?

- ☐ yes
☐ no
☐ don't know

Please explain:

.....

11. Why in your opinion people give up to manage semi-natural habitats?

.....

12. How people in your neighbourhood feel about management of semi-natural habitats?

.....

13. How is in your opinion possible to safeguard management of semi-natural habitats in long term?

.....

14. What role have semi-natural habitats in strategies, development plans and planning?

not at all	little	quite important	very important	don't know

15. If and how it is possible to increase the importance of semi-natural habitats in development plans, strategies and planning?

.....

16. How do you assess influence of following parties upon management of semi-natural grasslands?

	negative	no influence	positive
state			
local government			
farmers			
land owners			
scientists			
environmentalists			
agricultural advisors			

17. Any comments?

.....

VivaGrass interview: management and values of semi-natural habitats

Farmers/land owners

Gender

☐ Male

☐ Female

Age _____ a

Education:

☐ basic

☐ high school

☐ secondary specialised

☐ university/college

Residence:

1. How long have you been engaged in farming?: _____ years

2. Land use:

- Arable _____ (ha)
- Grassland _____ (ha), incl. semi-natural grasslands _____ (ha)
- Pastures _____ (ha), incl. semi-natural grasslands _____ (ha)
- Mown _____ (ha), incl. semi-natural grasslands _____ (ha)

3. Animals

- ☐ dairy cattle _____
- ☐ beef cattle _____
- ☐ sheep _____
- ☐ horse _____
- ☐ other (specify) _____
- ☐ no animals

4. Do you have any semi-natural grassland?

☐ yes

☐ no

If yes, please specify (type, area)?:

5. Land where semi-natural grassland is situated is:

☐ inherited

☐ bought

☐ rented

☐ other (specify) _____

6. Is semi-natural grassland in your possession under protection?

☐ yes, completely

☐ yes, partly

☐ not on protected area

☐ don't know

7. Does location on protected area hinders your daily activities?

not at all	slightly	substantially	I don't have land under protection

8. How valuable in your opinion are semi-natural habitats for local people?

not at all	slightly	very valuable	don't know

9. Do you consider semi-natural habitats as important/valuable?

- ☐ yes
☐ no
☐ don't know

If yes, why:

.....
.....
.....

10. How characteristic are in your opinion semi-natural grasslands for Saaremaa island?

not at all	slightly	pretty much	very characteristic	don't know

11. Are semi-natural grasslands important for tourism?

- ☐ yes
☐ little bit
☐ no
☐ don't know

12. When was the semi-natural grassland in your possession last managed?:

- ☐ mowing/grazing on a regular basis
☐ discontinued less than 5 years ago
☐ discontinued less than 5 years ago
☐ don't know

13. If you manage semi-natural grassland then how long and which habitats?

.....
.....

14. If you manage semi-natural habitats already long then what are the most important changes what are happened?

.....
.....
.....

15. Which of the following factors motivate you to manage semi-natural habitats and to what extent?

	not at	little	substantially	significantly	don't
--	--------	--------	---------------	---------------	-------

	all				know
Landscape beauty					
Biodiversity					
Reputation of the farm/enterprise					
Maintaining village life					
Traditions					
Financial support					
habits					
Products (e.g. hay)					
Tourism					
Moral obligation/mission					
Environmental knowledge					
Other (specify)					

16. If and what kind of profit you receive from semi-natural grassland management?

- ☐ pasturing
☐ hay and other products
☐ subsidies
☐ quality of life
☐ managed landscape
☐ diversity of the nature
☐ other (specify) _____
☐ no profit

17. Have you applied support for management of semi-natural habitats in last 5 years?

- ☐ yes
☐ no

If yes, please specify:

18. What is the proportion of support for semi-natural management in overall farm income?

_____ %

19. How important is support for management of semi-natural habitats for you:

not at all	minor importance	pretty important	very important	don't know

20. Is the support for management of semi-natural habitats:

too little	enough	just about	too big	don't know

21. What is the appropriate payment for management/restoration?

management _____ €/ha
 restoration _____ €/ha

22. Would you continue to manage semi-natural habitat without financial support?

- ☐ yes, to same extent

- ☐ yes, but in smaller extent
- ☐ no
- ☐ don't know

23. Do you plan to continue with management of semi-natural habitat?

- ☐ yes
- ☐ no

24. Which of following factors hamper management of semi-natural habitats and to what extent?

	not at all	little	substantially	significantly	don't know
Expenses exceed income					
Problems with rental contracts					
Bureaucracy					
Lack of time					
Lack of successors					
High age					
Lack of animals					
Yield of semi-natural habitats is low					
Activity/inactivity of environmentalists					
Reduction or termination of farming					
Other (specify)					

25. What impact do you think has existence of semi-natural habitats to land prices?

decreases	no impact	increases	don't know

26. Why in your opinion people give up to manage semi-natural habitats?

.....

.....

.....

27. How people in your neighbourhood feel about management of semi-natural habitats?

.....

.....

.....

28. How is in your opinion possible to safeguard management of semi-natural habitats in long term?

.....

.....

.....

29. How to you assess influence of following parties upon management of semi-natural grasslands?

	negative	no influence	positive
--	----------	--------------	----------

state			
local government			
farmers			
land owners			
scientists			
environmentalists			
agricultural advisors			

Dear Guest!

Estonian University of Life Sciences is conducting a survey about the values and management of semi-natural habitats in Saaremaa island. Survey is carried out within the project "VivaGrass". We would very much appreciate, if you could find some time to answer to the questions below. Survey is made up of only 10 simple questions and should take only about 5 minutes. All answers will be treated confidentially and will be anonymous!

Project LIFE VivaGrass aims to support maintenance of biodiversity and ecosystem services provided by grasslands, through planning and economically viable grassland management. Project is co-financed by the EU LIFE+ Programme, Ministry of Environment of the Republic of Lithuania, Latvian Environmental Protection Fund, Estonian Environmental Investment Centre and the project partners. Read more: <http://vivagrass.eu>.

GENDER

- ☐ Male
☐ Female

Age _____

Education:

- ☐ Basic
☐ High school
☐ Secondary specialised
☐ University/college

Country of residence:

1. Do you know, what are the semi-natural habitats (wooded meadows, alvars, coastal meadows etc.)?

- ☐ Yes
☐ No
☐ Don't know

2. Have you been on some of the habitats? Why?

- ☐ Yes (explain)

-
- ☐ No
☐ Not knowingly

3. Do you believe that semi-natural habitats are valuable/important?

- ☐ Yes
☐ No
☐ Don't know

If „yes“, why?:

.....
.....
.....

4. Do you believe that the semi-natural habitats have a special value for locals?

- ☐ Yes
☐ No
☐ Don't know

5. To what extent are the semi-natural habitats characteristic to Saaremaa landscapes? (mark with X)

Not at all	Only little	Quite characteristic	Very characteristic	Don't know

6. Do you think that semi-natural habitats need to be managed?

- ☐ Yes
☐ No
☐ Don't know

If „yes“, then who should do it?:

.....

7. Do you think that the maintenance of semi-natural habitats should be supported by national and European Union subsidies?

- ☐ Yes
☐ No
☐ Don't know

Please explain:

.....

8. What impact the presence of semi-natural habitats has on land prices?

- ☐ Rather increases
☐ Rather decreases
☐ No impact
☐ Don't know

9. How the following parties influence the maintenance of semi-natural habitats? (mark with X)?

	Negatively	No influence	Positively
State			
Local municipality government			
Farmers			
Land owners			
Scientists			
Environmentalists			
Agricultural advisers			

10. Comments or remarks?:

.....

Many thanks!

Annex 3. Overview of collected socio-economic data

Specific tasks			Information type available		Scale of the information available (national level, municipality level, parish level, settlement level)	Period of data renewal (yearly, every 5 years, every 10 years, etc.)	Information source (Department of statistics, municipality information, etc.)	Information availability
			Statistical	Spatial				
	Number, dynamics and distribution of business units (natural and legal business units) by economic sector (what are those sectors? agriculture, service including tourism, public sector, etc.)	37 (primary: 8, secondary: 10, tertiary: 19) (2013)	Yes	No	Municipality	Yearly	Municipality	Free, but you can only acquire it through an institution
	Building activity (living rooms and economic rooms by type), annual (last 5 years) numbers of sq. metres	Living rooms: 118, others: 1633,9 (2013)	Yes	No	Municipality	Yearly	Municipality	Free, but you can only acquire it through an institution

	Number of # pupils per school (trend in time period 2004-2014)	Lümanda school: 60 (2014) (trend 2004-2014: -47%)	Yes	No	Municipality	Yearly	School; municipality	Free, but you can only acquire it through an institution
General economic performance (if possible then at village level)	Average salary, average salary compared to state's average	843,7 (2013); -12% compared to state's average	Yes	No	National, municipality	Yearly	Statistics, municipality	Open source
Nature Conservation	Number of tourism companies by types (accommodation, handicraft etc)	Accommodation: 12; Other (handicraft etc): 9;						
	Number of full-time and part-time, seasonal workers o these companies	Number of workers: n.a.	Yes	No	Municipality	Yearly	Websites; Municipality	Open source
Tourism services and entrepreneurship	Number of accommodation facilities (hotel, guest house, camping, tourism farm)	Hotel: 1; Guesthouse, camping: 5; Tourism farm: 6	Yes	No	Municipality	Yearly	Websites; Municipality	Open source
	Number and length of hiking trails, information objects, touristic objects	Number of hiking trails: at least 4, approx. 15 km of length; about 25 objects + tourism farms + other tourist companies (handicraft etc.)	Yes	No	Municipality	No specific period	Websites; Municipality	Open source

