



Group Research Report - NAT

The Role of Farmers in Planning and Managing Natura 2000 Sites

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Summary

This research report is concerned with the role of farmers in the process of planning and managing Natura 2000 sites.

Agricultural practices are of ecological significance, either contributing to nature conservation or to ecological degradation of a site. Farmers are not always involved in the planning and management of Natura 2000 sites, it is unclear which roles they can play in successfully planning and managing these sites. Our research question is:

To what extent is the participation of farmers in the planning and management of Natura 2000 sites key to success for a sustainable development and management of those sites?

And the derived research questions:

- Which roles do the farmers play in the planning and management of Natura 2000 sites?
- Which forms of participation of the farmers are the most successful?
- What factors do managers and farmers identify as key factors for a successful implementation of Natura 2000 sites and what are the differences in their views?
- What are the differences in what makes the sites successful?

To answer these questions, we defined the different forms of participation and success factors for a successful sustainable development and management of Natura 2000 sites. We chose to study four different sites: two in Austria (Demmerkogel and Neusiedler See) and two in the Netherlands (Drentsche Aa and Zouweboezem). With a questionnaire regarding ecological, economic and social questions, we interviewed sixteen stakeholders of the sites. These interviews were compared, which led to the following results:

- Farmers in Austria are more involved in the management of the sites than the Dutch farmers
- All interviewed farmers wished for earlier and more information concerning Natura 2000 and they are less positive about the process than manager are.

One of our conclusions is that although farmers were not involved in the planning process of three of the sites, they play an important role for a sustainable development and management of those sites, as reaching the biodiversity goals depends on their agricultural practices. We also concluded that it is easier to involve stakeholders in smaller sites such as Zouweboezem (256 ha), than in big sites such as Neusiedler See (571 km²).

We recommend an early involvement of farmers in the planning process of Natura 2000 sites, so that farmers learn that their practices contribute to restoring and preserving biodiversity.

1. Introduction

Natura 2000 is an “ecological network of protected areas designed by the European Union to ensure the long-term survival of habitats and species that represent European diversity“ (Ferranti et al.). Human activities and interventions play a major role in the network: many sites are a result of human activities in the past and they require human interventions to maintain the natural values (Henle et al., 2006; European Commission, 2014).

The basis of Natura 2000 are the Habitats Directive and Birds Directive, under which all the species and habitats protected by Natura 2000 are listed. The Habitats Directive “ensures the conservation of a wide range of rare, threatened or endemic animal and plant species”, and thus focuses on the conservation of natural habitats and the flora and fauna that can be found in such habitats. Independently from the Habitats Directive the Birds Directive aims at protecting around 500 wild bird species living in the EU member states and the habitats they live in, which are often endangered by human activities such as urbanisation, intensive farming, the use of pesticides and hunting. (European Commission, 2016). A further important directive is the Water Framework Directive, which focuses on making rivers, lakes, groundwater and coastal beaches cleaner and tries to counteract water pollution.

Farmers play an important role in Natura 2000 areas: many of the habitats that are valued now for biodiversity across Europe are a direct result of traditional agricultural practices (Henle et al., 2006). There are 255 species and 57 habitat types that depend on agriculture practices (European Commission, 2014). Farmland makes up 40% of the total area included in the Natura 2000 network (European Commission, 2014). On the other hand, changing agricultural practices may also lead to habitat degradation (Henle et al., 2006). Intensification of farming practices leads to habitat degradation due to eutrophication and desiccation (Henle et al., 2006). The abandonment of agricultural land may lead to ecological degradation because certain habitat and plant species depend on (extensive) farming (Henle et al., 2006). Furthermore, afforestation and “spontaneous forest development [occurring] as a result of abandonment” also threaten habitats such as heath and extensive grassland (Jansen & Diemont, 2011).

Although farmers clearly play a role in Natura 2000 areas, they are not always involved in the management of the sites, even though the participation of stakeholders from different fields and with different knowledge is considered essential for nature conservation by European conservation scientists (Kati et al., 2015). The inclusion and participation in decision-making of farmers, foresters, landowners and local people on planning and managing sites could

contribute to a Natura 2000 success; at present, stakeholders seem to consider Natura 2000 as a “hindrance to development and often oppose Natura 2000 implementation” (Kati et al., 2015). According to the European Commission (2014), farmers can play a big part in restoring biodiversity through the knowledge they have of the history of the land.

This study examines to which extent the participation of farmers in the planning and management of Natura 2000 sites is key to success for sustainable development and management of those sites. To answer this question, we studied four different Natura 2000 sites, two in Austria and two in the Netherlands. The objective is to investigate the different roles farmers can play in the planning and management of Natura 2000 sites, and how the level of participation of farmers at specific Natura 2000 sites affects the success of biodiversity conservation goals. The study contributes to understanding the involvement of farmers in planning and management of different Natura 2000 sites in Europe. It looks to find support for the hypothesis that a participatory approach of farmers leads to a more successful planning and management of Natura 2000 sites. Testing this hypothesis in actual case studies will provide arguments for either accepting or rejecting it, and thus help conservationists to plan and manage Natura 2000 sites in a more effective and successful way. The target groups of this study are managers and planners of Natura 2000 sites. The results of the study should serve as a guideline for them why and how farmers should be involved in the planning and management of those sites.

2. Analytical framework

In this chapter, we will first place the meaning of sustainable development in the context of this study, then we will discuss literature about stakeholder participation related to nature conservation, followed by the presentation of the framework related to that is used to analyse case studies and we will end with our research question.

Sustainable development means addressing the needs of the present generation without compromising the ability of future generations to meet their needs, aiming at the continuous improvement of the quality of life and well-being on Earth. It implies that nature conservation and socio-economic development are not considered to be mutually exclusive, but can be realised simultaneously, or even reinforce each other (Ferranti et al., 2014). Sustainable development in the context of this study is valuing, protecting and appropriately restoring biodiversity and the ecosystem services it provides for biodiversity's intrinsic value and for its essential contribution to human well-being and economic prosperity. Although ecological protection is the most important dimension, human activities in protected areas, be it economic, recreational or other, are allowed, as long as they do not undermine the conservation status of the site.

According to Popescu et al. (2014) a "greater diversity of local conservation and social initiatives and community involvement can result in positive attitudes toward the natural and cultural heritage of traditional landscapes, and better conservation outcomes" (Popescu et al., 2014). However, early Natura 2000 policy was criticised for being based on a strictly scientific foundation with little room for socio-economic stakeholders (Ferranti et al., 2014). Natura 2000 policy started with a very scientific-technocratic approach, which assumes that complex problems can only be solved using scientific and technical methods (Ferranti et al., 2014). The approach slowly developed into a more participatory approach in the late 1990s with more room for other socio-economic stakeholders without scientific knowledge on nature conservation (Ferranti et al., 2014). However, due to concerns over the financing of Natura 2000, this participatory approach has been replaced by a financial-technocratic approach with more influence for stakeholders from business and industry, resulting in less participation from socio-economic stakeholders such as farmers (Ferranti et al., 2014).

For success in the long term, however, participation of local farmers in the planning and management of Natura 2000 sites may be essential. Farmers are often willing to protect nature, as long as they do not feel forced (Siebert et al., 2006). Farmers and environmentalists, who are usually on opposite sides, are perfectly capable to see common opportunities and

possibilities when brought together (Oltmer et al., 2010; Visser et al., 2006). Giving farmers a choice and the opportunity to do it their way could be a very successful approach in conserving biodiversity and managing Natura 2000 sites (Oltmer et al., 2010; Siebert et al. 2006). Based on the above mentioned literature, Henle et al. (2006) and European Commission (2014), farmers can play different roles in Natura 2000 sites: they can reduce biodiversity through abandonment or intensification, they can carry out conservation measures (like mowing of grasslands) and they can provide local knowledge during the planning process. Farmers in Natura 2000 areas can enhance the profitability of their farms by providing new services like providing accommodation or selling farm products to tourists.

Stakeholder participation can take different forms, depending on the degree of involvement, ranging from being informed to being in control. Each form of participation has its merits; a higher degree of involvement does not equal a better form of participation. We distinguish the following forms of participation (based on the participation model from Stadt Zürich (2006) stated in Zimmermann, 2016, p. 126):

- Information: affected people are being informed about plans and their outcomes, but have no right of co-determination
- Consultation: stakeholders can address their opinions and participate at discussions, but their views do not have to be taken into account
- Co-decision: stakeholders can collaborate on projects with planners, managers and the government and decide on processes
- Shared responsibility: stakeholders are involved in the implementation and management of the plan or project
- Self-management: stakeholders initiate and manage projects by themselves

Stakeholder involvement is costly both in time and resources, and the outcomes are not necessarily positive; a bad process can even lead to greater conflicts (Young et al., 2012). Exclusion of citizens, non-complete representation, repression of differences, and reinforcement of dominant frameworks are a few other problems with participation of citizens (Turnhout et al., 2010). Turnhout et al. (2010) studied the participatory process of the nature conservation of a National Park site in the Netherlands. An important conclusion of this study is that a platform of different stakeholders can easily lose touch with the people represented by them, which will widen the gap between government and citizens. Citizens show a wide variety of responses: from creative to passive behaviour. Passive behaviour can either be an effect of disappointment in the process (no space for negotiation in the process) or an effect of disinterest (other problem definition).

Although a growing gap between government and citizens is also the effect of participation of locals in the Danube Delta in Romania (Van Assche et al., 2054), the conclusion of the study of that participation project is that implementation of sustainable management can only be made including locals in the process. Visible local effects resulting from the participatory processes guarantee long term protection of the area.

Young et al. (2012) studied three sites in Scotland to research the direct and indirect links between stakeholder involvement in terms of process and social outcomes on the one hand and stakeholder perceptions of future biodiversity outcomes on the other. They used semi-structured interviews with a standard questionnaire to be used with all interviews. They found that stakeholder involvement in the development and implementation of management plans can lead to better understanding of stakeholder values, increased trust and learning, which, in the long run, may contribute to biodiversity outcomes. In one of the cases, however, the social and biodiversity outcomes were evaluated not so positively, although the process was evaluated very positively (Young et al., 2012).

As follows from the studies mentioned above, involvement of farmers in the planning and management of Natura 2000 sites may be key to success for a sustainable development and management of those sites. Factors playing a role in the successful sustainable development and management of Natura 2000 sites for each of the different dimensions of sustainable development include the following:

Social / participatory dimension:

- Farmers are involved in the planning and management processes (De Snoo et al., 2013; Opdam et al., 2006; Stenseke, 2008)
- The property rights of the farmers are respected (Černecky, 2011)
- The farmers have a positive attitude towards the site (motivation)
- The farmers are well-informed about ongoing processes (Beunen & De Vries, 2011).

Ecological dimension:

- The objectives from the management plan are achieved

Economic:

- The farmers gain a sufficient income

The ecological and economic success factors are rather self-explanatory: one cannot speak of sustainable development if farmers can no longer make a living as a result of the Natura 2000 site, or if the site is not successful in protecting its nature and conserving its biodiversity. For the social/participatory dimension, the most relevant factors from the scientific literature

are selected (Beunen & De Vries, 2011; Cernecky, 2011; De Snoo et al., 2013; Opdam et al., 2006 Stenseke, 2008). Without a positive attitude towards the site, farmers may be less motivated to protect biodiversity.

The above studies show that farming practices play an important role in nature conservation areas. Natura 2000 sites may be the result of traditional farming practices, but intensification or abandonment of the land can lead to biodiversity loss. The question is to which extent farmers are currently included in the decision-making processes and which roles they can play in successfully planning and managing Natura 2000 sites. The literature suggests that a participatory approach of farmers may be more successful than a top-down approach, but it is unclear whether this relation between approach and degree of success can be found in actual Natura 2000 sites. This leads to the following research question:

To what extent is the participation of farmers in the planning and management of Natura 2000 sites key to success for a sustainable development and management of those sites?

And the derived research questions:

- Which roles do the farmers play in the planning and management of Natura 2000 sites?
- Which forms of participation of the farmers are the most successful?
- What factors do managers and farmers identify as key factors for a successful implementation of Natura 2000 sites and what are the differences in their views?
- What are the differences in what makes the sites successful?

3. Methodology

To answer our research questions, we decided to study four different Natura 2000 sites: Demmerkogel (Austria), Drentsche Aa (the Netherlands), Neusiedler See (Austria) and Zouweboezem (the Netherlands). A study based on different cases in different countries helps to find common factors for a successful planning and management of Natura 2000 sites. The sites were selected in the home countries of the researchers, and on the basis of farmer involvement: in all of the selected sites farmers play an important role in management or conservation. The original plan to study a site in Ireland was left because none of the parties involved reacted to e-mails. Instead, a second Austrian site was selected.

The reason why the Natura 2000 site Demmerkogel was selected for being part of the case studies is that the site is located in an area which is famous for vineyards. Wine has been characteristic for this area for hundreds of years, and thus the site has always been influenced by human activities and farming.

The Drentsche Aa site was selected as one of the case studies because farming plays an important role in the landscape of the Drentsche Aa. From years-on small scale agriculture dominates this landscape that is formed by mowing, haying and cutting sods. In the small villages there are still farming plots to be found.

The Natura 2000 site Neusiedler See was selected as one of the case studies because it is an area where intensive land use and species-rich and diverse habitats meet. As Demmerkogel, it is a site famous for vineyards, but the farmers around Neusiedler See are aware of the special status of this site, due to its rich biodiversity. Their farming practices not only help nature conservation, but also create and preserve habitats.

The Zouweboezem was selected as a case study because it is a man-made area with natural values amidst agricultural lands and villages. It was expected that agricultural practices (mainly resulting in nitrogen deposition) would have a significant impact on the area, and that management practices (mainly water level management) might cause conflicts with local stakeholders.

Chapter 4 gives a description of each of the sites. The site descriptions were based on site websites, planning and management documents and interviews with stakeholders.

To find out to what extent the participation of farmers in the planning and management of Natura 2000 sites leads to success, stakeholders of all sites were interviewed in a semi-structured interview, addressing social, ecological and economic issues. With sites in our own countries, interviews could be done by telephone or in person. This led to a better response and had the advantage that additional questions could be asked for clarification. In total, seventeen interviews were held, ten with planners and managers and seven with farmers and other stakeholders.

Each interviewee was asked the same questions, which were based on the questionnaire Young et al. (2012) used in their research of three Scottish sites to answer the question whether stakeholder involvement actually benefits biodiversity conservation. The questionnaire we used can be found in Annex 1. Apart from open questions, all interviewees were asked to assess a number of statements about the process.

The interviews are compared in a number of ways. Within a site, the answers of planners and managers on the one hand and other stakeholders on the other are compared to investigate whether their view of the process and their view on biodiversity benefits differ. The interview results of the different sites are also compared, to investigate the differences between sites and the differences between countries.

4. Results

4.1 Demmerkogel- Südhänge, Wellingengraben mit Sulm, Saggau- und Laßnitzabschnitten und Pößnitzbach

The reason why the Natura 2000 site Demmerkogel was selected for being part of the case studies is that the site is located in an area which is famous for vineyards. Wine has been characteristic for this area for hundreds of years, and thus the site has always been influenced by human activities and farming. The importance for nature conservation at “Demmerkogel“ lies in high biodiversity of forests and grasslands and the conservation of the wetland habitat. The farming practices in the area include growing fruits and vine, cultivating greenlands, growing crop in the lower regions and grazing sheep. (Natura 2000 Steiermark)

4.1.1 Description of the site

This Natura 2000 site, shortly referred to as “Demmerkogel“, is a protection area in Austria, located in the regions Leibnitz and Deutschlandsberg of the county Styria. The area encompasses more than twenty districts and is 2 096 ha in size. Most parts of the protected area can be described as a hilly landscape, which includes several valleys of small rivers such as Sulm, Saggaubach, Laßnitz and Pößnitzbach. Characteristic for this area is the mixed woodland with a great proportion of oaks and beech forests in higher altitudes. Southern slopes of the hills in this area can also be used for growing wine and fruits.

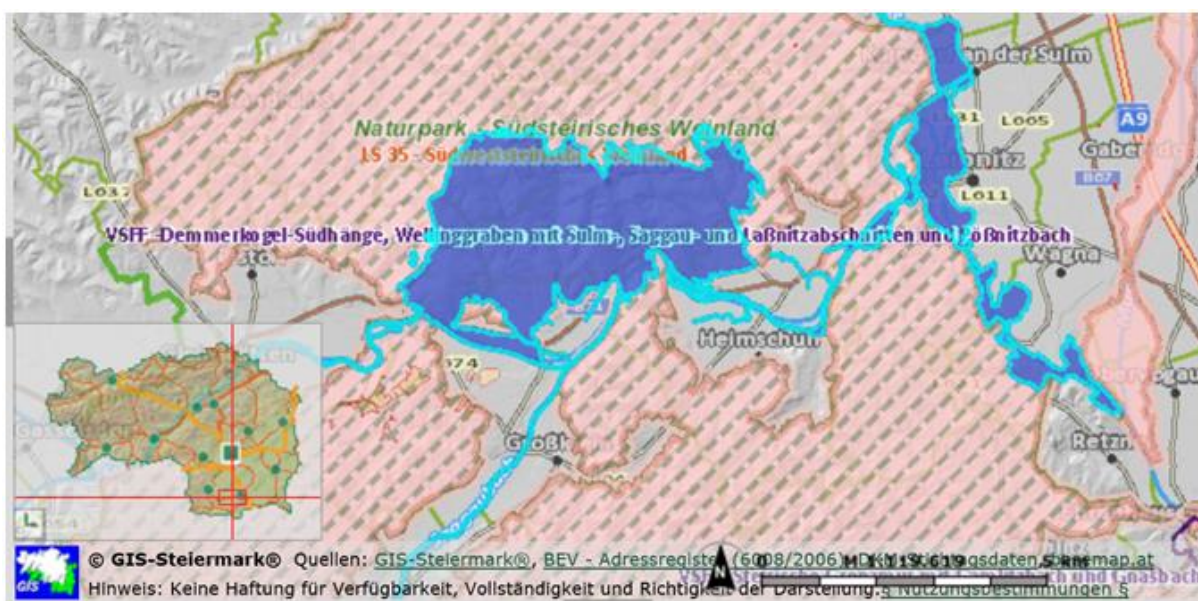


Figure 1: map of the Natura 2000 site Demmerkogel (GIS Steiermark: 2017)

4.1.2 Conservation goals and main problems

In general, the protection goals of the site "Demmerkogel" are guided by the Habitats Directive and the Birds Directive. The conservation area protects eleven habitats, sixteen species and nine bird species. The protection of forests and wetlands is one of the most important aims of the site as these habitats are the home of many animals which need to be protected as well. Furthermore, the site tries to protect insects, in particular ants, butterflies and dragonflies.

Protection aims according to the management plan (Land Steiermark: 2006):

- Development of mixed deciduous forests in particular the development of oak and chestnut tree stands
- Conservation of existing greenlands and recovery of rough pastures and meadows in valley floors
- Renaturation of straightened rivers and recovery of wetlands at the rivers Sulm, Laßnitz, Saggau and Pößnitzbach
- Creation of re-naturalized habitats for amphibians and improvement of their spawning waters
- Conservation, recovery and improvement of habitats for birds, in particular renaturation of breeding areas for birds
- Protection of the habitats of insects and expansion of hardwood stands and natural greenlands they live in

One major challenge of the protection area "Demmerkogel" is the high relief energy of the hills, which causes difficulties for farmers who cultivate the greenlands and take care of the site. Farming practices are particularly aggravated because many parts of the site are difficult to access with agricultural machines. As a further consequence, some parts of the site particularly in the higher altitudes, fall victim to abandonment. In contrast, the areas which are less steep, in particular valley floors are characterized by intensive farming practises. However, intensive farming in these area leads to an increase of soil erosion and endangerment of the rivers and the neighboring wetlands. In general, it can be said that in this area conflicts between farmers and site managers arise how to use certain parts of the area. (Natura 2000 Steiermark)

4.1.3 Main stakeholders

The main stakeholders who organize the site and are responsible for decision-making processes are site managers, officials of the Styrian/ Austrian government, zoology experts, an Austrian ökoteam and volunteers. Furthermore, farmers play an important role for the site,

as they are the ones who take care of the site and cultivate the grasslands. Decisions which are made concerning the Natura 2000 site need to be agreed by the Chamber of Agriculture, which speaks in the name of the farmers. In general, the cooperation between the stakeholders work fine; however, as already said before there are conflicts of use between farmers and site managers. (Verwaltung Steiermark)

4.1.4 Interview results

The following chapter deals with the interview results of the three interviews that were held about the Natura 2000 site Demmerkogel. The following people have been interviewed:

- One official of the government, who is a site manager (interviewed via e-mail)
- One official of the government, who is a site manager as well as a planner of the site (personal interview)
- One farmer, who's land is located in the Natura 2000 site (personal interview)

Economic

All three interviewees see an effect on profitability of farmers who cooperate with the site with projects or the *Vertragsnaturschutz*. All agree that in general the site leads to a slight increase of farmers income due to the high financial support. The Natura 2000 site, however, does not have an impact on the profitability of farmers who do not participate in project, and in some cases also leads to a decrease as some farmers face restrictions in their farming practices. All farmers who cooperate with the site are financially supported by the government and all their incurred costs for cultivating activities are beared by funds. Many farmers cooperate with the site under the project *Vertragsnaturschutz*, for which they get money and financial support paid by the ÖPUL¹. Apart from farming, in particular growing wine, fruits and crop and grazing sheep, tourism is an additional source of income for the site. Many people like the atmosphere of the area and the combination of beautiful nature and wine culture. Furthermore, the rich biodiversity attracts people so that many people make excursions to the site.

Ecological

While one the site manager thinks that the management goals are not achieved yet, the site planner thinks that the goals are very effective. Both of them agree that it is good that the goals have changed since 2003 and that they are adapted to current conditions in the site.

¹ ÖPUL (= Österreichisches Programm für umweltgerechte Landwirtschaft, which means Austrian program for environmentally suitable agriculture) is the Austrian funding measure for rural areas. It is financed by the Austrian government and co-financed by the EU. (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, 2017)

Furthermore, both of them agree that farmers and locals have increasingly started to accept the site and see its advantages. They also agree that the fact that farmers have increasingly become environmentally conscious has a major impact on the success of the site. Although there are conflicts, the number of contractual partners increases and more and more farmers change their farming practices to extensive and biological farming. In particular winegrowers stop using herbicides and change to biological practices. According to the manager acceptance and increased positive attitude towards the site will be the key to success. The farmer who has been interviewed knows that a management plan exists but he is not familiar with the conservation goals.

Social/Participatory approach

All three interviewees were not involved when the first conservation goals of the site were defined in the year 2003. However, the planner has been involved in the changes of the conservation goals in the years 2008 and 2016. When the management plan was implemented in 2003 many different stakeholders worked together. The planner says that this cooperation went fine; however, the local people and farmers did not seem to be interested in the project at all. Officials of the government organized information meetings for the locals but almost nobody showed up, and thus the cooperation with the owners was a bit difficult. However, both managers state that the cooperation with the farmers and locals has increasingly improved. The planner is optimistic about the communication and cooperation between the stakeholders, however, the manager thinks that the stakeholders still need to work more effectively together, particularly concerning the cooperation with farmers as still disagreements arise and the agricultural committee of the agricultural chamber creates a negative atmosphere so that farmers sometimes mistrust the site managers and planners. The farmer wishes to be more involved in decision-making process and does not feel represented enough by the farmer's representatives.

All interviewees filled in the scoring table concerning the participatory approach. However, not every interviewee could answer each point. The scoring results can be found in the table below. In general it can be said that the managers give a higher score than the other stakeholders.

Table 1. Statement scoring results Demmerkogel

	Managers and planners (N = 2)		Stakeholders (N = 1)	
	Average score	Range	Average score	Range
How good was the process at:				
Representing the people affected	3	3	4	4
Allowing people to have a real impact	4	4	2	2
Incorporating the values of people	4. -	4	2	2
Involving people as early as possible	4.5	4-5	2	2
Increasing trust between all involved	3	3	4	4
Resolving any existing conflicts	3.5	3-4	4	4
Being unbiased and independent	2.-	2	2	2
Being transparent and clear	4	3-5	3	3
Improving the technical quality of decisions	3.5	3-4	-	-
Providing information and educating people	4	3-5	3	3
Leading to new organisations or structures being established to implement decisions	-	-	-	-
Leading to long-term biodiversity benefits	4.5	4-5	5	5

4.1.5 Analysis

The role of farmers in planning and management

In general, farmers are not involved in planning and decision-making processes. Although, they are represented by the representatives of the agricultural chamber, they do not feel involved in the process and claim that their opinions, values and ideas do not influence the decision-making concerning the Natura 2000 site. Furthermore, they do not feel informed about ongoing processes and know little about the actual management plan and the conservation goals. However, farmers play an active role in the management of the site as they cultivate parts of the area and take care of it. Although farmers are not involved in planning and decision-making processes and know only little about the management plan, they contribute essentially to reaching biodiversity goals. Extensive and biological agriculture

contributes to protecting and also creating biodiversity. Farmers take care of the lands and cultivate areas with wine and orchards. Particularly the meadow orchards, which are extensively used, bring new species to the area and secure the habitat for many different animals.

Forms of participation

The forms of participation of farmers can be described as information and consultation. The farmers always receive information about new decisions that have been made. However, farmers wish to be informed at an earlier stage of the decision-making process and not only after a decision has been made. Another form of participation is consultation as they are invited to information meetings. Farmers say that they do not feel that they can have a real impact on processes and are not really involved, as their opinions and ideas do not influence decisions.

Success Factors

According to the site manager and planner the high range of biodiversity is a factor that makes the site successful. The planner also mentions that the increased positive attitude of the farmers and local residents contributes essentially to the site's success. The farmer also mentions that the marketing concept plays an important role as it makes the site attractive for visitors and makes people interested in nature conservation.

Is the site successful?

Concerning the ecological and economic dimension the site is successful. The conservation goals are effective and are constantly adapted to current problems and the site has a wide range of biodiversity. Although it can be said that for some farmers the Natura 2000 site has no impact on the farmer's profitability, in general farmers profit from the site as they receive attractive compensations from ÖPUL for their farming activities. Furthermore, tourism and winegrowing are a potential income for the site. Concerning the social dimension, however, the site does not seem to be successful. The farmers ask for more involvement and information about ongoing process. They wish to receive information before the decisions have been made so that they can contribute with their opinion and ideas.

4.2 Drentsche Aa

The Drentsche Aa site is selected because farming plays an important role in the landscape of this stream. From years-on small scale agriculture dominates the landscape that is shaped through mowing, haying and cutting sods. In the small villages there are still farming plots to be found. Farming practices nowadays include dairy farming, livestock farming and arable farming.

In this area two farmers were interviewed, one of the writers of the management plan and the representative from the water board who participated in the Regional Group.

4.2.1 Description of the area

The Drentsche Aa area is a Dutch Natura 2000 site which is located in the northern part of the Netherlands, in the middle and the north of the province of Drenthe, to the east of the city of Assen and to the south of the city of Groningen, see figure 2. The area combines nature and culture heritage.

The Drentsche Aa itself is a stream that meanders through the flat landscape; the stream and his many side brooks has shaped the land. In the area of the stream the esdorp landscape is preserved, its main characteristics are hayfields and meadows down in the stream valley, fields on elevated land and small villages with farming plots around the village squares (Nationaal beek-en esdorpenlandschap Drentsche Aa).



Figure 2: map of the Natura 2000 site Drentsche Aa (Dienst Landelijk gebied: 2016)

Conservation of the Drentsche Aa area started in 1965 with a first “Thoughts agenda for the stream landscape” as a basis for the National Park. Nature was cherished while farmers still were doing their jobs (Nationaal beek- en esdorpenlandschap Drentsche Aa). In 2002 the Drentsche Aa became a National Park (National Stream and Esdorp Landscape Drentsche Aa) and in 2007 a National Landscape. Since 2013 a small part of the National Landscape (34,000 ha) has been appointed as the Natura 2000 site Drentsche Aa (3,900 ha). The writing of the management plan started in 2012 and will be finished in the beginning of 2017. An important chapter in the management plan is still missing: the analyses of the area concerning the nitrogen deposition. For Dutch Natura 2000 sites with at least one nitrogen sensitive habitat type which suffers from too much nitrogen, management plan actions can be financed through the PAS (Programmatic Approach Nitrogen). This governmental program aims at reducing the emission of nitrogen at the sources to enable economic growth (Infomil.nl).

4.2.2 Conservation goals and main problems

The Drentsche Aa area is one of few complete intact stream valleys in the Netherlands. The site has conservation goals for 17 habitat types and five species. According to the site of the European Environment Agency the main characteristics of the site are: brook valley with adjacent heathland and conifer plantations with some small bogs and moor pools. Its importance is that it is one of two known spawning sites of river lamprey (*Lampetra fluviatilis*) in the Netherlands, it is one of three most important sites for the habitat type Old acidphilous oak woods with *Quercus robur* on sandy plains and one of eight most important sites for Species rich *Nardus* grassland (European Environment Agency, 2012).

The functional coherence in the landscape is one of the main conservation goals in the draft management plan of the Drentsche Aa. The goals concerning the wet heaths and the stream sides have a “sense of urgency”, their poor situations should improve in the first management plan period (Dienst Landelijk Gebied, 2016).

Three of the main problems of the area, according to the draft management plan, have a great impact on farming practises: the water level in the stream, nitrogen deposition and the discharge of nutrients and crop protection products to the stream.

4.2.3 Main stakeholders

There are many stakeholders in the Drentsche Aa area; the writers of the management plan could consult 27 representatives of 21 organisations in the Regional Group. The main stakeholders of the management plan are the owners of parts of the area: the main owner is Staatsbosbeheer (Dutch State Forest Service) with 72% of the land, private owners own

almost 18% of the area, and the last 10% is owned by the Ministry of Defence, provinces Drenthe and Groningen, four different municipalities, Water Board Hunze en Aa's and area management organisations like Natuurmonumenten and Drents landscape (provincial NGO) (Dienst Landelijk Gebied, 2016).

4.2.4 Interview results

Economic

There are different thoughts about the economic effects of the Natura 2000 status in the Drentsche Aa site: on the one hand interviewees claim no effects because of the high conservation aims the National Park status already brings, on the other hand one farmer states that the market value of the farm and the land has decreased and that every new restriction will bring a new decrease.

One farmer has found opportunities to use the National Park and Natura 2000 status: he has made a B&B in his farm and sells meat from his own cows, his farm also provides information on the National Park to tourists. The other farmer sees no opportunities for additional sources of income: "It's difficult to earn on tourism: the cafe will earn less and will close if we start to serve coffee." The other two interviewees see that opportunities are commonly used in the area.

Agricultural practises have changed or will change in the nearby future: "since the sixties many farmers and cows have left the area." If groundwater level rises practises will have to change and further intensification will not be legislated because of nitrogen deposition.

The National Park status and the Natura 2000 status will bring new investments to the area but haven't brought any financial support for the farmers.

Ecological

The two farmers don't know the conservation goals of the area. They are worried about the rising of the water level in the stream. Their greatest concern is that the landscape will change: woodlands instead of openness and a swamp instead of a stream. The two other interviewees think the conservation goals for the area are challenging, they both think the big size of the area will make it very difficult. The water board representative states that the conservation goals conflict: a higher water level is good for wet habitats but will lead to inundation of oligotrophic habitats with the nutritious water from the stream. He has great doubts about the achievability of the conservation goals. The planner and one of the farmers regret the demarcation of the Natura 2000 site: some important habitats are not protected.

Farmers see quality of life as the greatest challenge of the area, while the writer of the management plan finds the greatest challenge in the acquiring of land in the infiltration zone to increase the seepage water impact in the stream valley.

Social / Participatory approach

The management plan of the Drentsche Aa was made by a small group of writers and planners that consulted a Regional Group of representatives. It took a very long time to write the plan. The interviewed farmers know little about the plan and do not feel represented by this Regional Group, the distance from the representatives to the area is too big. The farmers are represented by LTO Noord (Dutch Federation of Agriculture and Horticulture) and through the private land owners representative. There were a four public meetings during the drawing of the management plan. All interviewees stated that it would have been better if the area was consulted before the drawing of the plan. The representative from the water board thinks it should have been better if the management plan was split in different sub plans. This would open the way to a more small-scale process with specific solutions in the different areas.

The interviewees filled in the scoring table concerning the participatory approach. The average scores and ranges can be found in Table 2. The farmers (“stakeholders” in the table) couldn’t answer specific points about process. On the points farmers could score, the writer and representative (“managers and planners” in the table) score alike.

Table 2. Statement scoring results Drentsche Aa

How good was the process at:	Managers and planners (N = 2)		Stakeholders (N = 2)	
	Average score	Range	Average score	Range
Representing the people affected	2	1-3	1	1
Allowing people to have a real impact	2	2	1	1
Incorporating the values of people	3	2-4	-	-
Involving people as early as possible	2	2	1	1
Increasing trust between all involved	2	2	-	-
Resolving any existing conflicts	2.5	5- ^x	-	-
Being unbiased and independent	5	5	-	-
Being transparent and clear	5	5	-	-
Improving the technical quality of decisions	5	5	-	-
Providing information and educating people	1	1	1	1
Leading to new organisations or structures being established to implement decisions	1	1	1	1
Leading to long-term biodiversity benefits	3.5	3-4	-	-

^x: according to one there weren't any existing conflicts

4.2.5 Analysis

Role of the farmers in planning and management

The farmers were represented by LTO Noord in the Regional Group but they were hardly informed. They know little of the goals of Natura 2000 or of the management plan process. According to the concept management plan the farmers can continue their practices. The goals will have impact on farming practises: to improve the environmental conditions discharge of nutrients and crop protection products to the stream must be lowered. Also the slowing down of peak discharge from the brook by increasing the collection of water on the land will have an impact and can only be achieved in close cooperation with the farmers. Finally farmers rent meadows from the main landowner of the area, the Dutch State Forest Service, which is

another role in management of the site. One interviewed farmer thinks that farming in this area should be nature inclusive to achieve nature conservation and keep the quality of life high.

Forms of participation

The form of participation in the Drentsche Aa can be characterised as consultation for the Regional Group, for the local farmers it is characterised as information. The drafting of the management plan failed to create support for nature conservation from the farmers. Sadly, this is the same conclusion as is drawn by Turnhout et al. (2010) in their case study of the participatory process to gain support for the National Park Drentsche Aa. They concluded that multi-stakeholder platforms run a real risk of losing touch with their constituencies, and increasing the gap between government and citizens. According to the interviewed farmers this happened again in the Natura 2000 process.

Success factors

The key factor to a successful process of reaching the Natura 2000 goals is, according to the farmers an active role of people in the area in nature conservation, and cooperation between farmers and nature conservators. According to the writer and the water board representative success can only be achieved when there will be a strong new leader in the process, who will either do the process of writing the management plan all over again or will start with extensive measures to reach the goals.

Is the site successful?

Looking at the three dimensions of success we defined, it is not easy to conclude if the Natura 2000 site Drentsche Aa is a success or not. First the social/participatory dimension: farmers are represented in the process by the LTO but they don't feel involved ("He's probably working hard behind the scenes, but I don't know what he is doing.") and they are not informed about the ongoing processes. On the other hand: the rights of farmers are respected and the farmers have a very positive attitude towards the site. Second the ecological dimension: farmers don't know the objectives in the management plan but they foresee conflicts on groundwater levels and fear the consequences from Nature Protection Law legislation. They are needed for some habitat types. The writer and the representative from the water board state that the goals are very ambitious. And third the economic aspects: it must be possible to gain a proper income in this area, but it is not easy as traditional intensification is not the proper way to reach it, and it will ask a creative mind of the farmers.

4.3 Neusiedler See – Nordöstliches Leithagebirge

This Natura 2000 site was selected as one of the case studies as it is known for its fertile agriculture and species-rich and diverse habitats, due to its location around the steppe lake Neusiedl. As Demmerkogel, it is a site famous for vineyards and meadow orchards. Farmers and landowners are dedicated to preserve the high biodiversity since the beginning of the 20TH century by cultivating greenlands, mowing grasslands and preventing desertification through leasing.

4.3.1 Description of the site

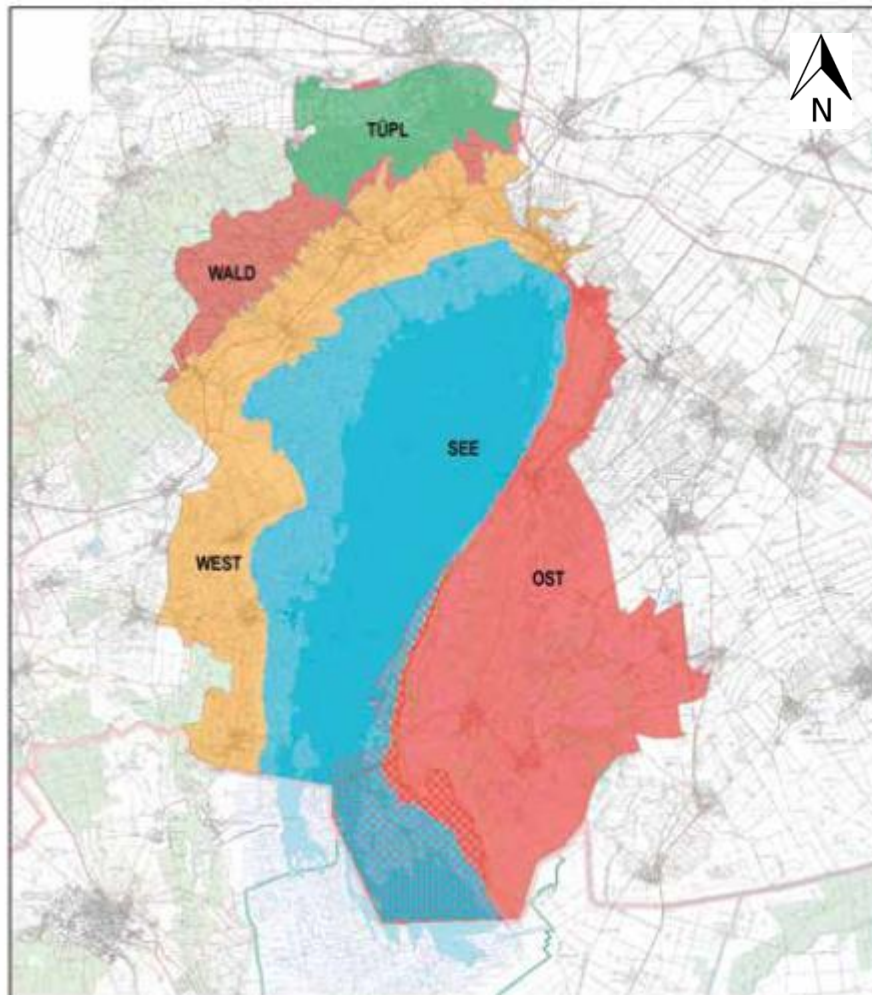
The Natura 2000 site “Neusiedler See – Nordöstliches Leithagebirge” (fig. 3) is located in the northern Burgenland, which is the most eastern state of Austria, and borders Hungary.

The region with a gross area of 571 km² is characterized by a large variety of different habitats, like oak forests, salt ponds, or steppe-like dry grasslands. (Suske et. al., 2015: 21)

The lake Neusiedl and the reed belt surrounding it occupy an area of about 320km² and are amongst the most important breeding, feeding and transit areas of European wetlands. The Seewinkel, which is also home to the preservation zones of the national park, is dominated by rare, protected salt ponds, grassland areas, which are partially used as pastures, vineyards and agricultural areas. The western part of the area is characterized by the small-parcelized vineyards and the dry grassland area, with numerous landscape elements such as bushes, embankments, orchards and fruit trees. Oak forests as well as oak-hornbeam forests are indigenous in the on average 400m high mountain ridges of the Leithagebirge. Forest-free areas are located on the Bruckneudorf military training ground, as well as on the southern slope of the Leithagebirge. The cultivated areas at the military training site are characterized by arable land, meadows and scrubbed dry grasslands. (Suske et. al., 2015: 21)

In 1926, nature conservation areas were first identified by law. Based on this, extensive restrictions of use were decreed in 1932. A draft regulation for the creation of a national park was made in 1940 but it took more than another 50 years and two new nature conservation acts, 1961 and 1991, before the nature park was established by law in 1992. With the entry into the European Union in 1995, Austria states to protect nature according to EU-directives. Today the region of Neusiedler See is part of the European Natura 2000 network and is listed as UNESCO World Heritage. (Nationalpark Neusiedler See) Later on in 2013 the site as we

know it today was formed by merging the two regions Neusiedler See – Seewinkel and Nordöstliches Leithagebirge (European Environment Agency 2012).



Caption

OST	Seewinkel and eastern shore
SEE	Neusiedler lake and reed belt
TÜPL	Bruckneudorf military training ground
WALD	Nordöstliches Leithagebirge
WEST	slopes of Leithagebirge and western shore

Figure 3: Areas in the Natura 2000 site Neusiedler See – Nordöstliches Leithagebirge (Suske et. al., 2015: 76)

4.3.2 Conservations goals and main problems

Because the site is composed of many areas, the list of conservation goals is long. The main goals are the habitat preservation of endangered bird species through grazing measurements, the removal of bushes from dry grasslands and preserving the reed canals and salt marshes.

Especially the last mentioned point is one of the major challenges, as the site is facing dehydration phases during spring and summer. (Suske et. al., 2015: 57f.)

4.3.3 Main stakeholders

The main stakeholder who is responsible for the management of this site is the BERTA nature conservancy association. The state government, zoology experts, farmers, hunters, the nature conservancy association of Burgenland and local residents are also important stakeholders, as they participated in various meetings concerning the management plan. Especially farmers have an important conservation role, as they are the ones who cultivate the site.

4.3.4 Interview results

The following sub-chapter presents the results of the five interviews with the following people:

- The manager of the site who is responsible for the areas in the district Eisenstadt (personal interview)
- The project leader, responsible for drafting the management plan (interviewed via e-mail)
- The secretary of the nature conservancy association of Burgenland, responsible for monitoring the site and the implementation of various projects (personal interview)
- One farmer who lives in the area (personal interview)
- One farmer whose land is located in the Natura 2000 site (personal interview)

Economic

In terms of economic aspects, all interviewees had partly different views. While one of them says that the Natura 2000 site brings profit to tourism, local residents and hunters, the others think that this is not the case. The manager even stated: “Farmers know how to market their goods, so if they want to do achieve something they will do it. Natura 2000 doesn’t make their wine better.” However, all interviewees, except one farmer, believe that farmers benefit more since the area has been appointed as a Natura 2000 site, due to better subsidies. However, the site does not have an impact on the profitability of farmers directly, because to get subventions, they have to join projects for which they get financial support from ÖPUL.

Furthermore, all interviewees stated that certain farming practices, such as spraying, are forbidden, although this would still be the case if the area would not be designated a Natura 2000 site, due to the nature conservation law.

Ecological

All interviewees state that the management goals are chosen properly, but point out that achieving them is going to be a challenge because of the big size of the site^[RB1] (571km²). The site is composed of many different areas and habitat types, which is why every area has designated special goals, such as, for example, preserving the salt brines. The planner and the secretary of the nature conservancy association both agree on the fact that preserving the remaining salt brines will be difficult due to dehydration in summer. As for the manager, he believes that the goals cannot be really achieved, as “the management of a nature reserve is not a project with a start and a finish line. [...] Management of nature conservation is a continuous process, where factors are changing regularly.” One farmer even thinks that the goals are well defined, but cannot be achieved through or with the measures the planners and managers have in mind.

The key factor for success is, according to the manager, the farmer and not the land owner, as they are the ones cultivating the land and participating at nature conservation projects. Both farmers share this opinion and say that without their farming practices, the land would be become overgrown and the reed belt would grow over the lake.

Social/ Participatory approach

Regarding the drafting of the management plan, the manager and the secretary of the nature conservancy association explain that there were plenty of public meetings, where experts, farmers, landowners and local residents were invited to participate. Both of them and the planner believe that the drafting process went really well. They also think that the most important aspects concerning the drafting process were involving the people (local residents, farmers, landowners) as soon as possible. However, the interviewed farmers were not involved at all in the drafting process. One did not even know of the existence of a management plan and the other one is sure that he would not have known of it either, if he would not have been a council man, because he was invited to the presentation of the management plan due to his position. According to both of them, many farmers do not know that they live in a Natura 2000 area, because nobody told them. The farmer who did not know about the management plan, for example, found out that his farm is on a Natura 2000 site because he saw it on a Natura 2000 map. As expected, both farmers wish to be informed earlier and involved in the drafting process.

Four out of five interviewees filled in the scoring table (see table 3.) concerning the participatory approach. Apparently, the planners and managers give a higher score than the stakeholders, however, it is important to note that one farmer has similar opinions to the planners and managers, while the other one is rather critical, which explains the lower scores.

Table 3. Statement scoring results Neusiedler See

How good was the process at:	Managers and planners (N = 2)		Stakeholders (N = 2)	
	Average score	Range	Average score	Range
Representing the people affected	3.75	3.5-4	3.5	2-5
Allowing people to have a real impact	4	4	3.5	2-5
Incorporating the values of people	4.5	4-5	4.5	4-5
Involving people as early as possible	4.5	4-5	2	1-3
Increasing trust between all involved	4	4	2.5	2-3
Resolving any existing conflicts	4	4	3	3
Being unbiased and independent	4.5	4-5	3.5	3-4
Being transparent and clear	5	5	4	4
Improving the technical quality of decisions	4	3-5	1	2 ^x
Providing information and educating people	4.5	4-5	3.5	3-4
Leading to new organisations or structures being established to implement decisions	-	-	1.5	3 ^y
Leading to long-term biodiversity benefits	4.5	4-5	3.5	2-5

^x: one farmer believes the process does not affect the technical quality of decisions

^y: according to one farmer there have already existed organisations structures similar to the management plan meetings before Natura 2000

4.3.5 Analysis

The role of farmers in planning and management

Concerning the planning process, like in Demmerkogel (see 4.1.5), not all farmers are directly involved, but represented by farmer representatives. The planners and manager claim that it is impossible to involve all 1500 farmers in the decision-making processes for this site, but the representatives and invited farmers act in the interest of all farmers. However, the farmers do not feel informed about the processes and have little to no information about Natura 2000; apparently, many farmers do not even know that their farm is part of a designated Natura 2000 site. Although they have little information about Natura 2000, farmers have an active role in the management of the site and participate in nature conservation projects where they work together with the managers of the site. Farmers and managers are aware that preserving and improving the nature conservation status of the site Neusiedler See depends significantly on

the farmers, as they are the ones cultivating and mowing the area, and thus creating and preserving different habitat types.

Forms of participation

The forms of participation for this site could be characterized as information, consultation co-decision. Although some farmers were invited to the decision-making processes, not all farmers are informed properly about Natura 2000, the management plan and the goals. Farmers wish to be informed at the beginning of the drafting process (see table 3. Involving people as early as possible) and would like to participate at the meetings. As for the forms consultation and co-decision, they cannot be characterized as completely valid for Neusiedler See, because only the planners and managers claim to have involved farmers during the planning process. Clarifying that would need further research and interviews with stakeholders who participated at those meetings.

Success Factors

The manager of the site believes the key factor for a successful implementation of the management plan and nature conservation are the farmers, because their practices preserve the different habitat types and create biodiversity. According to the manager, it is important that the farmers see a reason in participating in nature conservation projects and realize the importance of preserving nature. The farmers from this site are aware of their important role and cooperate with the managers and project leaders to help preserve the area. However, one farmer stated that nature conservation is not possible without sufficient subventions and constant support by the managers.

Is the site successful?

Like the Austrian site Demmerkogel (see 4.1.5), the site is successful concerning the ecological and economic dimension, but cannot be declared as successful concerning the social dimension.

Regarding the ecological dimension, the goals are defined appropriately, as each area has designated special goals reflecting the different habitat types. The site is constantly monitored by the managers and the nature conservancy association of Burgenland, in order to set different priorities to current problems. The wide range of biodiversity is another factor for its ecological success.

Although the Natura 2000 site has no direct impact on the farmer's profitability, they do receive subventions from ÖPUL if they participate in projects concerning Natura 2000.

Lastly, the social dimension is not really represented in this site, because farmers do not receive proper information about Natura 2000 and are only partly involved in the planning process.

4.4 Zouweboezem

The Zouweboezem was selected as a case study because it is a man-made area with natural values amidst agricultural lands and villages. It was expected that agricultural practices (mainly resulting in nitrogen deposition) would have a significant impact on the area, and that management practices (mainly water level management) might cause conflicts with local stakeholders.

4.4.1 Description of the area

The Zouweboezem is the smallest protected birds-area in the Netherlands. It was created in the 14th century, when a drainage canal (in Dutch: boezem) was dug to collect excess water from the surrounding polders. Nowadays, only the polders in the protected area drain on the Zouweboezem, the other surrounding polders drain via a larger canal dug in the 19th century. The site is located in Zederik, a Municipality in the Province of Zuid-Holland near the borders with the Provinces of Utrecht and Gelderland. The site is small, only 258 ha in size (Ministry of Economic Affairs, 2013). It became protected in 1992 under the Birds Directive and, with the appointment as a Natura 2000 site in 2013, also under the Habitat Directive (Ministry of Economic Affairs, 2013). The conservation management plan for the site is still a draft, but is expected to come into force later this year, around September 2017 (interview with the Province representative). The Zouweboezem is included in the Programmatic Approach Nitrogen (PAS) as a nitrogen-sensitive area (Province of Zuid-Holland, 2015).

Figure 4 shows a map of the site. The yellow area is protected under the Habitats Directive, the green area is protected under both Habitats and Birds Directives.

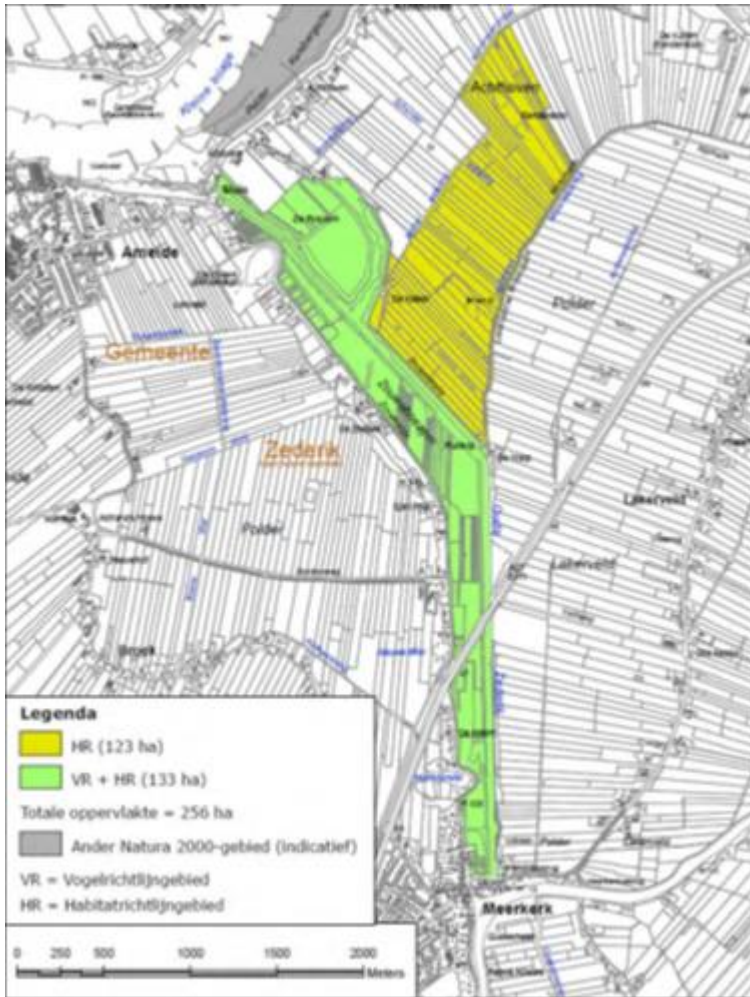


Figure 4: Map of the Natura 2000 site the Zouweboezem (Province of Zuid-Holland: 2016)

4.4.2 Conservations goals and main problems

The conservation area protects three habitat types, five habitat species and four bird species. The purple moorgrass meadows are of national importance. The area contains the largest nesting site for purple herons (*Ardea purpurea*) in the Netherlands, and could be an important habitat for the spotted crane (*Porzana porzana*). Currently only one breeding pair of the spotted crane is present in the area, but the conservation goal is to increase that number to five breeding pairs (Province of Zuid-Holland, 2016). According to the concept management plan, this requires a more natural water level management with high water levels in winter and low levels in summer (Province of Zuid-Holland, 2016). It is difficult to realise a high water level in the Zouweboezem without creating flooding problems (flooding of gardens and cellars) for the local residents (interviews).

Three of the five protected habitat types, including the purple moorgrass meadows, are sensitive to nitrogen deposition. Of the protected species, the European bitterling (*Rhodeus amarus*), the northern crested newt (*Triturus cristatus*) and the lesser ramshorn snail (*Anisus*

vorticulus) are sensitive to nitrogen deposition (Ministry of Economic Affairs, 2013; Province of Zuid-Holland, 2015, 2016). The appointment as a nitrogen sensitive area (PAS) impacts the farmers' possibilities for development. For them, every new species was seen as a threat because of all the additional measures and possible consequences (interview).

4.4.3 Main stakeholders

Main stakeholders on the management side of the area are the Province of Zuid-Holland, who is responsible for the conservation management plan, Stichting Zuid-Hollands Landschap (Foundation Landscape of Zuid-Holland), who is the owner and manager of the site and Waterschap Rivierenland, the Water Board who is responsible for water quality and water quantity.

The other main stakeholders in the area are farmers and residents. They are located outside the Zouweboezem site. At the start of drafting the management plan, an advisory group was established, including representatives from the municipality of Zederik, an anglers' association (Hengelsportvereniging De Karper), the Federation of Agriculture and Horticulture (LTO), the Department of Public Works (Rijkswaterstaat), a foundation for the protection of farms (Stichting Boerderij en Erf), a foundation for the protection of historic windmills (Stichting tot Instandhouding van Molens in de Alblasserwaard en Vijfherenlanden), an organisation of nature and bird keepers (Natuur- en Vogelwacht Alblasserwaard), and of course the Province, the owner and the Water Board. The neighbourhood association representing the residents (buurtvereniging Zouweboezem) was not included until two years ago.

4.4.4 Interview results

Five persons were interviewed: the project manager from the Province of Zuid-Holland, the water manager from Waterschap Rivierenland, the site manager from Zuid-Hollands Landschap (all classified as managers/planners), a dairy farmer and a local resident (both classified as stakeholders). The farmer was also the LTO (Dutch Federations of Agriculture and Horticulture) representative in the Advisory Group and a member of the Water Board administration, which made him very well informed but maybe less representative of all farmers in the area. The local resident also runs the neighbourhood association and maintains a website with a lot of information on the Zouweboezem (<http://buurtvereniging-zouweboezem.nl/>). The interviews were taken either in person (farmer and resident) or on the phone (project manager, forester and water manager). All interviewees answered the questions from the questionnaire and scored a number of statements.

Economic

None of the interviewees think that the Natura 2000 status has changed much in the area. They see no effect on agricultural profitability. The project leader is the only one who sees an economic opportunity: a more attractive area will increase the number of visitors, which could generate more income. Agricultural practices are not really affected. The main problem for agriculture is the fixed amount of nitrogen emissions, which is regulated in the PAS. It poses the risk for farmers that they have to downsize, or make sizeable investments to reduce nitrogen emissions. According to the farmer, farmers in the area feel that the nature conservation goals are misused to deny them the possibility for further development. None of the interviewees thinks there will be a financial compensation for the farmers. The site manager added that Zuid-Hollands Landschap is also not compensated for damage caused by agricultural practices.

Ecological

Opinions on the conservation goals differ. The managers regret that Natura 2000 focuses on species, rather than ecosystems. Water quality and water quantity are generally seen as the main problems for the area. Farmer and resident feel that current site management is destroying the area. They question the bird counts made by the site manager and other experts and think that doing nothing apart from regular maintenance is the best way to protect the area. All managers, on the other hand, agree on the necessity of measures. Water level management is crucial, but very complicated in the area due to the neighbouring buildings which need a lower water level to avoid flooding, and the fact that the Zouweboezem site is higher than the surrounding agricultural fields which means that water from the Zouweboezem flows away and alien, polluted water has to be let in to maintain the desired water level.

Social / Participatory approach

All interviewees agree that the drafting of the management plan took far too much time. The project leader from the Province changed a number of times, and only with the current project leader the process is going well. There are no major conflicts, but rather conflicts of interest. Things that could have gone better in the process include providing information, technical quality of the decisions, a more personal approach, more clarity in the beginning of the process, involving people from the beginning and a shorter process.

All interviewees scored a number of statements concerning the process. The average scores and ranges are presented in Table 4 below. On average, managers give a higher score than the other stakeholders.

Table 4. Statement scoring results Zouweboezem

How good was the process at:	Managers and planners (N = 3)		Stakeholders (N = 2)	
	Average score	Range	Average score	Range
Representing the people affected	4.3	3-5	3.5	3-4
Allowing people to have a real impact	4	4	4	4
Incorporating the values of people	4	4	2.5	1-4
Involving people as early as possible	4	3-5	2.5	1-4
Increasing trust between all involved	3.3	2-5	3	2-4
Resolving any existing conflicts	4	3-5	3.5	3-4
Being unbiased and independent	4	3-5	3	2-4
Being transparent and clear	4	3-5	3	2-4
Improving the technical quality of decisions	4	4	2.3	2-3
Providing information and educating people	3.7	3-5	2	2
Leading to new organisations or structures being established to implement decisions*	4.5	4-5	3	2-4
Leading to long-term biodiversity benefits	3.3	2-4	2	1-3

* All stakeholders were happy with the Advisory Group which was set up for the management plan process. The project manager stated that "rather than new structures, we try to embed the process in existing structures."

4.4.5 Analysis

Role of the farmers in planning and management

The farmers were represented in the Advisory Group. They feel they had a real impact on the planning process. Their involvement in site management is limited to leasing grasslands for grazing cattle. To reach the biodiversity goals, farmers may have to downsize to lower nitrogen emissions. This is regulated in the PAS which is a national programme. The farmers are not directly involved in reaching the biodiversity conservation goals of the Zouweboezem.

Forms of participation

The form of participation in the Zouweboezem can be characterised as information and consultation. Farmers are informed in town hall meetings and via their representation in the Advisory Group. The participatory process in drafting the management plan created support

from all stakeholders. All interviewees think that the process allowed people to have a real impact, but it is not clear exactly what this impact was.

Success factors

According to farmer and resident, the key factor to success is keeping the site management as it has been for years. Proper maintenance, but no drastic measures. The site manager sees a good water quality and the right water level as the basis, combined with proper maintenance. The key to success according to the water manager is a higher water level, balanced against limiting the inlet of alien water as much as possible. For the project manager, the key to success was bringing the people together and taking the local interests into account.

Is the site successful?

The question whether the site can be ruled a success is difficult to answer. The process dragged along for far too long, causing the stakeholders to become entrenched. The project manager was successful in creating support for the process, making sure that all stakeholders felt they were heard. All stakeholders trust the project manager, but trust among the stakeholders is less apparent. Farmer and resident do not trust the bird counts made by the site manager and bird experts.

When looking at the success factors we defined, farmers were involved in the planning process, but do not have an active role in the site management. Their property rights are respected; the site is owned by Zuid-Hollands Landschap and farmers do not have property rights in the nature conservation area. The farmers have a positive attitude towards the site as it has always been, but not so much towards current management. They are well informed through meetings, the Advisory Group and the website of the neighbourhood association.

As for ecological success, the managers believe that the objectives from the management plan can be achieved, although “much depends on the developments in the water system, which cannot be controlled completely. It is a fragile balance in a vulnerable system”. Resident and farmer believe that the management practices will have a negative impact on the biodiversity goals in the management plan.

The site does not seem to have an effect on farm profitability.

5. Discussion

The interviews consisted partly of open questions and partly of a statement assessment. The statement assessments are compared in Table 5 (scores by the managers) and Table 6 (scores by the farmers). On average, the managers gave higher scores than the farmers for all sites.

Table 5 Scoring results by the managers of the sites

How good was the process at:	Demmerkogel (N=2)		Drentsche Aa (N=2)		Neusiedler See (N=2)		Zouweboezem (N=3)	
	Average score	Range	Average score	Range	Average score	Range	Average score	Range
Representing the people affected	3	3	2	1-3	3.75	3.5-4	4.3	3-5
Allowing people to have a real impact	4	4	2	2	4	4	4	4
Incorporating the values of people	4	4	3	2-4	4.5	4-5	4	4
Involving people as early as possible	4.5	4-5	2	2	4.5	4-5	4	3-5
Increasing trust between all involved	3	3	2	2	4	4	3.3	2-5
Resolving any existing conflicts	3.5	3-4	5	5	4	4	4	3-5
Being unbiased and independent	2	2	5	5	4.5	4-5	4	3-5
Being transparent and clear	4	3-5	5	5	5	5	4	3-5
Improving the technical quality of decisions	3.5	3-4	5	5	4	3-5	4	4
Providing information and educating people	4	3-5	1	1	4.5	4-5	3.7	3-5
Leading to new organisations or structures being established to implement decisions	-	-	1	1	-	-	4.5	4-5
Leading to long-term biodiversity benefits	4.5	4-5	3.5	3-4	4.5	4-5	3.3	2-4
Average score over all statements	3.6		3.0		4.3		3.9	

Table 6 Scoring results by the farmers of the sites

How good was the process at:	Demmerkogel (N=1)		Drentsche Aa (N=2)		Neusiedler See (N=2)		Zouweboezem (N=2)*	
	Average score	Range	Average score	Range	Average score	Range	Average score	Range
Representing the people affected	4	4	1	1	3.5	2-5	3.5	3-4
Allowing people to have a real impact	2	2	1	1	3.5	2-5	4	4
Incorporating the values of people	2	2	-	-	4.5	4-5	2.5	1-4
Involving people as early as possible	2	2	1	1	2	1-3	2.5	1-4
Increasing trust between all involved	4	4	-	-	2.5	2-3	3	2-4
Resolving any existing conflicts	4	4	-	-	3	3	3.5	3-4
Being unbiased and independent	2	2	-	-	3.5	3-4	3	2-4
Being transparent and clear	3	3	-	-	4	4	3	2-4
Improving the technical quality of decisions	-	-	-	-	1	2	2.3	2-3
Providing information and educating people	3	3	1	1	3.5	3-4	2	2
Leading to new organisations or structures being established to implement decisions	-	-	1	1	1.5	3	3	2-4
Leading to long-term biodiversity benefits	5	5	-	-	3.5	2-5	2	1-3
Average score over all statements	3.1		1.0		3.0		2.9	

* One farmer and one local resident were interviewed.

When comparing the scores the managers of the different sites gave to the statements (Table 5), Neusiedler See receives the highest scores, followed by Zouweboezem and Demmerkogel. Drentsche Aa receives the lowest scores. Scoring by the farmers is on average lower than the scoring by the managers. Farmers give Demmerkogel the highest score, followed by Neusiedler See and Zouweboezem. Drentsche Aa, again, receives the lowest score.

The positive scores by the Austrian farmers may be linked to the attractive compensation schemes. The farmers in Demmerkogel and Neusiedler See were very positive about ÖPUL. In the Netherlands, farmers do not receive specific financial compensation for Natura 2000 sites. For Zouweboezem, only one farmer was interviewed. The other interviewed stakeholder was a local resident. The farmer interviewed was also the farmers' representative in the Advisory Group, and he was a member of the Water Board administration, which made him very well informed but maybe less a representative of all farmers in the area.

Not all statements in the table were scored by all interviewees. The number of interviews is too small to make a reliable statement about the significance of the differences. It is unknown whether the opinions of the interviewees are representative for the opinions of the total group of managers or farmers. If we had chosen other people to interview, we probably would have gotten different scores.

Table 7 summarises the interview results related to our research questions. The question about success factors was interpreted differently by the various interviewees. Some took it as success in conserving the area and protecting biodiversity, while others (mainly managers) related it to the planning process.

Table 7. Comparison of sites related to our research questions

	Demmerkogel	Drentsche Aa	Neusiedler See	Zouweboezem
Role of farmers	Winegrowing, fruit growing, mowing	Meadow lease, crop growing	Winegrowing, fruit growing, mowing, grazing	Meadow lease for cattle grazing
Forms of participation	Information Consultation In general no co-decision (only one farmer)	Consultation (management group) Information (farmers)	Information Consultation (according to planners and managers) Co-decision	Information Consultation
Success factors	Site: high range of biodiversity Social: farmers and locals increasingly have a positive attitude towards the site and nature conservation in general; Farmers are financially supported	Farmers: Active role of local people Management: strong leadership	Site: high range of biodiversity and habitat types Social: increasing awareness of nature conservation and Natura 2000 Social: involving and financially supporting farmers	Site: Proper maintenance, good water quality and higher water level Process: bringing people together and taking local interests into account
Site success	Social: farmers do not feel involved, farmers sometimes face restrictions Ecological: high range of biodiversity, goals are effective and constantly adapted to current problems Economic: mixed, for some farmers site leads to increase, for others it does not have an impact	Social: farmers do not feel involved Ecological: ambitious goals, possible conflict over groundwater levels Economic: not easy to gain an income	Social: farmers do not feel involved or taken seriously Ecological: high range of biodiversity, goals are effective and constantly adapted Economic: Natura 2000 status has no impact on income	Social: mixed Ecological: goals are feasible Economic: Natura 2000 status has no impact on income

Farmers in Demmerkogel, Drentsche Aa and Neusiedler See were represented but they did not have any influence in the process. In Zouweboezem, farmers were involved in the process, but hardly in the management of the site. All stakeholders felt that they were not informed sufficiently.

According to the literature, a participatory approach of farmers may result in better outcomes than a top-down approach (Henle et al., Kati et. al, 2015; Henle et al. 2007, Young et al. 2012). At the sites we studied, however, the approach was rather top-down. As a result, farmers did not feel involved, although they wished to be more involved. In Austria, the sites seem to be more successful in protecting biodiversity because the farmers are involved in the management of the site, for which they receive an attractive financial compensation. In Drentsche Aa, the representatives lost touch with the people they represented (cf. Turnhout et al., 2010). In Zouweboezem, the long process led to stakeholders becoming entrenched (cf. Turnhout et al., 2010).

6. Conclusions

In order to answer our research question we first have to answer our derived research questions.

Which roles do the farmers play in the planning and management of Natura 2000 sites?

Farmers can play different roles in Natura 2000 sites:

- reducing biodiversity through abandonment (as is the case in Demmerkogel and Neusiedler See)
- reducing biodiversity through intensification (what can be found in the Dutch sites Drentsche Aa and Zouweboezem)
- carrying out conservation measures (as is done in Demmerkogel, Drentsche Aa and Neusiedler See)
- providing local knowledge during the planning process (as farmers could do in the planning process in Zouweboezem)
- enhancing the profitability of their farms by providing new services like providing accommodation or selling farm products to tourists (as farmers do in Demmerkogel, Drentsche Aa and Neusiedler See).

Which forms of participation of the farmers are the most successful?

Depending on the degree of involvement we have distinguished five different forms of participation: information, consultation, co-decision, shared responsibility and self management. For the four sites we had studied we concluded that the participation form is information: the farmers were informed about plans and their outcomes, but had no right of co-determination. The representatives on the other hand were consulted: they could address their opinions and participate at discussions, but their views did not have to be taken into account. Zouweboezem had the most successful form of participation: it created support from all stakeholders, who felt they had a real impact, even though it is not clear exactly what this impact was. The farmers in the other three sites asked for more participation in the process.

What factors do managers and farmers identify as key factors for a successful implementation of Natura 2000 sites and what are the differences in their views?

As the interviewees defined different key factors, we cannot really answer this question. We cannot identify the key factor, but we can conclude that managers and farmers have different views on key factors for a successful implementation of Natura 2000 sites. It is remarkable to see that in Neusiedler See the managers identify the farmers as a key to success, whereas the farmers identify the support of managers as the most important factor.

What are the differences in what makes the sites successful?

The three sites Demmerkogel, Drentsche Aa and Neudiedler See seem to be comparably successful: they are economically and ecologically successful, but not regarding to the processes. Austrian farmers are more involved in management of the sites than Dutch farmers are. Zouweboezem seems to be the most successful site because of the support that is built during the drafting of the management plan. Zouweboezem is a small site, which makes it easier to involve all stakeholders and take local interests into account.

The answers to the derived questions lead to the answer to the main research question:

To what extent is the participation of farmers in the planning and management of Natura 2000 sites key to success for a sustainable development and management of those sites?

Farmers are not the key to success in planning the sites Demmerkogel, Drentsche Aa and Neusiedler See. However, in regard of sustainable development and management they are the main key to success, because without their agricultural practices the biodiversity goals cannot be reached. For the Zouweboezem site we can conclude that farmers are not key to success in either planning or management of the site, even though the process went very well in the end. The differences between Austria and the Netherlands are not very big: farmers are equally represented and not fully being informed. There are differences in financial schemes and in the use of and responsibilities for the land. For this study, the small size of the site Zouweboezem (256 ha) seems to explain the difference in involvement of farmers in planning and management of Natura 2000 sites.

7. Recommendations

After drawing some conclusions on the role of farmers in planning and managing the four Natura 2000 sites, we want to come up with some recommendations for managers and planners how to improve the sites' success by increasing the participation of farmers. One major point that planners and managers of Natura 2000 sites should consider is that intrinsic motivation of farmers is highly essential for making the site more successful. If farmers are not involved enough in decision-making processes, they do not recognise the reason for nature conservation and the according measures that need to be carried out. As a further consequence they do not see any personal reasons to contribute to nature protection in the area. The only incentive that turned out to be an effective strategy to motivate farmers is financial compensation. However, only if farmers acknowledge that valuing, protecting and appropriately restoring biodiversity contributes essentially to human well-being and economic prosperity, and thus find an intrinsic motivation, can they contribute more effectively to reaching the conservation goals.

Assisting farmers in finding intrinsic motivation may be reached by giving them more information and room for negotiation in planning and management processes and more information about the Natura 2000 goals and management plans. Therefore, we recommend that planners and managers foster more involvement of farmers. This includes giving them more information about ongoing processes and informing them about current situations and problems before final decisions are made. If farmers are only informed after decisions have already been made, they feel ignored in the process and get the impression that their opinion is not valued. Furthermore, we suggest allowing them more initiative and incorporating their ideas in the planning and management process.

Last but not least, we suggest doing a similar research to our study with more interviews. As the time was limited we could only conduct sixteen interviews in total. This has a negative impact on the reliability of the results and makes it difficult to draw final conclusions. If more interviews with different stakeholders were held, definite conclusions could be reached and the research could be made more reliable. Furthermore, if the participation of farmers were studied at more Natura 2000 sites, the possibilities to find a best practice site concerning stakeholder involvement would be enhanced, and thus conclusions which form of participation of farmers is the most successful could be made.

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Annex 1

Questionnaire “The role of Farmers in Planning and Managing Natura 2000 sites”

Date of interview:	
Location of interview:	
Name and contact details of interviewee:	
Profession of interviewee:	

Personal

- How well do you know the site?

Economic

- Have things changed since the site was designated as Natura 2000 site?
- What is the effect of the N2K site on the farm’s income or profitability?
increase – no effect – decrease
- Are there any opportunities to use the N2K site as an additional source of income?
for instance:
 - tourism
 - ‘nature’ meat (from cows grazing in the area)
- How does the N2K site affect farm practices in the area?
- Are there any activities you can no longer carry out?
- Do you receive financial compensation as a result of the N2K site?

Ecological

- What do you think about the conservation goals in the management plan?
- Were you involved in defining these goals?
- Do you think the targets in the management plan are achieved?
- What are the main challenges in the area?
- What – in your opinion – is the key factor to success?

Social / participatory approach

- When did you first get involved (at what stage in the process)?
- What is your role in the process?
planner – manager – farmer – owner
- What were your responsibilities?
- How well did the drafting of the management plan go?
- Did you have any other related activities apart from attending the meetings?

Table exercise

How good was the process at:	1 (very bad)	2	3	4	5 (very good)
Representing the people affected					
Allowing people to have a real impact					
Incorporating the values of people					
Involving people as early as possible					
Increasing trust between all involved					
Resolving any existing conflicts					
Being unbiased and independent					
Being transparent and clear					
Improving the technical quality of decisions					
Providing information and educating people					
Leading to new organisations or structures being established to implement decisions					
Leading to long-term biodiversity benefits					

- What were the three most important aspects in the list during the process of drawing up the plan?
- Do you think the process could have worked better? How?
- How well do you think the management plan is being implemented?
- Do you think things could have been different in the area if there wasn't a plan in place?
 - financially
 - in terms of biodiversity
 - in terms of conflicts