

Restoring more than nature?

Reflecting upon storytelling regarding peat bog restoration in the south-east of Drenthe



Bachelor project

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Cover page: (Bargerveen-Schoonebeek, 2019)

Abstract

The Bargerveen is a rare and important peat bog in the south-east of Drenthe. Peat bog restoration can help prevent the negative externalities that peat bog degradation has. Externalities include loss of rare species and habitats, soil subsidence and CO₂ emissions. There currently is a knowledge gap regarding peat bog restoration policies in the Netherlands. An improved understanding of the restoration process can lead to an improved understanding of how peat bog policies should be approached. This paper explores the relationship between peat bog restoration and recreational usage, identifying how these work together to allow nature conservation and restoration. This is explored in the form of a literature review and interviews with the three main stakeholders. The research started out focussing on storytelling during the restoration process. However, the data collected did not allow for a conclusion regarding storytelling. But, other conclusions can be drawn from the data. The main finding is that recreational usage is the result of changes with regard to the organisation of the stakeholders. The de-integration of Staatsbosbeheer and the foundation of the 'Internationaler Naturpark Moor-Veenland' allowed for restoration projects to be undertaken while the Naturpark was able to secure multiple grants. However, there was a degree of expectation of return. It must be noted that restoration projects can be completed, at a certain moment the goals have been achieved or no more measures can be taken. This is not the same for recreational projects, goals can be achieved but then a logical consequence is the implementation of more recreational projects. The expectation is thus that the ratio between recreational and restoration projects will shift towards recreational projects.

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1. Introduction

1.1 Background:

The Bargerveen area in the south-east of Drenthe is one of the last remaining active peatlands in Europe. This area was once the driver of development in this area, during the 20th century the peat bogs have been heavily excavated. Signs of excavation and trade of peat can still be found throughout the area. Channels that were excavated to drain and transport the peat still cause low water levels. These low water levels cause peatlands to degrade, even when excavation had come to a halt. (Bargerveen-Schoonebeek, 2020).

In the beginning of the 21st century plans to restore the area by use of buffer zones were conceived. Restoration of peat bogs can be achieved through restoration of water levels. These peat bogs have nich ecosystems inhabited by rare and sometimes endangered flora and fauna (Bargerveen-Schoonebeek, 2020). Furthermore, the Bargerveen area is viewed as one of the possible drivers of tourism in the municipality (Gemeenteraad, 2016). And lastly, peat bog restoration could play a role in sustainable storage of CO₂ (Lindsay, 2010).

1.2 Motivation

Main motivations for this research are my personal interest in nature and the planning process, the role peat oxidation plays in climate change and lastly, the plain beauty of the area. However the direct instigator of this research was the advisory report by van Duinen et al., (2013). Van Duinen et al. studied flora & fauna, vegetation, soil profiles and the hydro-ecological position of the Bargerveen and concluded the report with advice regarding strategy to preserve and develop the Bargerveen. This report sparked my interest in this topic.

1.3 Societal Relevance

The societal relevance of the research can be related to the historic importance of the Bargerveen; the area has played an important role in the economic development of the area. It is imperative to research the contribution to society this area could play in the future. Low water levels in peat areas can lead to damage to society, the low water levels will lead to problems with water management, causing either too dry or too wet soils (Erkens et Al., 2016). The lack of water in peaty soils can cause land subsidence of up to 1-2cm per year, the soil dries and decreases in volume (Brouns et al., 2015) Lastly, peat oxidation leads to emission of greenhouse gases, contributing to climate change (Erkens et al., 2016). This combination of externalities can lead to severe damage to society. This research aims to create an understanding of the planning process regarding peat bog restoration, and could help society learn how peat bog restoration can efficiently be dealt with in the planning process, leading to a decrease of negative externalities as a result of peat bog degradation.

1.4 Scientific Relevance

With regard to the academic relevance, there currently is a research gap with regard to peat bog restoration and policy making in the Netherlands. There is paramount literature regarding the positive effects of peatland restoration (Zauft et al., 2010) Furthermore, literature regarding policy making in the Netherlands is readily available, however little research has been done into how peat bog restoration is translated from advice into policy.

1.5 Objective and Research Questions

As mentioned above, there currently is a lack of knowledge about what elements regarding peat bog restoration are emphasized during the planning process; the natural, environmental, recreational or other values? During the planning process the Bargerveen and possible restoration plans have been studied, discussed, planned and executed, with the restoration expected to continue past 2022. (Bargerveen-Schoonebeek, 2021). During the process, from the start of the process to the finalisation of the process, the different actors value different elements of the peat bog. The instigators of the process did this because of ecological concerns (Gemeenteraad, 2006), however in later municipal minutes the Bargerveen is mostly mentioned in the context of tourism (Gemeenteraad, 2016). The aim of this research is therefore to provide insight if and how the emphasis of peat bog restoration shifts from ecological and environmental to recreational. The main research question that follows is:

How do stories regarding 21st century peat bog restoration change throughout different phases of the planning process in the Bargerveen area?

To answer the main research question, a multitude of sub-questions must be answered;

- *What was the situation before 2006?*
- *What were the predetermined goals and objectives for the Bargerveen?*
- *How has policy regarding the Bargerveen peat bog restoration changed throughout the process?*
- *How did the roles of involved actors change throughout the restoration process?*
- *What are the future goals and objectives for the Bargerveen?*

1.6 Reading Guide

This thesis exists out of five chapters. Chapter two will define the core concepts. The different research methods and the specific case being studied will be elaborated upon in chapter three. The fourth chapter presents the results for the case of the Bargerveen. Chapter five will present the conclusions that can be drawn from the research. In addition, the chapter will reflect upon the research.

2. Theoretical Framework

2.1 Peat Bog Restoration

To understand the functioning of peat bogs it is essential to understand that peat, plants and water are closely related and completely dependent on each other.

- The plants (and especially the peat mosses) determine the formation of the peat and its properties, such as water retention and permeability.
- The water balance (quality and quantity) determines which plants grow, whether peat is formed and the structure of the peat.
- The peat structure and the shape of the peat package determine how the water flows in the bog and how stable the water level is.

These interrelationships also mean that if one of the components changes, the other components will also change. Not necessarily immediately, but inevitably over time. A well-functioning raised bog can maintain itself.

Thus, peat bog restoration is dependent on these three aforementioned pillars. To add to this, Grosvernier et al. (1995) find that the depth of the water table, the microclimate and the type of peat contribute equally to the variation in growth of peatlands. Furthermore Smolders et al. (2002) mention that rewetting the peat surface is a prerequisite for the restoration of desiccated bog remnants. But what is the benefit of restoring peat bog remnants?

Peatlands used to cover a large part of the Netherlands and a large part of the peat landscapes were raised bogs. Almost nothing is left of this characteristic landscape and the plants and animals (biodiversity) that depend on this landscape are threatened. Due to the exploitation of the peat bogs and the deterioration of the bog remnants, they can no longer fulfil their function as water buffers and carbon (CO₂) storage. The drying up and consequently digestion of peat and the extraction of peat result in the loss of the archive that the peat has actually built up during its development.

Peat bogs have been extensively studied and as mentioned above the direct instigator for this report is the advice report by van Duinen et al. (2013). This report focuses on the preservation and development of bog grasslands, the study researched the soil chemistry, hydrology, vegetation and fauna. This study is relevant because van Duinen et al. studied the hydrology of the Bargerveen recent changes that have been made to the Bargerveen have been focussed on improving the hydrological standards in the area. Furthermore the report by (van Walsum et al., 1998) researched the hydrology of the Bargerveen before the 21st century, allowing for an even more detailed analysis of recent hydrological changes in the Bargerveen (Prolander, 2020).

2.2 Public land-use planning processes

This research approaches the planning process in line with De Haan, Drupsteen and Fernhout's (2001) definition of governmental planning; "The systematic and coordinated preparation, adoption and implementation of policy decisions based on a programme of ends and means." Planning plays a role in many forms of government policy. However, it is most visible in spatial planning and related policy themes such as infrastructure and urban development. In the Netherlands, there is an extensive system of spatial planning that is shaped by governments at different levels, for example in zoning plans or in Dutch: "Bestemmingsplannen".

2.3 Storytelling and its relationship with Peat Bog Restoration

Firstly, it is paramount to establish what "storytelling" is. Throgmorton (2003) views storytelling as weaving the web between different links and nodes, or roads and places. Subject positions can be viewed as the position of people towards these links and nodes. Everyone has a certain feeling or position towards a certain place, together these feelings can be translated into common urban narratives, these urban theories are strongly connected to a specific place, in addition these narratives often express a certain point of view, a certain place can have multiple common urban narratives.

Hartman et al. (2002) researched how strategic storytelling could be used during transition management to stimulate tourism destination development. The relevance of this report is that it offers an understanding of how storytelling could be used during destination development of the Bargerveen. The findings of Hartman can be used to analyse possible strategic storytelling that possibly took place during the planning process. Hypothetically causing a shift to a recreational destination. To get a better understanding of how peat bog restoration and storytelling relate to each other, the planning process must be analysed. Public land-use planning is a process that has a multitude of stages, in each of these stages different actors with different interests are involved. The different actors want to preserve their interest in the process. The concept of storytelling informs about how storytelling can be used during the planning process.

The article by Bonn et al. (2016) offers insight into how the specific planning process revolving peat bog restoration functions. This article is relevant because it could help understand how policy making regarding peat bog restoration could take shape, it can be used as a reference for the analysis of the planning process that will be analysed. This analysis will add an understanding of the transformation that scientifically substantiated advice regarding peat bog restoration undergoes through the planning process.

2.4 Conceptual model

The conceptual model (fig. 2) visualizes the main line of reasoning. The conceptual model contains the theories and concepts that underpin the research. First, information regarding peat bog restoration and storytelling is gathered. Then, the advice given by researchers regarding Bargerveen restoration is researched. Knowledge that has been gathered initially will be used as reference. Thirdly, the storytelling regarding the policy making and policy adaptation process will be analysed. Finally, the influence of storytelling on peat bog restoration will be reviewed.

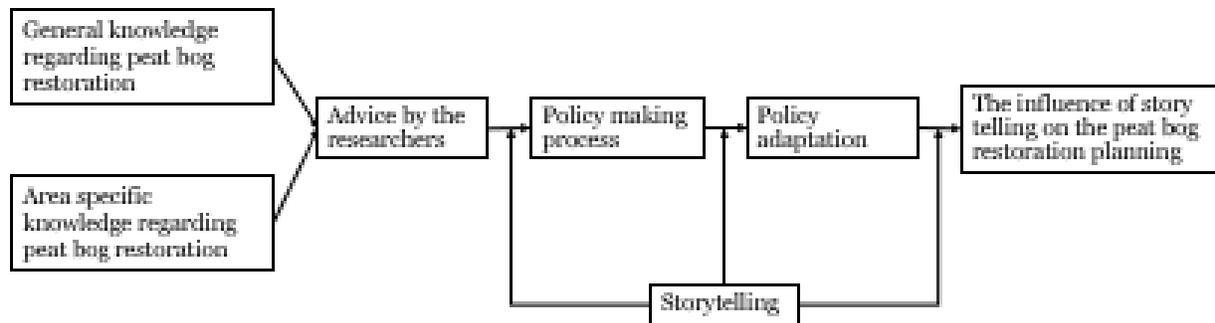


Figure 2: Conceptual model (Voss, 2021)

2.5 Hypotheses

With regards to story creation, the expectation is that the original goal of the Bargerveen restoration was preserving the niche ecosystem. My expectation is that the story focuses on possible improvements to aid nature and ecology. It is expected that during the public land-use planning process actors will try to add usages to the nature area, mainly recreation. This could lead to a change in the story, whereby the focus shifts from how peat bog restoration can improve and protect the ecosystem to how tourism can be integrated with peat bog restoration. In summary, the hypothesis of this research is that stories regarding peat bog restoration in the south-east of Drenthe will be transformed during the planning process, whereby different aspects of the stories will be highlighted by different actors, eventually leading to a story that deviates from the original story.

3. Methodology

3.1 Case Study Method

The strategy for this research will be qualitative research, a case study approach will be applied. As Clifford et al. (2016) mention that a case study offers the possibility to gain profound and integral knowledge on a specific object or process in practice.

3.1.1 Case Description

The Bargerveen lies on the south-eastern tip of the Hondsrug. Because the water had trouble getting away, partly because of poorly permeable boulder clay in the subsoil, a large-scale bog complex came into being here after the next to last ice age. The area, better known as the Bourtangter Moor, was once the largest area of raised bog in north-western Europe.

In the past centuries, most of the peat moor has been excavated. The landscape that was created by these excavations is interesting, because the history of the excavation can be found/read in the landscape. An example of this is the large difference in height at short distances: in the vicinity of the plan area, the highest point is at around 21 m + NAP (the not excavated peat) and the lowest point a little further away is at 15 m + NAP (excavated).

The water management is also characteristic: there is an intensive system of ditches. There is an intensive system of ditches to drain the water that runs off badly and there are still canals to be found for the drainage of the peat. In the village of Weiteveen, a number of homeowners regularly experience inconvenience from water in their cellars and gardens. The village of Weiteveen on the edge of the Bargerveen and the buffer zone owe their existence directly to this peat extraction history. Thanks to this history of peat extraction, Weiteveen lies on the dividing line between two stages of reclamation of the peat landscape. On the south side of the village, south of Zuidersloot, lie the marginal peat lands of the Schoonerbeekerveld. The northern side of the village has a completely different character: here we can speak of planned high moor cultivation of the Amsterdamscheveld. On the eastern side of the village, the raised bog is still intact.

3.1.2 Case Selection

The selection of the case is based on its relevance to the research objective. First of all, the Bargerveen is a project commissioned, and also funded by the government. Therefore the project is expected to adhere to certain procedural standards. Second, the Bargerveen is a long-term project that is currently in the final stages of development. Therefore it is possible to reflect upon the process so far, while also being able to speak to actors. Finally, the specific case can be used to create knowledge about peat bog restoration.

3.2 Data Collection

First data has been collected through a literature review, reviewing scientific papers, advice reports, newspaper articles and public Gemeenteraad and Provincie minutes. The processed data gives an overview of the main findings of literature, how these findings relate to storytelling in the Bargerveen planning process, and finally how this final concept is perceived.

Consequently, the understanding of the process that has been gathered from the primary research will be used during the interviews. This understanding helped place the interviewees' answer in the context of the planning process.

Data has been collected by interviewing those who were involved in the planning process. Spokespersons of the province of Drenthe, the municipality of Emmen, Staatsbosbeheer will be interviewed. Participants were recruited through email and phone calls. The interviews will be semi-structured, in order to make sure that all interviewees get similar questions and their answers can be analysed. The interviewees have been asked to reflect on their role in the planning process, and how they experienced this process. The interviewees have also been asked about the different ideas regarding restoration.

3.3 Data Analysis

The goal of the analysis is to gain an understanding of how stories change throughout the planning process. An understanding of how these stories change can be achieved by evaluating the planning process, this evaluation will be made based on data that has been gathered through the methods mentioned above. Data regarding the planning process will be evaluated based on concepts that were found in the literature. It is imperative to define the story during different phases of the planning process to be able to check for changes in storytelling. The result will be a timeline of the restoration process.

The interviews have been recorded and then transcribed, data was then analysed by using Atlas.ti. This programme was introduced in the course "Methods for Academic Research. The analysis of these interviews helped understand what story was prevalent during different phases of the planning process. The data gathered by the conducted interviews will be placed within the aforementioned timeline. This will clarify where and when what possible shift happened.

3.4 Ethical Considerations

This includes practices such as anonymizing data. It is important to be as neutral and open as possible during the research process. The goal is to be seen as someone who is genuinely interested in how the interviewees experienced the process and how the process could be improved. Lastly, the ethics checklist will be used to ensure that all ethical considerations have been taken into account. If the ethics checklist shows that the research faces serious ethical issues, the full ethics questionnaire will be completed.

4. Results

4.1 Analysis of the Bargerveen from 1968 - 1998

This subchapter analyses the situation regarding the Bargerveen pre-restoration, it will elaborate on the policies regarding the Bargerveen of that time.

The book 'Ontwikkeling van het hoogveenreservaat Bargerveen:1968 tot 2018' by Streefkerk (2018) offers a complete overview of the research and restoration that took place between 1968 and 2018. The book also elaborates on the multitude of different policies that were active during this period. Furthermore the book "Bargerveen; Grenzeloos Groeiend" by van den Brink (2018) elaborates on the relationship between humans and the Bargerveen in a more concise way.

When describing the period between 1968-1998 it is imperative to mention the main planning projects that took place during this timeframe. In 1968 the first plot of land was purchased and purchases followed till 1998. In 1976 the 'Hoogveenreservaat Bargerveen' was officially created. During this period a multitude of policy documents were adopted. Between 1971 and 2002 three different management plans were in place. The first management plan (1971-1981) had five global objectives;

Five objects of the first management plan (1971-1981)
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- | |
|--|
| <ol style="list-style-type: none">1. Preservation of all natural elements present in the reserve.2. Promotion and sustainable maintenance of raised bog communities.3. To preserve the geological and paleo-botanical values of the reserve.4. Possibilities for field-biological research.5. Opportunities for recreational co-use. |
|--|

This first period was characterised by the purchase of further properties and the construction of the first dams. The goal of these dams was to better protect the un-excavated peat bogs from drying out and to protect them from desiccation. Lastly, the dams helped preserve and further develop the raised bog vegetation in het Bargerveen.

The objective of the second management plan (1981-1991) was to expand the existing peat moss vegetation. The term "Peat bog regeneration" was also introduced. The key feature of this plan is the change in approach towards further development of the peat bog reserve.

In the mid to late 20th century there were little to no recreational activities in the Bargerveen, instead the recreational activities related to peat were attributed to the "Veenpark". The only visitors of the Bargerveen were bird watchers and locals. This has changed over the years, in 2018 the Bargerveen was estimated to attract 150.000 visitors per year. (van den Brink, 2018). The main contributors to this increase will be discussed in the following paragraphs.

In 1991 the water board adopted the water management plan 'Herstel Waterscheiding Bargerveen'. The title refers to the restoration of the Hondsrug as the natural watershed between the valleys of the Hunze and the Vecht, as a result of which the area northeast of the Hondsrug again drained to the north instead of straight through the area to the south. In the following years a series of measures were carried out, which concluded that the damming of the

Noordersloot and de-paving of the Verlengde Noorderslootweg and the Kamerlingswijk would have a positive impact on the groundwater level. (van de Brink, 2018). According to Staatsbosbeheer this led to conflict of interest, the Verlengde Noorderslootweg was an appreciated bicycle path between Zwartemeer and Weiteveen. Staatsbosbeheer promised to create a bicycle path in exchange for the damming of the Noordersloot and de-paving of the Verlengde Noorderslootweg and Kamerlingswijk.

The third management plan (1992-2002) was heavily influenced by the de-integration of Staatsbosbeheer. In 1998 Staatsbosbeheer was corporated and thus distanced from the, now disbanded, ministry of Agriculture, Nature Management and Fisheries (LNV). Staatsbosbeheer was given four core tasks; nature conservation, timber production, landscape management and outdoor recreation. Furthermore, a new planning and control system was introduced (Streefkerk, 2018). The spokesperson for Staatsbosbeheer reflected upon the move away from segregated functions (the Veenpark for recreation and the Bargerveen for nature).

Both Staatsbosbeheer and the municipality stated that the mindset of Staatsbosbeheer changed throughout the 90s. This can be attributed to the new approach towards nature management and the role of Staatsbosbeheer in the political domain. Staatsbosbeheer realised that it needed to create an image and invest in public relations to prevent further downsizing or even disbanding. Projects such as the creation of the bicycle path between Zwartemeer and Weiteveen were followed with collaborations with other organisations surrounding the Bargerveen.

Staatsbosbeheer stated that the directors realized that the Bargerveen could not function as a preserved nature area without recreational usage. Staatsbosbeheer and the province detailed how the Bargerveen separates recreational and nature preservation within the Bargerveen. The thought behind this strategy is that visitors will want to experience the Bargerveen specific nature; opening certain parts allows the visitors to be directed away from the vulnerable peat growth areas.

4.2 Analysis of the Bargerveen from 1998-2006

As a part of the corporatization of Staatsbosbeheer a new development plan for the period 1999-2009 was made. The plan specified goals for the so called sub-goal types, target components and terrain conditions for nature and recreation, elaborating upon the following aspects:

Three aspects of the 1999-2009 development plan
<ol style="list-style-type: none">1. Internal and external policies2. Landscape ecology3. Planning<ol style="list-style-type: none">a. Sub-target typesb. Target componentsc. Terrain conditionsd. Measures

The development plan for 1999-2009 describes the goals on the regional planning scale, especially the goal regarding visitors is of interest. This policy plan describes the difference between the areas that are open to the public (1590+170 ha), and the area that is not (144 ha). For the area that is open to the public (1590 ha) 100.000 yearly visitors were estimated in 1999. For 2009 an increase of 25-50% was expected. The ratio between cyclists and hikers was estimated to be 15/85 in 1999, the expected ratio for 2009 was 30/70. The growth and change in ratio were expected due to a planned bicycle path along the German border and a new path in Weiteveen. The density of bicycle paths was planned to increase from 1.3 m/100 ha to 6.6 m/100ha. (Streefkerk, 2018)

Furthermore, between 2003 and 2006 dams were created. Staatsbosbeheer explained that these new dams were designed based on the knowledge gained by the Dutch-Irish knowledge exchange. Staatsbosbeheer also explained the role of the new concrete bicycle paths on these newly constructed dams. These dams were more suited to cyclists than the traditional shell based paths, they are also more sustainable and allow better access to those who struggle with mobility. Staatsbosbeheer mentioned that the introduction of these new paths had a positive effect on the number of visitors.

Between 2005 and 2006 new control measures were introduced to combat grassification and to stimulate peat moss growth. Intensive grazing was introduced to shorten the Pijpenstroot, which eliminated the shadow effect of the grass and had a positive effect on the development of bulging bog mosses. In 2004 it was decided that a new sheepfold should be constructed to house the grazing cattle. This sheepfold is the largest in the Netherlands, and was opened in 2018 by the king of the Netherlands. According to the province and Staatsbosbeheer this sheepfold is one of the largest crowd-pullers of the Bargerveen. But why did it take fourteen years for this sheepfold to be built?

4.3 Analysis of the Bargerveen 2006-2021

Analysing the period between 2006 and 2021 will not only help create an understanding of why it took fourteen years for the sheepfold to be built, but will also help explain how the current situation came to be. 2006 is marked by the foundation of the now called 'Internationaler Naturpark Moor-Veenland'. This park covers a total of 160 square kilometres, 26 of which are in the Netherlands. These German Naturparks differ from the Dutch national parks in the sense that they are not purely nature reserves, instead they are described as valuable landscape areas that are rich in nature, but which are also used for living and working. The Naturpark is focussed on nature-friendly recreation and tourism but also on education about nature, landscape and cultural history. The organization implements multiple projects to be able to provide environmental friendly recreation and to improve the coordination of touristic developments. Furthermore, the organisation handles the application for and management of both national and European subsidies (van den Brink, 2018). Staatsbosbeheer and the province underlined the importance of the organisation, stating that the organisation allowed projects to be completed that otherwise would not have received the required funding. The aforementioned sheepfold is an example of such a project. However, the creation of the organisation is not the only big influence of the 21st century.

Since 2013 the Bargerveen has been added to the Natura-2000 network (Streefkerk, 2021). This network consists of core breeding and resting sites for rare and threatened species as well as some rare natural habitat types. Natura-2000 aims to ensure the long-term survival of Europe's most vulnerable species and habitats, listed under both the Birds Directive and the Habitats Directive (European Commission, 2021). According to staatsbosbeheer and the province joining the Natura-2000 has had a positive impact on the possibility of restoration and protection projects, since the European Union is responsible for the protection of the Natura-2000 network (Streefkerk, 2018). One such restoration project is the creation of buffer zones around the Bargerveen. Starting in 2000, the province of Drenthe has designated buffer zones. The period between 2017 and 2021 has not been described in literature, but the province stated that the creation of buffer zones is nearing completion. The buffer zone to the south of the Bargerveen is in the planning phase, with the expectation that construction will be completed in 2023 (Streefkerk, 2018). However there is currently no buffer zone at the east side of the Bargerveen. The province stated that progress is being made, but that nothing has yet been made definitive.

The construction of dams and buffer zones allows the Bargerveen to distinguish itself from other nature areas, leading to an increase in visitors. The expectation is that there will be a recreational-touristic nature area with a surface area of about 3000 ha, including buffer zones (Streefkerk, 2018). The influence of the creation of the Naturpark and the joining of the Natura-2000 network can not be understated. These factors allow ambitious projects such as the construction of the sheepfold and the creation of the buffer zones to be completed. However, there are more factors involved; Staatsbosbeheer underlined the importance of Interreg. Interreg is an European grant scheme for spatial and regional development. When taking a look into the €6.599.160,90 granted between 2015 and 2019 it should be noted that €3.285.092,82 was subsidized by European Fund for Regional Development, a further €2.152.896,40 has been subsidized by the Province Drenthe (Interreg Deutschland Nederland, 2021).

4.4 Analysis of the relationship between recreation and restoration

To conclude the results section, a deeper analysis of the relationship between recreation and peat bog restoration. It must be noted that the Bargerveen has a large path dependency and is thus a very specific case. The history described above helps understand the current day Bargerveen and its relationship with recreation. Staatsbosbeheer elaborated upon the increased importance of recreation. Firstly, the partial privatization of Staatsbosbeheer caused a shift in approach towards nature areas. Suddenly these areas had to be known and visited, so that Staatsbosbeheer would also be known and thus, not budgeted away. Secondly, the foundation of the Naturpark has been very influential in both the current situation in Bargerveen as well as the increase in importance of recreation. The foundation of the Naturpark was followed by the receipt of several grants that allowed further restoration measures such as the buffer zones. However, both the province and staatsbosbeheer shared that returns were expected for the grants. Interreg is an example of such a grant, aiming to improve cooperation in border regions. Staatsbosbeheer stated the estimation is that between 150.000 and 200.000 people visit the Bargerveen. A strong increase from the estimated 125.000 to 150.000 in 2009. The municipality explained that in the coming five years a new 'omgevingsplan' will be presented. This plan will offer more information about the division between restoration and recreation.

5. Conclusion and discussion

5.1 Conclusion

The aim of this paper has been to analyse the relationship between nature restoration and recreation in the Bargerveen. This chapter will present the results of the case study. These results are based on a literature study and semi-structured interviews. The results will be presented based on the research questions.

To be able to answer the main research question, the following sub questions will be answered. Chapter four offers an overview of the history of the Bargerveen and thus answers the sub-question: *'What was the situation before 2006?'* A more detailed overview of this process can be found in the book by Streefkerk (2021). It can be concluded that a concurrence of circumstances has created the state of

Regarding the predetermined goals and objectives, chapter four offers an overview of the different goals and objectives for the Bargerveen, These goals and objectives marginally changed throughout the years. However, the core goal and objectives have stayed the same. The priority of these goals, or the costs of the goals have changed. Initially the core goal was to protect the remaining Bargerveen, the goal then shifted to creating the circumstances that allow active peat bog areas. In more recent years the goal of allowing recreational activities in the area has gained in importance. This can be attributed to the received grants, and the expected returns for these grants. Chapter four offers an overview of the policies that have been found to be related to recreational usage. The chapter provides a chronological overview of these policies and thus, how these policies changed. The main event regarding the role of the involved actors, and their change throughout the restoration process, is the partial integration of Staatsbosbeheer. Staatsbosbeheer is no longer so strongly connected to the government and thus it can be assumed that the influence of Staatsbosbeheer on the public land-use planning process has decreased. The bufferzone is the clearest example of future goals. According to the municipality a new omgevingsplan will be presented in the coming years.

Finally, the main research question can be answered. The data found in the result section does not allow analysis of the stories told during the different phases of the planning process. The collected data does not include specific mentions of what specific stories were told. However, some other observations can be made. As mentioned above, recreational usage of the area has become increasingly important and the number of visitors has increased over the past years. Grants are being received for nature restoration projects, but it seems that these projects can only be completed when also investing in recreational usage. The separation of restoration and recreational usage offers a way to accommodate these two without harming each other. However, the restoration projects are projected to be completed around 2023, while plans for recreational usage are expected to continue past this timeframe. The restoration projects can be completed, at a certain moment the goals have been achieved or no more measures can be taken. This is not the same for recreational projects, goals can be achieved but then a logical consequence is the implementation of more recreational projects. The expectation is thus that the ratio between recreational and restoration projects will shift towards recreational projects.

When relating these findings to the theories listed in the theoretical framework it can be concluded that the functionality of peat bog restoration is recognized by policy makers. The concept 'Urban Land-use Planning' is not heavily linked to peat bog restoration in this paper. However, without this system of planning the Bargerveen would not be what it is today. The conclusion above relates to the final theory listed, storytelling.

Generalization of the findings of the Bargerveen is not advised. As mentioned above, the Bargerveen is a very specific area with a high path dependency. Therefore it is unlikely that the same findings can be found in other peat bog areas.

5.2 Discussion

Now that the research has been completed, it can be reflected upon. The conclusion does not offer a definitive answer to the main research question. The data collected does not allow analysis of the stories being told. This can be attributed to the collection of data, or the inability to check the theory in practice. Tracking of the stories and storytelling is not easy, whereas policy documents can be found and analysed rather easily. Further research could focus on the role of these stories, however intensive and high quality data collection is required.

Secondly, the research and sub-question should be reflected upon. Initially these sub-questions were proposed to help answer the main research question. However, during the data collection phase it became clear that the data that was collected would not supply an answer to the main research question. The main finding of this research is that storytelling is hard to trace. It seems that storytelling is more related to psychology or sociology instead of planning.

Further research regarding the role of tourism in the Bargerveen could also strive to gain more well-substantiated data. One such example would be the number of yearly visitors or the division in budget between recreational and restorative measures. Although this division is not always clear, some measures are listed as restorative, but still offer recreational value. Lastly, further research could look into the role of recreation in large scale nature protection and restoration projects.

References

Bargerveen-Schoonebeek (2019) *image without title* retrieved on March 5th from <https://cdn.foleon.com/upload/35728/f279819798.faf94b36a711.jpg>

Bargerveen-Schoonebeek (2020). *Over het Bargerveen* retrieved on March 4th from <https://bargerveen-schoonebeek.nl/nl/over-het-bargerveen/>

Bargerveen-Schoonebeek (2021). *Stand van zaken waterpeil landbouwgebied Bargerveen* retrieved on March 4th from <https://bargerveen-schoonebeek.nl/nl/stand-van-zaken-waterpeil-landbouwgebied-bargerveen>

Bonn, A., Allott, T., Evans, M., Joosten, H., & Stoneman, R. (Eds.). (2016). *Peatland restoration and ecosystem services: science, policy and practice*. Cambridge University Press.

Brouns, K., Eikelboom, T., Jansen, P.C., Janssen, R., Kwakernaak, C., Akker, J.J.H. van den & Verhoeven, J.T.A. (2015). Spatial analysis of soil subsidence in peat meadow areas in Friesland in relation to land and water management, climate change, and adaptation. *Environmental management*, 55, pp. 360-372.

Clifford, N., Cope, M., Gillespie, T. & French, S. (2016). *Key methods in geography* (Third ed.). London: SAGE.

Duinen, G. J. van, Klimkowska, A., Hullu, E. de, Swaay, C. van, Eysink, F., Bouwman, J., & Jansen, A. (2013). Duurzaam behoud en ontwikkeling van bovenveengraslanden in het Bargerveen. *Stichting Bargerveen, Radboud Universiteit Nijmegen*.

European Commission (2021). *Natura 2000* retrieved on June 20th from https://ec.europa.eu/environment/nature/natura2000/index_en.htm

Erkens, G., Meulen, M.J. van der & Middelkoop, H. (2016). Double trouble: subsidence and CO₂ respiration due to 1,000 years of Dutch coastal peatlands cultivation. *Hydrogeology Journal*. 24, pp. 551–568.

Gemeenteraad Emmen, (2008) *Structuurvisie gemeente eMMen 2020* retrieved on June 15th from <https://www.gemeenteraademmen.nl/vergaderingen/vergadering/item/agendadate/2008/11/agendacategory/wonen-ruimte/agenda/103/item/structuurvisie-veelzijdigheid-troef-op-verzoek-presidium.html>

Gemeenteraad Emmen, (2016) *Bestemmingsplan 'Buitengebied Emmen, bufferzone Weiteveen'* retrieved on June 15th from https://www.ruimtelijkeplannen.nl/documents/NL.IMRO.0114.2015013-B701/t_NL.IMRO.0114.2015013-B701.html

Grosvernier, P. H., Matthey, Y., & Buttler, A. (1994). Microclimate and physical properties of peat: new clues to the understanding of bog restoration processes. Universitet i Trondheim, *Vitenskapsmuseet rapport botanisk serie 1994*

de Haan, P., Drupsteen, Th. G. en Fernhout R. (2001). *Bestuursrecht in de sociale rechtsstaat*. Kluwer

Hartman, S., Parra, C., & de Roo, G. (2019). Framing strategic storytelling in the context of transition management to stimulate tourism destination development. *Tourism Management*, 75, 90-98.

Interreg Deutschland Nederland (2021) *Grenzeloos Veen* retrieved on June 21th from <https://www.deutschland-nederland.eu/nl/project/grenzenlos-moor-grenzeloos-veen-2/>

Lindsay, R. (2010). *Peat bogs and carbon: a critical synthesis to inform policy development in oceanic peat bog conservation and restoration in the context of climate change*. University of East London, Environmental Research Group.

Prolander (2020) *Water in het Bargerveen* retrieved on March 3rd from <https://prolander.foleon.com/magazines/water-in-het-bargerveen/voorpagina/>

Smolders, A. J., Tomassen, H. B., Lamers, L. P., Lomans, B. P., & Roelofs, J. G. (2002). Peat bog restoration by floating raft formation: the effects of groundwater and peat quality. *Journal of Applied Ecology*, 39(3), 391-401.

Throgmorton, J. A. (2003). Planning as Persuasive Storytelling in a Global-Scale Web of Relationships. *Planning Theory*, 2(2), 125–151. <https://doi.org/10.1177/14730952030022003>
Walsum, P. E. V. van, Gaast, J. W. J. van der, Beest, J. G. te , & Stuyt, L. C. P. M. (1998). *De waterhuishouding van het Bargerveen en het herinrichtingsgebied Schoonebeek* (No. 534). DLO-SC

Zauft, M., Fell, H., Glaßer, F., Rosskopf, N., & Zeitz, J. (2010). Carbon storage in the peatlands of Mecklenburg-Western Pomerania, north-east Germany. *Mires & Peat*, 6.

Appendices

A. Interview guide

Introduction	
<ul style="list-style-type: none"> - Welcome and thank interviewee for taking time to contribute to the research - Introduce myself to the interviewee - Explain the aim of the research - Explain that there is no right or wrong in their answers, just trying to get to know their perception of the process to gain a better understanding of the process in its totality - Explain how the interview is structured and the expected length of the interview - Inform the interviewee about the privacy and ask for permission to record the interview - Any questions? 	
Main question	Sub-questions/follow-up question
To start off with, what is your personal relationship with the Bargerveen?	How do you personally describe the area, as an area for nature or for tourism/recreation?
Could you elaborate on why peat bog restoration was necessary?	<p>If mentioning nature > ask about the increase of tourism/recreation in the area.</p> <p>If mentioning tourism/recreation > ask about the cost development/protection of nature</p>
Could you tell me something about the goals and aims that you, or the party that you represent had for the area?	<p>How would you evaluate this process, do you think you have achieved these goals?</p> <p>What other goals would you have liked to achieve?</p>
What was your role in the planning process?	<p>Could you elaborate on the timeframe in which you were involved in the area?</p> <p>How would you describe the goal of your role? What was your primary concern for the area?</p>
With what stakeholders did you cooperate, and could you elaborate on the roles of the different parties?	<p>Could you elaborate on the influence of the different stakeholders?</p> <p>Which stakeholders were, in your opinion, most influential and which ones were the least influential?</p>
What changes regarding goals and aims happened during your involvement with the restoration project?	Could you elaborate on why you think these changes happened?
How do you think the increase of tourism/recreation happened in the area?	Does this change in tourism change the value of the area? E.g. Does an increase in tourism/recreation lead to a decrease in nature?
We have come to the end of this interview, is there anything you would like to add?	
Closing the interview	
<ul style="list-style-type: none"> - Thank you very much for this interview - Would you be interested in the results of this research? - Have a nice day! 	