Finding the balance between use and conservation of nature

A study about the management of nature as a contested resource

Master thesis in Environment and Landscape Geography

Institute for Geography, University of Bergen

Written by Cecilie Veum

Supervisor: Ole Reidar Vetaas

Sub-supervisor: Vegard Gundersen

Figure front page: Lågaros, Hardangervidda National Park (Source : Fieldwork)

ACKNOWLEDGEMENTS

During this process, I have been fortunate to have had the support of many people. Without this support, writing this thesis would have been more challenging.

Firstly, I am grateful for the economic resources I received from the Meltzer's Fud. With these resources, I was able to undergo a fieldwork at HNP and observe and experience the theoretical dilemma first-hand in an empirical setting. It has been a very rewarding experience.

Secondly, I am forever grateful for the guidance and support I received from my supervisor and sub-supervisor Ole Reidar Vetaas and Vegard Gundersen respectively. Thank you to Ole for challenging me, motivating me, and for always guiding me towards the right path. Thank you to Vegard for your encouragement and guidance and for broadening my understanding of the management of natural resources.

Moreover, I would like to thank my writing partner Mailys Rouille. We've shared a lot of tears and laughter in the reading hall and I'm sure I wouldn't have made it without you.

Furthermore, I am grateful for the support I received from friends and family. Particularly, Tobine, Line, Vita, Helena, and Lukas for believing in me. In addition, Henrikke and Erlend for always listening and encouraging me. And, lastly, my mum, who offered her time to thoroughly read through my whole thesis to check my spelling and grammar.

Lastly, I would like to thank the institute for providing me with the resources and the opportunity to write this thesis. It has been an exciting process and it has motivated me to continue further with a PhD.

ABSTRACT

Within the conservation discourse, the extent to which human should have access to conserved nature is widely polarized. It is a complex discussion, shaped by the perceptions, and the values of nature. The complexity makes it challenging to shape conservation policies that best suit the context of the empirical setting. Overall, the two ends of the debate entail a complete restriction or a full integration of humans and nature.

This thesis researches the different perspectives regarding humans' role in Hardangervidda National Park (HNP). The main research question addresses the extent to which hikers should be restricted from HNP in order to preserve the wild reindeer. This thesis aims to shed light on the wild-human conflict in the conservation discourse. The wild reindeer of Hardangervidda has recently been red-listed as a 'near threatened' species. Hence, there is a vibrant discussion concerning how to preserve the wild reindeer. In its uttermost sense, the discussion sheds light on a clash between the Right of Public Use (Norwegian: *Allemannsretten*), hunting rights and the preservation of wild reindeer habitat. May HNP be a landscape open for all? Or is there a need for restriction in order to protect the wild reindeer? Data was gathered from interviews, observation, and document analysis. The data was analyzed with both thematic analysis and, subsequently, discourse analysis. The research contributes to the literature by exploring how the dilemma concerning conserving nature unfolds in the context of HNP. The research explores this using a political ecological framework. The findings show that the *right* way to conserve nature is subjective, shaped by the interests of users and the values of the wild reindeer. In the context of HNP, these values were primarily anthropocentric which clearly depicts the political nature of the discussion. Overall, there was a consensus among the stakeholders to improve the conditions of the wild reindeer. However, there was disagreement concerning whether the hikers, hunters/landowner, or other users should be restricted from exploiting the park. This thesis concludes that the extent to which hikers should be restricted is a subjective question, shaped by the priorities of the management policies and the interests of the user groups.

LIST OF ABBREVIATIONS

CBD	*Convention on Biological Diversity*
CSS	*Critical social science*
CWD	*Chronic wasting disease*
DNT	*The Norwegian Tourist Association (Norwegian: Den Norske Turistforeningen)*
HNP	*Hardangervidda National Park*
HWRC	*Hardangervidda Wild Reindeer Committee (Norwegian: Hardangervidda Villreinutval)*
IUCN	*International Union for Conservation of Nature*
MIMIR AS	*Advisor for sustainable tourism*
NINA	*Norwegian Institute for Nature Research (Norwegian: Norsk institutt for naturfoskning)*
NNH	*Nature Needs Half*
NOU	*Norwegian Official Report (Norwegian: Norges Offentlige Uredninger)*
RED	*Radical Ecological Democracy*
RPA	*Right of Public Access*
UNESCO	*United Nations Educational, Scientific and Cultural Organization*
WRCHR	*Wild Reindeer Commission for the Hardangervidda Region (Norwegian: Villreinnemnda for Hardangerviddaområdet)*

OVERVIEW OF TABLES AND FIGURES

TABLES

FIGURES

TABLE OF CONTENTS

1. INTRODUCTION

The discussion concerning human's place in nature has long been polarised in the conservation discourse. Late Wilson (2016) notably argued that in order save the environment, half of the earth must be completely separated from human interference. However, conversely, Büscher *et al.* (2016) argued that such restriction would engender negative social impacts. Rather, humans obtain a mutualistic and interactive relationship with nature, as evident in European conservation policies (Linnell *et al.* 2015).

Nature, in the context of this thesis, refers to the ecosystem, simply defined as the community of organisms which interact with each other and their surrounding physical environment (Collins 2022). Williams (2020) defines the purpose of conservation as creating and expanding spaces for nature. However, the extent to which humans are considered as a part of the interactions that transpire in these spaces is not explicit. Rather, it is shaped by the values and perceptions of, and relations to, nature. In local contexts, these values and perceptions are plural and may, in some cases, strongly contradict each other. One could argue that the most dominant stakeholders shape future landscapes by invoking their values and perceptions of, and relation to, nature. It is the contested natural resources that makes it a political discussion.

In essence , we find two main opposing narratives in the conservation discourse; *humans disturb the interactions that exist in nature and should therefore be restricted from these spaces*; and *humans are a part of the interactions that exists in nature and should therefore be integrated with these spaces* (Callicott *et al.* 1999). These opposing arguments outline the philosophical debate which concerns the extent to which humans may be considered as a part of nature (ibid). However, they evidently appear in the theoretical and ethical debate regarding how to shape conservation policies.

1.1. Background

The national park provides a 'cultural' landscape for several different user groups. Among others, one of the main purposes for the establishment of the national park was premised on the wish to halt the expansion of heavy technical infrastructure (NOU 1974: 30A, 1974). However, in the Norwegian Official Report (NOU) (ibid), Hardangervidda was also appreciated as an important natural resource for future land-use activities like herding, hunting,

fishing, and other kind of subsistence harvesting (Undebakke 2000). It advocated for the traditional exploitation of the landscape under the premises of the conservation interests (ibid). Thus, locals and hikers advocated for no restrictive measures towards traditional use of natural resources (NOU 1974: 30A, 1974). The NOU highlighted that the national park is not only directed towards preserving the natural resources, but it also aims to preserve the resources that enable recreation in the region (ibid).

At the same time, the motivation for implementing a national park was also premised on preserving the wild reindeer and their habitat (lichen during the winter season, calving areas etc.) from human disturbance (NOU 1974: 30A 1974; NOU 1974: 30B 1974). As the NOU 1974: 30B (1974) highlighted, the reindeer are sensitive to human activity, such as heavy infrastructural developments such as roads, watercourse regulations, power lines, and second-home developments.

Yet, a current trend illustrates that national parks and other protected areas are becoming popular travel destinations for tourism (Stokke & Haukeland 2017). Such tourism is facilitated through developments along edge-zones of the borders of the national parks (ibid). The trend is clearly prevalent in the Norwegian context and in Hardangervidda (Singsaas & Gundersen 2021). Premised on the 'Mountain Law,' "the Act on the utilization of rights and compensation etc. in the state assemblies" (Norwegian: *Fjellova*) (see Fjellova – fjell, 1975), using nature as a brand for attracting tourists has been an important strategy to enhance the economic development in local mountain municipalities (Singsaas & Gundersen 2021). Hence, one may argue that HNP is also conserved as a 'recreational' park.

Thus, it is evident that Hardangervidda National Park embraces different landscapes which may come into conflict with each other. The landscapes essentially attribute different perspectives concerning the human-nature relationship, contributing to the complexity of the discussion concerning how to manage the park.

Following the implementation of the national park, The Norwegian Tourist Association (DNT) thrived as DNT was the only facility offering accommodation for users within the National Park (apart from a few private cabins). They have since been developing and preserving the recreational use of the area within the definition of the Right of Public Access (Norwegian: *Allemannsretten*). The Right of Public Access (RPA) enables everyone to roam freely on uncultivated land in Norway, as long as they are considerate and careful towards nature. The law framework highlights that the restrictive conservation policies directed

towards heavy infrastructural policies does not apply to the development of marked trails and single ski tracts (Forskrift om Hardangervidda nasjonalpark, 1981, §2; §4). In addition, it neither applies for the set-up of collection of domestic animals, illustrating the liberality of grazing in the park (ibid).

Recently, NINA published a report which illustrated the disturbance impact hikers have on wild reindeer (Gundersen *et al.* 2021 (b); Gundersen *et al*. 2020). In 2021, the Norwegian wild reindeer was red-listed as near-threatened (Eldegard *et al.* 2021). In addition, in 2022, Hardangervidda wild reindeer range was classified as being in poor condition (Rolandsen *et al.* 2022). These factors underline a sense of urgency to the discussion. The report by NINA concluded that the trail network adopted by hikers contribute to the fragmentation of the Hardangervidda wild reindeer range. It was suggested in the report to move some trails and close some DNT cabins. The report revitalized a long discussion concerning whether there should be more restrictive measures towards hikers. There were, and still are, polarizing views.

Firstly, DNT claimed that the knowledge was incomplete, i.e., lacking knowledge on local use and practice, as the conclusion from the NINA report pointed mainly towards them and the users of their recreational infrastructure. DNT advocated rather for a conservation strategy that promotes 'sustainable exploitation' of the national park, although, without defining what '*sustainable*' entails. In the context of this thesis, exploitation, refers to the productive utilization of a resource.

Secondly, some stakeholders advocated for a more restrictive use of Hardangervidda to conserve the wild reindeer habitats. The polarizing views may be premised on different values related to wild reindeer and their mountain habitat. A sufficient question in this line is: to whom does the mountain range belong to? (Flemsæter 2014). As Flemsæter (ibid, p.1) highlights, "the outfields are appreciated and valued by different stakeholder groups and has a range of uses, purposes and meanings, regarding natural, cultural, symbolic as well as economic resources". Essentially, differing values promote different purpose of conservation. However, it is important to recognize that the pluralism value positions among the stakeholders and the discussion is more complex than laid out in this thesis.

Premised on the background highlighted above, the thesis explores the hikers' place in Hardangervidda National Park (HNP). Based on data obtained through qualitative interviews, document analysis and observation of conferences, the thesis concluded that the values and perceptions of, and relation to, nature and the wild reindeer plays a primary role in shaping the

conservation policies and shaping the landscape of HNP. It essentially defines the extent to which hikers should be restricted from the park. Thus, the debate is both a political one and ecological one. Politically, it is about priority and who's *mountain* one aims to shape the park for. Ecologically, it is about how to preserve the wild reindeer and habitat to maintain their future generations.

Thus, through a political ecological framework, the thesis dives into the philosophical, theoretical, and ethical debate regarding humans' place in nature. This will be explored the debate in the empirical context of HNP, with a particular focus on hikers and wild reindeer.

1.2. Research Questions and Scope

i. Research Questions

It has been empirically demonstrated that the condition of the wild reindeer population in HNP is poor, with respect to availability of liches during winter and its summer range that is constrained by human interference (villrein.no, 2022). In the context of this thesis, condition (Norwegian: *kondisjon*), refers to the physiological qualities of the species, including weight and growth rate. It is clear that some measures must be implemented to improve the conditions of the species and, ergo, move them from 'near threatened' to 'liable.' The challenge regards how to achieve such a transition. Based on the proposals presented by NINA, the main research question is as follows:

"*To what degree should hikers be restricted from Hardangervidda National Park?*"

Recreational infrastructures, such as cabins and trails, are seen as necessary to preserve the access to HNP for the majority of the Norwegian population. A restriction therefore refers to removal or reduction in the quality of infrastructure which facilitates hiking.

The thesis does not question the extent to which hikers disturb wild reindeer. Hikers' disturbance of wild reindeer has been clearly presented by the research of Gundersen *et al.* (2021) and others. Hence, as I see it, it is established an attitude among many stakeholders that something must be done to reduce the human impact on reindeer. Rather the thesis aims to explore the different arguments for how HNP should be managed with the main purpose of preserving the wild reindeer. I investigate how the arguments are shaped by the values of wild

reindeer held by different stakeholders, and the perception of the relationship between humans and nature.

In essence, the question investigates whether it is justifiable to restrict the RPA.

The research question is premised on a theoretical, philosophical, and ethical framework which extensively explores the human-nature relationship.

Sub question 1: *Whom is the national park for?*

The question addresses how these management strategies may be shaped by the purpose of HNP. As mentioned in the introduction, the park provides a landscape exploited by a plurality of different user groups. Hence, it is reasonable to assume that the management may be politically shaped by values and agendas, which inherently influences what one wishes to preserve. Inevitably, the political influence the prevails in the management discourse engenders the crucial question whom one wishes to prioritise in the management strategies. Thus, sub-question 2 will analyse whom the different stakeholders seem to prioritise in their arguments as to how to manage HNP.

Sub question 2: *Can Hardangervidda National Park be managed as a space where both the wild reindeer and the Right of Public Access is preserved?*

In sub-question 2, I analyse the different management strategies proposed by the different stakeholders. I explore the extent to which the stakeholders argue if HNP can be a place open for all kinds of activities, without compromising the conditions of the wild reindeer. It is evident in the research carried out by NINA that some measures must be implemented to preserve the wild reindeer. Hence, I investigate if the stakeholders wish to preserve HNP as a space for all stakeholders, and as a wild reindeer habitat, and if so, how do the stakeholders argue that such a space is obtainable?

Sub question 3: *To what extent are wild reindeer a wild species and how may this influence the discussion*?

In the theoretical debate, sub-question 3 addresses of how the 'wild' characteristics of the species may shape the perception of the species and the purpose of management. I argue that 'wild' invokes a different imagery of the species. It seems that such a depiction paints a wild reindeer landscape that is pristine and untouched. Such a landscape may motivate more restrictive conservation polices. Hence, one could assume that such an imagery influences the purpose of management.

Thus, the sub-question 3 interrogates the extent to which the wild reindeer actually may be depicted as wild and how such a depiction influences the management of the species and the essence of the debate. The question explores the role of genetics, history, and hunting in shaping the wild reindeer of Hardangervidda.

ii. Scope

Overall, this thesis explores the different stakeholders' positions and views on human activity and ecosystems in the context of Hardangervidda National Park (HNP). I aim to explore how the discussion transpires in a political-ecological framework.

To narrow down the scope, the thesis will primarily focus on hikers and wild reindeer. The research is premised on the report 'Recommendations and Suggestions' published by NINA (Gundersen *et al.* 2021 (b)).

2. CONCEPTUAL FRAMEWORK

2.1. Political Ecology

In this thesis, a political ecological framework is used to explore the perspectives that prevail in nature conservation policies. Political ecology is a theoretical framework which strives to understand the complex relationships between nature and society through a political lens (Watts 2000). The theory aims to demonstrate how environmental conflicts are shaped by context through the lens of "knowledge, power and practice" (ibid, p.263). Within the field, the following questions are explored: *how are depictions and perceptions of the environment shaped; who's knowledge is legitimised; who's truth is deployed;* and *why?* (Blaikie 1991). These questions provide the guidelines for understanding how conservation policies are shaped and who has a role in shaping them.

In the theoretical chapter of this thesis, I attempt to unravel the human-nature relationship. I dive into to the prevailing discourses that define the human-nature relationship. The purpose of exploring these discourses is to gain a deeper understanding of the conflict which concerns finding the *right* balance between disturbance and restriction of nature. The thesis adopts Grimes (1979) definition of disturbance as the extraction of biomass. Through a political-ecological theoretical framework, I attempt to shed light on how the discourses of the human-nature relationship and conservation of nature play a significant role in shaping what is the *right* way to conserve. A post-structuralist lens reveals that what is *right* is subjective. A political ecological lens shows us that what society considers *right* is shaped by politics.

In addition, a key aspect in my research question is *sustainability*. In this chapter, I will also explore the discourses of *sustainable* conservation. One may question which aspect(s) of sustainability to prioritise? Is it possible to achieve all three; social, economic, and environmental?

Ultimately, I will explore how one may approach the fundamental questions "what is the human place in nature?" (Callicott *et al.* 1999, p.23) and 'what is nature?' I argue that the response to these questions shapes how one views what the right way is to conserve nature.

2.2. Conflict

Before exploring the theory, I will first outline the essence of the theoretical and philosophical conflict that will be explored.

As highlighted in the introduction, conservation entails the creation and expansion of spaces for nature (Williams 2020). Conservation is often perceived as a necessary measure for maintaining the sustainability of the environment (ibid). IUCN has classified six categories for conservation. Each category invokes a different degree of disturbance and restriction (see IUCN).

Among the strictest of the classification is category 1, strict nature reserve/wildlife area, which entails areas with minimum human interference (ibid). Among the lenient is category 6, protected area with sustainable use of natural resources, which permits sustainable and low-level industrial disturbance of the natural resources (ibid).

The conflict concerns what is the right way to conserve nature. It emerges from the dilemma between disturbance and restriction of nature. On the one hand, as Büscher *et al.* (2016) mention, the restriction of nature from humans has triggered physical and economic displacement. Hence, it is evident that a complete restriction will bring about social impacts (ibid). However, on the other hand, an increasing rate of extinction has sparked doubt about the concept of protected areas (Terborgh 2015). On the other hand, some have advocated for stricter conservation policies that restrict access and disturbance to a greater extent (e.g., Wilson 2016).

In this thesis, it is important to note that the *right* way is the most sustainable way. The question then is, when does disturbance move from sustainable to unsustainable? The question links to Gundersen *et al.*'s (2021 (b)) question, when does change, in this case among wild reindeer, move from acceptable to unacceptable? They argue that defining the line between acceptable and unacceptable, and sustainable and unsustainable, is based on priorities and politics (ibid).

An essential feature regards equilibrium. The perception of nature as existing in equilibrium is prevalent on both sides of the debate, especially within the nature-culture dualism. A nature in equilibrium may be understood as a nature that is stable and predictable (Benjaminsen *et al.* 2015). Moreover, it entails a natural dynamic and interactive relationship between organisms that live in equilibrium with each other (ibid).

The perception of nature as existing in equilibrium plays an important role in depicting the relationship between humans and nature. Hence, in essence, the conflict is as follows: **can humans enter nature and be a part of the interactions of nature or do humans disturb these interactions.**

However, I argue that equilibrium is a myth. According to Scoones (2021, p.115), "[t]he balance of nature does not exist: disruption, variability, and instability are the norm." One understands that nature is dynamic, and that change is a natural process. As Benjaminsen *et al.* (2015) depict, nature exists in non-equilibrium. Non-equilibrium entails that the environment is not stable but instead fluctuates randomly and is influenced by external and internal forces (ibid). The debate regarding whether nature exists in equilibrium or non-equilibrium is important. However, it does not lie within the scope of this thesis. The thesis chooses to acknowledge that certain organisms within an ecosystem may, in a limited time, appear in a state of dynamic equilibrium, such as the relationship between lichen cover and seize of reindeer population on HNP. The purpose of adopting such a perception of the ecosystem is to allow for a deeper analysis of the discourses discussed in this chapter. However, within nature conservation movements (e.g., David Attenborough, in (Scoones 2021)), it is well-established that the whole ecosystem apparently can be in equilibrium.

Overall, a dilemma is prevalent in the conservation discourse. The dilemma concerns two polarising views: restriction or integration. Finding the optimal relationship between resource exploitation, or disturbance, and restriction is the key challenge in most conservation policies.

2.3. Human's place in nature

In this section, I will shed light on the philosophical debate of conservation and explore how it takes form theoretically and empirically.

As mentioned previously, the fundamental question that forms the basis of the dilemma is as Callicott *et al.* (1999, p.23) put it, "what is the human place in nature?" The question stimulates the following questions: to what extent should humans be integrated in the spaces created for nature? Are humans disruptive towards nature? How one may answer these questions is influenced by different assumptions and understandings of ecology and nature (ibid).

Ultimately, there are two sides to the philosophical debate. On the one side, we find a holistic perspective, whereby humans are appreciated as a part of nature, *functionalism* (ibid). On the contrary, one appreciates humans as separate from nature, *compositionalism* (ibid). Therefore, it is important to acknowledge the simplicity of dichotomising the debate. The simplification is done intentionally to clarify the difference. However, Callicott *et al.* (ibid)

highlighted that these philosophies are not necessarily incompatible. But, as Loconto *et al.* (2020, p.103614) put it, "empirically, some [conservation] practices can bridge and combine the two."

There are several ways in which this philosophical debate takes form theoretically and empirically.

i. Humans as separate to nature

Compositionalism is premised on *'evolutionary ecosystem'* (ibid). Evolutionary ecology generally concerns the influence of the environment on the species (ibid). It considers how the population and crucial evolutionary traits of the species may change over a longer evolutionary temporal scale (ibid). Each entity is appreciated as distinct (ibid). This is not to say that humans are not seen as a part of the evolutionary process (ibid). Rather, the adoption of culture has separated humans from the realm of nature (ibid). This is because culture has attributed humans with adaptability and resilience towards the environment (ibid). Organisms, that are a part of nature, do not carry these attributes and, thus, their evolutionary characteristics are limited to slow processes of genetic mutation and natural selection (ibid). Generally, the philosophy perceives human disturbance as destructive and damaging (ibid). The thesis embraces Næss' (1989, p.23) depiction of environmental destruction which entails "a change for the worse, a decrease in value."

Ultimately, one can recognise compositionalism within the nature-culture dualism. Compositionalism is perhaps the dominant view of the human-nature relationship in North American nature conservation policies (Linnell *et al.* 2015).

Stemming from the modernist era, the dualism understands nature as separate from society (Biersack 2006). The (external) nature is conceptualised as a thing and a process that exists outside society (Smith 2008). It is regarded as timeless, never changing, whereby its characteristics are the same as it always has been (ibid). On the contrary, culture entails human nature (ibid). Culture is the domain where society exists (ibid). According to Smith (ibid), the externalisation of nature has ensued from the domination and objectification of nature. Such a static, passive and reductionist understanding of nature is dominant in nature conservation policies (Ducarme *et al*. 2020).

The imagery of nature that prevails from the externalisation of nature is a pristine and untouched wilderness (ibid). The first usage of the term *wilderness* can be found in Germany during the 15th century (Schenk 2015). As Schenk (ibid, p.97) depicts, the term was used to represent "the absence of culture, the absence of humanity." These imageries originated from North America and can be acknowledged in some European conservation policies today (Linnell *et al*. 2015).

Empirically, the externalisation of nature and its depiction of *wilderness* may be enforced through boundaries (Bluwstein & Lund 2016). According to Williams (2020), within conservation policies, spaces have been conceptualised and legitimised as nature through boundary-making (ibid). These physical boundaries have facilitated the perceptions that human activity should be prohibited in these spaces (ibid). As a result, nature has been defined as a space which should remain untouched, separate from humans, as with the nature-culture dualism (ibid). The consequence is that perceiving nature as anything other than a space for wilderness, is unreasonable (Bluwstein & Lund 2016). Hence, the historical, present, and future imageries of nature shaped by culture and tradition is disregarded (ibid).

As Scoones (2021) highlights, in David Attenborough's, *A life on Our Planet: My Witness Statement,* the stability and balance of nature is threatened by humanity. His Malthusian narrative illustrates that too many humans will damage the pristine and untouched wilderness acknowledged as nature (ibid). Attenborough advocates for restoring the stability of nature (ibid). Essentially, restoring stability entails rewilding nature.

The argument depicted here is that, for nature to thrive, humans must facilitate the balance of nature. Humans are disruptive towards the nature and, therefore, should remain outside nature.

The response to the Callicott's *et al.* (1999) question is, *humans do not have a place in nature* and, therefore, *humans should remain separate from nature*.

ii. Humans as a part of nature

Functionalism is premised on '*ecosystem ecology*' (ibid). Ecosystem ecology regards the processes of energy flows and nutrient cycles that transfer through entities (ibid). Contrary to compositionalism, functionalism argues that human interference contributes to environmental quality (Robertson & Hull 2001).

Generally, functionalism may be recognised in the *first* and *second* nature discourse. This discourse is a key feature of political ecology's critique of the nature-culture dualism (Biersack 2006). *First* nature entails nature that is independent of human activity (ibid). As Kant and Engel (in ibid, p.8) mention, "[*first*] nature, the nature that preceded human history, […] is a nature which today no longer exists anywhere." Acknowledging pristine and untouched nature as no longer existing is not uncontroversial. It is a bold statement. However, the essential element of *first* nature is that it appreciates nature as *not* static. This implies that nature is continuously changing and shaped by human interference (Biersack 2006). This brings us to *second* nature. Understanding nature as *second* nature entails understanding nature as a socio-ecological system that is produced by the "interchanges between nature and culture, the symbolic and the material, and the local and the global" (ibid, 8). Hence, *second* nature entails nature influenced by human activity and discourse (ibid).

Thus, rather than understanding nature as timeless and external, political ecologists adopt a historical perspective of nature which understands change invoked by humans as a 'natural' process.

Equilibrium may be represented here as carrying capacity. Carrying capacity entails the threshold level of pressure a resource can tolerate without reducing its availability and worsening its conditions (Benjaminsen and Svarstad 2010). If a resource is subjected to over-exploitation which exceeds the threshold level, the carrying capacity will reduce (ibid). It assumes that the condition of the environment is stable, predictable, and reliable (Benjaminsen *et al.* 2015). These assumptions facilitate an accurate future projection of succession, growth, and availability of resources (ibid). A fundamental aspect of carrying capacity is its assumption that the conditions of the environment exist in a state of equilibrium (Benjaminsen *et al.* 2006). Hence, humans are appreciated as a part of the equilibrium.

In the context of HNP, the carrying capacity entails that the 'sustainable' level of wild reindeer herd size will ensure a balance between grazing pressures and vegetation succession (ibid).

Empirically, traditional European conservation can be associated with a nondualist, interactive and mutualistic relationship between humans and nature (Linnell *et al.* 2015). Generally, preserving cultural heritage, traditional activities, and human-modified landscapes is appreciated as an important feature of conservation (ibid). For example, in the study of 14,727 protected areas of Natura 2000, 69% permit agriculture, 59% permit forestry, 46%

permit livestock grazing, and 53% permit hunting, fishing, and gathering activities (Tsiafouli *et al.* 2013). Hence, regarding the Natura 2000 sites, Tsiafouli *et al.* (ibid, p.1031) summarised that the purpose of protected areas "is not about conserving islands of wilderness but rather about co-managing biologically diverse landscapes in which humans constitute an integral part." In this sense, nature is conceptualised as being integrated with humans.

However, the separation of humans and nature, dominating the North American conservation policies, has increasingly infiltrated the European conservation discourses (Linnell *et al.* 2015).

Moreover, it is important to appreciate the heterogeneity of the concepts "humans" or "human activities" (ibid). *Human activities* can range from being destructive to sustainable (ibid). In addition, how these activities take form vary (ibid). Hence, the extent to which functionalism is prevalent here relates to how *'humans'* and *'human activities'* are defined.

Regardless, we understand that *humans do have a natural place in nature* and, hence, *humans should be integrated with nature in conservation policies*.

2.4. Ethical Considerations

In this section, I will elaborate on how the ethical attitudes towards nature, anthropocentrism and ecocentrism, take form in the debates. Additionally, I argue that these ethical attitudes are important in shaping the human-nature relationship discourses. As Linnell *et al.* (2015, p.979) depict, a key aspect of the conservation debate regards the "appropriate ways in which humans should interact with nature."

i. Ecocentrism

Næss (1989) argued that nature, or non-human forms, has an intrinsic value that exists regardless of what instrumental value they may provide humans. This is an ecocentric attitude towards the environment. Ecocentrism argues that the rate of exploitation we see today is unsustainable and immoral because humans are treated as superior to all other species (ibid). The deep ecology movement is a clear example of ecocentrism (see Næss 1973). To some extent, the theoretical aspects of the debate that adopts ecocentrism is nature-culture dualism, As outlined previously, the depiction of nature as wilderness, pristine and intrinsically valuable, is used to argue for the separation of humans and nature. In such a narrative, humans may be

illustrated as destructive. This is prevalent in managerial discourses (see Adger *et al.* 2002). WWF (2021) adopts this narrative, arguing that "our relationship with nature is broken."

However, it is necessary to appreciate that, as Kopnina *et al.* (2018) mention, ecocentrism has often been mistakenly used to argue that humans are not a part of nature. Within ecocentrism, humans are seen as part of nature (ibid). Hence, humans also have an intrinsic value. Such a human-nature relationship challenges the distinction I have made earlier concerning the relationship humans and nature in anthropocentrism and ecocentrism. However, as I mentioned previously, the distinction is a simplified model. What is important to consider here, however, is that ecocentrism is often used as an argument for separation (e.g., Nature Needs Half). It can be observed in category 1 of IUCN's protected areas.

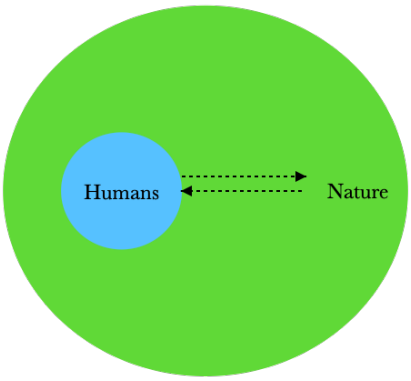
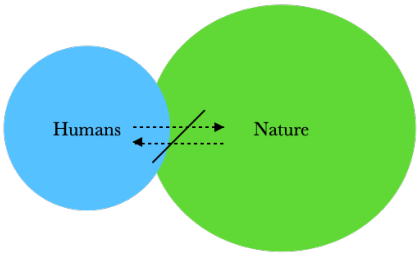
ii. Anthropocentrism

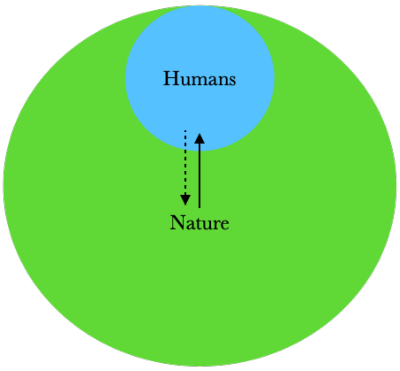
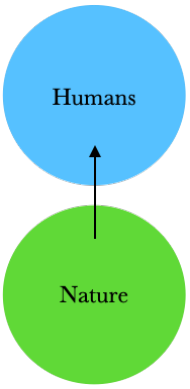
Gifford Pinchot stressed that "*the object of our forest policy is not to preserve forests because they are beautiful or wild or the habitat of wild animals; it is to ensure a steady supply of timber for human prosperity*" ([Turner 1997, p.323] in Jenkins & Williamson 2003).

For anthropocentrists, nature has an instrumental value (Thompson & Barton 1994). Anthropocentrism is premised on utilitarianism whereby nature exists to satisfy humans (ibid). Humans can be seen as a part of the interactions that exist in nature. Contrary to ecocentrism, a hierarchical relationship between humans and non-humans exists, in that humans are the dominant species (ibid). But there are different nuances in which anthropocentrism takes form empirically. Theoretically, anthropocentrism is prevalent in the *first* and *second* nature discourse. It facilitates the adoption of category 6 of IUCN's protected areas.

Ecosystem services are a notable example of anthropocentrism. Ecosystem services regard the benefits ecosystems may provide humans (Hefny, 2005). It is essentially a tool for estimating the economic value of nature (Myhre 2021). As Chaudhary and McGregor (2018, p.364) highlight, ecosystem service programs "bring nature and human values together for both conservation and development outcomes, albeit with an anthropocentric focus."

Table 1: Diagram and summary of the philosophical and ethical relationships between humans and nature

Philosophy of Conservation / **Ethical Attitudes to Nature**	**Functionalism**	**Compositionalism**
Ecocentrism	 - Humans has no place in nature. - Humans and nature have an intrinsic value. - All species are equally worth. - There is a mutualistic, non-dualistic, blurred, and dynamic relationship between human and nature. - Humans are not destructive but contribute to environmental quality.	 - Humans do not have a place in nature. - Humans and nature have an intrinsic value. - All species are equally worth. - There is a dualistic, static relationship between humans and nature. - Humans are seen as a part of nature, hence the overlap. However, humans are destructive towards nature and should therefore remain separate from nature. - There is a blurred boundary between humans and nature.

Anthropocentrism	 - Humans has a place in nature. Nature has an instrumental value attributed by humans. Nature exists to serve humans. - Humans are not destructive towards nature but contribute to environmental quality. - There is a hierarchical, non-dualistic, blurred, and dynamic relationship between humans and nature.	 - Humans do not have a place in nature. - Nature has an instrumental value attributed by humans. - There is a hierarchical, dualistic, and static relationship between human and nature. - Humans are destructive towards nature and should therefore remain separate. - There is a clear boundary between humans and nature.

2.5. Discourses of Nature Conservation

As with the philosophical debate, two opposing groups of discourses entail restriction and integration. However, it is necessary to appreciate the simplicity of separating the discourses into restriction and integration.

By discourse, I adopt Adger's *et al.* (2002, p.683) definition: "shared meaning of a phenomenon." This will be further elaborated in the data analysis.

Empirically, the debates are considerably noticeable in the discussions concerning land sparing and land sharing. This discussion focuses on finding the most optimal farming strategy which will provide the best results for agricultural production and biodiversity preservation (Loconto *et al.* 2020). Land sharing and land sparing can be acknowledged as the two extremes of the discussion (ibid). Green *et al.* (2005) and Balmford *et al.* (2005) are considered as influential contributors to the discussions (ibid). The authors adopted a neo-Malthusian perspective in their discussions to emphasise the growing demand for agricultural resources and, thus, the need for more efficient agricultural practices (Balmford *et al.* 2005). As Balmford *et al.* (ibid, p.1594) question: "How can an expanding human population feed itself better without losing most of what still remains of wild nature?" To answer this question, the authors shed light on 'land sparing' and 'wildlife-friendly farming' (ibid). Wildlife-friendly farming was later appreciated as land sharing by Phalan *et al.* 2011 (Loconto *et al.* 2020).

i. Restriction

Land sparing entails a separation of agriculture and biodiversity (ibid). The strategy aims to economise the agricultural land, whilst sparing and, thus, saving nature and its biodiversity (ibid). The only trade-off entailed a decrease in biodiversity on agricultural land (Green *et al.* 2005). It undoubtedly adopts a nature-cultural dualistic view, advocating for a separation of nature (biodiversity) and society (agriculture).

Land sparing may be considered ecocentric, relating to the ecocentric 'Nature Needs Half' movement. The movement urges the need to protect 50% of the earth in order to protect natural habitats (NNH). Late E.O. Wilson has been acknowledged as a strong advocate and representative of NNH movement (Kopnina *et al.* 2018). Wilson (2016) advocated a full demarcation between nature and humans, a fortress conservation approach. He argued that "only by setting aside half of the planet in reserve, or more, can we save the living part of the

environment and achieve the stabilization required for our own survival" (ibid, p.3). Such a restrictive approach can be regarded as compositionalistic. It is an example of the nature-culture dualism. (See diagram representing '*compositionalism'* and '*ecocentrism'* in Table 1).

Ultimately, land sparing and the NNH movement advocate for a traditional conservation strategy. Traditional conservation urges to preserve and protect nature due to its intrinsic value (Kopnina *et al.* 2018). Advocates for this conservation approach argue that "large natural areas with minimal human impact (i.e., wilderness) are the most sustainable (and cost-effective) of all management regimes" (ibid, p.142).

ii. Integration

Land sharing concerns the integration of agriculture and biodiversity preservation (Phalan *et al.* 2011). It requires a wildlife-friendly farming strategy (ibid). The consequences are lower yield and, as Loconto *et al.* (2020, p.103610) put it, "less 'pure' wildlife spaces left elsewhere." 'Pure' can considered as pristine and untouched. Land sharing is undoubtedly an anthropocentric approach. It is premised on finding the best approach to agriculture. Hence, it aims to optimise agriculture in order to sustain humans. In addition, land sharing can be viewed as a *second* nature, a nature that is institutionalised by humans. The non-dualistic conservation strategy has been dominant in the context of European conservation (Linnell *et al.* 2015). (See diagram representing '*functionalism'* and '*anthropocentrism'* in Table 1)

Land sharing can be regarded as a critical social science (CSS) conservation strategy. The purpose of conservation is to sustain human wellbeing and social justice (Kopnina *et al.* 2015). A central feature of the CSS conservation strategy its critical position towards capitalism-based approaches (ibid). It empowers marginalised communities in the debate (ibid). The strategy advocates that if conservation compensates for the wellbeing of marginalised communities, then conservation should not be employed (ibid). In addition, it argues that separating humans from nature is unnatural, a functionalistic philosophical approach (ibid).

Moreover, land sharing can also be appreciated as a 'new conservation' strategy. Contrary to CSS conservation, the 'new conservation' strategy assumes that humans can benefit from conserving nature by promoting economic development and alleviating poverty. A key element of this strategy is the win-win discourse (FoC 2022).

Lastly, the alternative Ecological Swaraj or Radical Ecological Democracy (RED) movement is another example of the integration discourse (see Kothari *et al.* 2014). This is an ecocentric conservation approach. It differs to land sharing in that the main purpose of conservation entails preserving the intrinsic right of nature to thrive (ibid). Humans are seen as a part of nature. The RED movement strives to respect the limits of the earth and its species to achieve harmony (see diagram representing '*functionalism'* and '*ecocentrism'*).

Thus, one can appreciate land sharing as a functionalistic approach, advocating that human do have a place in nature.

2.6. Purposes of Conservation

Bocking (2020) argues that landscapes are shaped as political or natural spaces through conservation. Conservation may be based on species or habitats, shaping landscapes as spaces for nature (ibid). Contrarily, conservation may be premised on the recreational, economic, or other instrumental value of nature, shaping landscapes as politic spaces (ibid). In this section I will elaborate on the purposes of conservation. I will explore how they play a role in shaping the landscapes and the human-nature relationship discourse.

i. Cultural Landscape

Cultural landscape is understood here as both the "physical traces of human activity" and the "beliefs and traditions associated with the landscape, cultural meanings attached to the landscape and the identity" (Jones & Daugstad 1997, p.271). This definition is prevalent in Nordic and Norwegian landscape administration documents (ibid). In cultural landscapes, humans are acknowledged as a part of the interactions in nature. The balance is invoked through a certain degree of disturbance that respects the environment's carrying capacity. The type of disturbance may change the equilibrium of nature.

The World Heritage Convention (Mitchell *et al.* 2009, p.19) appreciates these landscapes as the "combined works of nature and man." They represent the evolution of society, shaped by the constraints and instrumental value of the surrounding natural environment (ibid). Hence, cultural landscapes are clearly prevalent in the integration discourse.

The conservation of cultural landscapes was coined by the Protection of the World Cultural and Natural Heritage, approved by UNESCO in 1972 (ibid). The preservation of cultural landscapes can be most related to the Category V, Protected Landscapes and Seascapes, of IUCN protected areas (ibid). The purpose of conservation is to preserve the landscape and its cultural features (ibid). In essence, the preservation is an anthropocentric approach.

Cultural landscapes may be associated with a functionalistic perspective. Humans do have a place in nature. The techniques adopted in these landscapes are often depicted as sustainable and spiritual (ibid). Advocates for the conservation of cultural landscapes argue that the cultural practices contribute to biological diversity (ibid). They argue that contribute to environmental quality (Robertson & Hull 2001). This is a key aspect of the functionalism philosophy (ibid).

Thus, the cultural landscape can be mostly associated with the '*functionalistic*' and '*anthropocentric*' relationship between humans and nature (see Table 1).

However, defining the area as 'cultural' may also implies that these activities are not perceived as natural. In this sense, we see a distinction between humans and nature.

ii. Natural Landscape

Contrary to the cultural landscape, natural landscape is a landscape which has remained untouched and separate from human interference (Bruun 2020). The nature-culture dualism is clearly prevalent in these landscapes.

In such landscapes, it is assumed that equilibrium that exists in nature takes form when humans are separated from nature. Humans may be destructive towards natural landscapes, as depicted in David Attenborough's, *A life on Our Planet: My Witness Statement,* (Scoones 2021) discussed previously.

Natural landscapes can be regarded as ecocentric in that nature is preserved to sustain their pristine, intrinsic values. In Norway, there are three natural landscapes, or intervention-free (Norwegian: *'ingrepsfrie'*) classifications (ibid). These include wilderness areas, intervention-free area 1 and intervention-free area 2 (ibid). These are distinguished based on their distance from areas with heavy intervention (ibid).

Concerning IUCN's classifications of protected areas, natural landscapes are linked to category one, 'Strict Nature Reserve' (1a) and 'Wilderness area' (1b). These areas remain undisturbed with minimal interference (IUCN 2022). The purpose of conservation is to preserve the biodiversity and ensure the "long-term ecological integrity" of its natural features (IUCN 2022).

These landscapes, being presented with the imagery of wilderness, pristine and untouched, clearly identifies with the restrictive humans-nature relationship discourse. They reflect an ecocentric and compositionalistic relationship between humans and nature (see Table 1).

iii. Species-centred

Species-centred conservation entails the conservation of an area due to the presence of a particular species. Species may be conserved if they are one or more of the following: a threatened species, a keystone species, a flagship species, or a species with an intrinsic value (Jenkins & Williamson 2003).

The purpose of conservation may either be anthropocentric or ecocentric based on the feature of the species. The conservation of a threatened, keystone or intrinsically valuable species is an ecocentric approach. An ecocentric conservation approach encourages restrictive policies. Contrarily, the conservation of a flagship species is anthropocentric as flagship species are premised on their instrumental value. Due to the instrumental value, a degree of disturbance would need to be permitted. Hence, an anthropocentric approach would perhaps encourage restrictive policies with a limited extent of integrative policies.

In HNP, the wild reindeer is appreciated as a flagship species due to its cultural significance (Kaltenborn *et al.* 2012). In addition, the species is also labelled as a 'responsibility species' (Kjørstad *et al.* 2017).

iv. Biodiversity

The thesis adopts the Convention on Biological Diversity's definition of biodiversity which entails "the variability among living organisms from all sources … this includes diversity within species, between species, and of ecosystems" (CBD 1992, p.3).

IUCN (2022) argues that conserving biodiversity is essential to maintaining the health and stability of the environment. Preserving diversity, as IUCN (ibid) puts it, "ensures environmental resilience, provides humans with the life systems on which they rely and enriches life on earth." The extent to which humans are seen as a part of the stability and equilibrium that exists in the ecosystem, shapes how one aims to conserve biodiversity.

An integral element of biodiversity regards the intermediate disturbance hypothesis. The theory assumes that an intermediate level of disturbance will maintain the highest level of biodiversity (Osman 2015). After the point of disturbance, the species colonise (ibid). Eventually, the resource availability lacks (ibid). At this stage, competition prevails, and a species dominates, reducing the species richness (ibid). Regarding this theory, it is evident that a certain amount of disturbance is healthy for the environment. Disturbance does not necessarily need to be human interference. Nevertheless, humans can be appreciated as a part of the interactions that exist in nature.

2.7. Hardangervidda National Park

In this section, I will first illustrate HNP through an evolutionary ecological and ecosystem ecological lens. Subsequently, I will elaborate how the debate takes form empirically in HNP.

i. Evolution

One may view HNP as an ecosystem, although its borders are arbitrary. In the Hardangervidda region, reindeer and humans have evolved alongside each other since the most recent ice age (Vaa 2016). As Børretzen illustrates, "[our history began about 10,000 years ago. The ice age began to melt […], the First Norwegian brought his family with him, followed the melting glaciers towards the North, and we were on our way]" (in Vaa 2016, p.12). What he didn't mention, however, was that the first human hunted the wild reindeer (ibid). The wild reindeer prevalent in Hardangervidda today is a product of the pre-historical natural and cultural evolution (ibid).

The relationship between humans and wild reindeer began as a predatory one. The wild reindeer were hunted to provide food for humans. Eventually, the domestication of wild reindeer emerged, which played a central role in Hardangervidda during 1780-1960 (Bitustøyl

2016). Capture was replaced by nomadic reindeer husbandry (ibid). Husbandry eventually stopped being practiced, and Hardangervidda became a space for hunting, fishing, husbandry of sheep, and recreation.

If one is to adopt a compositionalistic perspective, the question that prevails is: 'when did humans become unnatural?'

ii. The empirical debate

HNP can be appreciated as a socio-ecological system that integrates a wide spectrum of different users. The conservation purposes are both ecocentric and anthropocentric. It is ecocentric in that it aims to preserve the "[valuable high mountain regions in such a way that the landscape with plants and animal life]" (Forskrift om Hardangervidda nasjonalpark, 1981, §2). In addition, it is anthropocentric as it aims to ensure the "[utilisation for land use, environmentally friendly outdoor activities, and nature experiences, hunting and fishing, and education and research]" (ibid).

The two main conflicts that prevail in Norwegian conservation policies regard the balance between disturbance and conservation and the local and central power (Singsaas & Gundersen 2021). As Overvåg *et al.* (2016, p1187) depict, "finding institutional solutions that improve the ability to balance the complexity of use with the protection of natural resources, and which address the involvement of rural communities, is a prevailing problem."

This thesis focuses on the **relationship between hunting wild reindeer and hiking as recreation.**

The role of tourism in conservation is controversial (Tsiafouli 2013). It has been depicted as "a source of disturbance, … an activity providing financial benefits to local communities… and as a funding source for conservation" (ibid, p.1031). Among the Natura 2000 sites, 42.7% permitted leisure and tourism activities (ibid).

Since the beginning of the 20th century, Norwegian conservation politics has been shaped to promote nature-based development and value production in the rural areas (Singsaas & Gundersen 2021). The essential contribution to the nature-based development of rural was the adoption of 'fjellteksten' (mountain text) (Overvåg *et al.* 2016). In 2002, the Norwegian government repealed a law that restricted commercial infrastructure development in national parks (Singsaas & Gundersen 2021). The aim was to "[highlight the potential for increasing

tourism use of mountain regions both within and outside conserved areas]" and, thus, promote a "[sustainable usage of rangeland and mountain regions in Norway]" (St. meld. nr. 65, p.140). Mountain regions were defined as "[areas where values and distinctiveness in mountains have significance for business development and location of settlement]" (ibid, p.140). Among the frameworks used for the policy, one entailed developing Norwegian mountainous nature and cultural-historical values as a ***brand*** for tourism (ibid). At the same time, the policy acknowledged national parks as representing vulnerable resources that need to be preserved in order to endure tourism (Skjeggedal *et al.* 2011). The policy had two main, contradictory messages; "[nature must be used]" and "[nature must be conserved"] (ibid, p.106). The government recognised this contradictory message (ibid) and strived to adopt an 'ecosystem approach' to balance the two; preserve the vulnerable nature while maintaining it as a source for recreation and nature-based tourism (St. meld. nr. 65).

The policy has been adopted and expanded in parliamentary reports concerning the conservation and management of nature (Singsaas & Gundersen 2021). Nature-based sustainable tourism has become the main aspect of discussions and strategies concerning economic development in mountain areas (Overvåg *et al.* 2016).

However, increased concern regarding the development in mountain areas has transpired regarding modernisation, increased outdoor tourism, and the development of cabin complexes (Singsaas & Gundersen 2021). The development contributes to an increase in visitors who adopt 'marked' trails found in wild reindeer regions (ibid).

Simultaneously, wild reindeer have played a significant role in shaping the Norwegian nature conservation policies (Kaltenborn *et al.* 2014). As Vaa (2012, p.29, emphasis in original) mentions, wild reindeer "[has become a *brand,* a symbol of mountains and nature, preferably untouched]." The bit-by-bit fragmentation of the reindeer habitat and the resulting vulnerability of wild reindeer has gained international recognition (Kaltenborn *et al.* 2014). In 2015, the species was red-listed by the IUCN as vulnerable from a global perspective (Gunn 2016). Hence, it is evident that Norway has an international responsibility to preserve the species (Singsaas & Gundersen 2021).

According to research, it is evident that how humans use HNP is not sustainable. Research have shown that tourism contributes to the fragmentation of the habitat of wild reindeer (Gundersen *et al.* 2021 (b)). Consequently, the space required for a nomadic lifestyle is reduced and the availability of grazing resources is reduced (Brøthun 2016). The dilemma

that prevails regards the extent to which the management policies should enable disturbance within the park or restrict access.

The management of wild reindeer in Hardangervidda is largely based on the carrying capacity (Jaren & Punsvik 2016).

Norway has an international responsibility to preserve and protect the wild reindeer (Singsaas & Gundersen 2021). Simultaneously, the national government is responsible for sustaining the RPA and aiding the development of rural municipalities. Thus, we can uncover conflict between; those who wish to facilitate outdoor activities in nature; those who wish to facilitate tourist infrastructure and attraction; those who wish to expand recreational infrastructure; those who strive to reach the management goals of conservation; and more (Singsaas & Gundersen 2021). Figure 1represents the simplified opposition that may be perceived in HNP. It represents a dilemma between two equally valid user rights and the extent of disturbance.

The dilemma concerns where on Figure 1 the management strategy should be placed, illustrating which group should be prioritised.

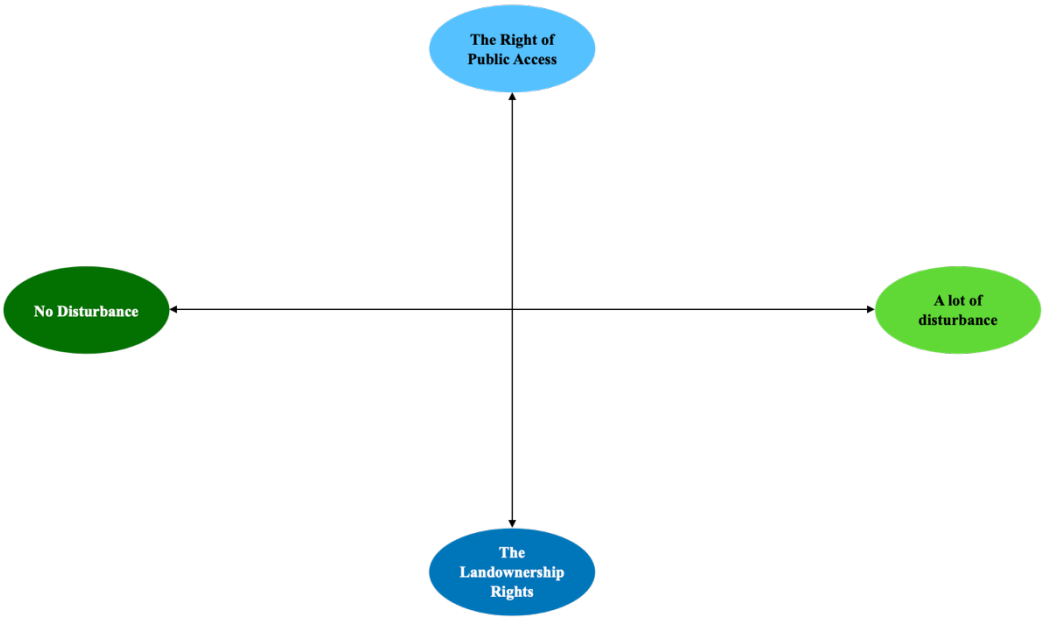


Figure 1: Figure illustrating the polarized debate concerning 'a lot of disturbance' vs 'no disturbance' of hikers and 'The Right to Public Access' vs 'The Landownership Rights'.

3. Context Materials

3.1. Area

Hardangervidda is the largest mountain plateau in Northern Europe and is home to the largest wild reindeer population in Europe (Gundersen *et al.* 2021 (a)). Hardangervidda is the largest of 24 wild reindeer habitats in Norway, which have been shaped by fragmentation and demarcation (Villrein.no(b); Mysterud *et al.* 2020 (b)). In addition, it is one of Norway's 10 national wild reindeer regions (Miljødirektoratet 2021 (g)). A national wild reindeer region entails a "[mountain [region] which is especially important for the wild reindeer's future]" (SSB 2020). With an area of approximately 8000km^2, Hardangervidda is large enough to sustain the seasonal migratory movements of the nomadic species (Gundersen *et al.* 2021 (a)).

The area is fragmented by the E134 highway across Haukelifjell in the south-west, highway 37 between Rauland and Tinnsjå along the south-east, highway 40 between Uvdal and Geilo in the east, and the railway 'Bergensbanen' between Geilo and Hallingskeid along the north-east (Thorsnæs 2021). In addition, the area is demarcated by fjords and valleys. Sørfjord and Oddadal demarcate the west and Osafjord and Eidfjord demarcates the east (ibid).

The area lies in 7 municipalities and 3 counties. These include Tinn and Vinje in Vestfold & Telemark county, Nore & Uvdal and Hol in Viken county, and Eidfjord and Ullensvang in Vestland county. The HNP, established in 1981, has an area of 3422 km^2 (Ryvarden & Tvedt 2021). 52% of the national park is private ground, the remaining is state-owned (Ryvarden 2011). Hence, the harvesting and hunting rights in the HNP are owned by private actants and the state (Ytrehus *et al.* 2021).

The landscape of Hardangervidda landscape varies from dramatic to calm. Along the eastern and central part of the area, it is characterized by a wide, flat, and wavy landscape (ibid). On the contrary, the western and southern part is characterized by hilly landscapes with steep valleys and higher mountain tops (ibid).

Hardangervidda region is comprised of peneplain bedrock (Thorsnæs 2021). The whole region lies above the tree line, at approximately 1100-1400m above sea level (ibid). With milder climates, following the ice age retreat, the tree line elevated, allowing humans move further towards the mountain plateau (Haakenstad 2010).

Phyllite dominates the western part of Hardangervidda (Rauland Turist AS). Due to it's the richness of mica, the rock provides a good basis for nutrient rich soil (Haakenstad 2010). On the eastern part of Hardangervidda, it is gneiss and granite that dominate the bedrock (ibid). The hard and acidic characteristics of these rocks creates the basis for nutrient-poor soil (ibid).

Approximately 600 million years ago, Hardangervidda was flooded by ocean (ibid). For 100-150 million years, gravel, sand, clay, and organic materials were deposited (ibid). These deposits were reformed into conglomerate, sandstone, slate, and limestone (ibid). The loose sediments were transported to the ocean by rivers (ibid). The remaining sediments further hardened to quartzite and phyllite rocks.

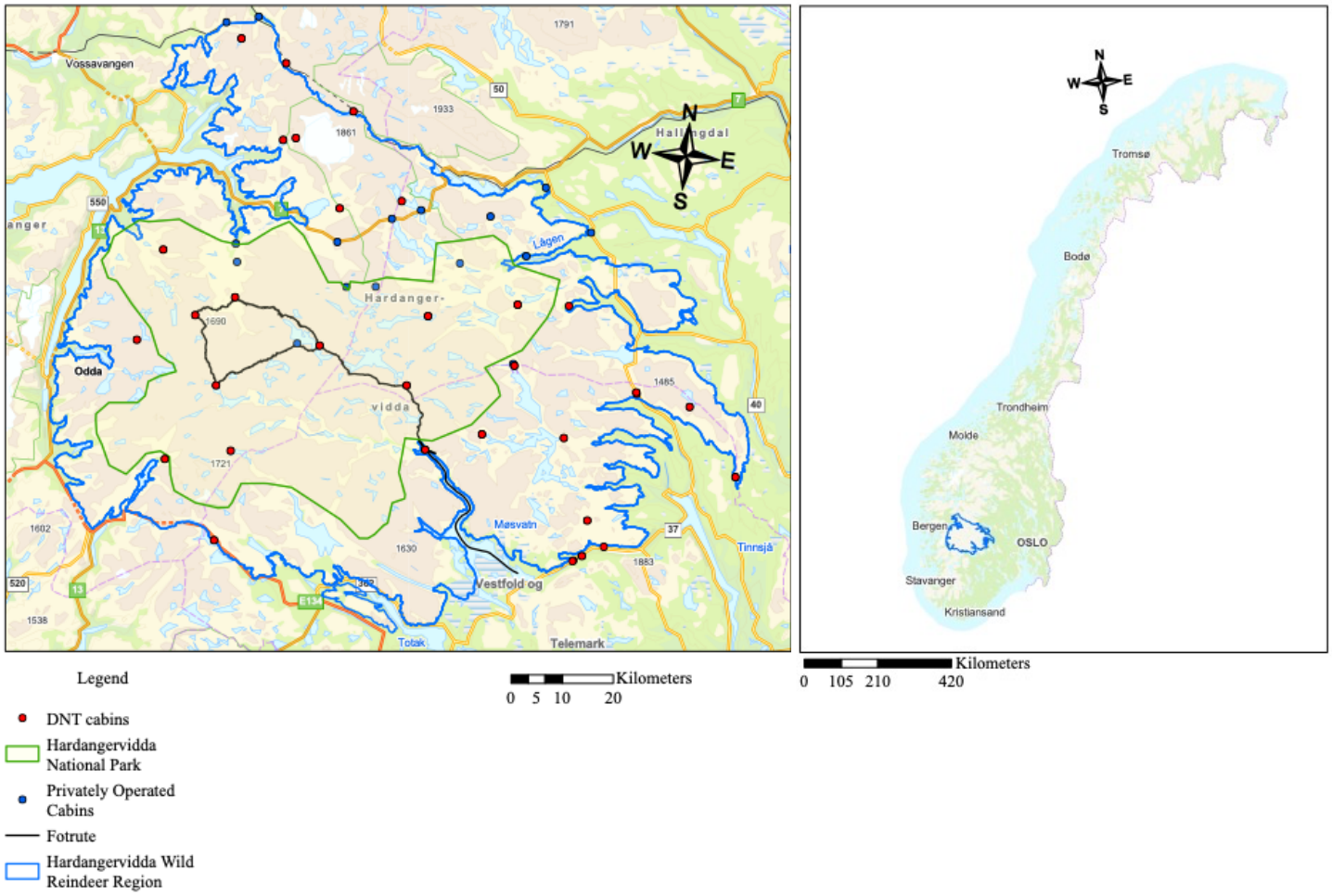


Figure 2: Map of the study area showing a) The Hardangervidda wild reindeer region, the National Park boundary, DNT and private cabins operated for tourist and the route I took b) Location of Hardangervidda in Norway. Datum: ETRS 1989. Coordinate System: ETRS 1989 UTM Zone 33N. Projection: Transverse Mercator (Sources: Data from Miljødirektoratet 2021 (d); (f); Kartverket 2022; Map from Cecilie Veum, 2022)

3.2. Climate

Hardangervidda has a harsh climate (Ryvarden 2011). The variations in its landscape both influence and are influenced by the precipitation. In the west, an oceanic climate is prevalent (Falldorf *et al.* 2014). The south-west winds and high mountain tops contribute to more precipitation (Ryvarden 2011; Ryvarden Tvedt 2021). The annual precipitation is approximately 1200-1800 mm/yr (Falldorf *et al.* 2014). Contrarily, in the east and north, a continental climate dominates (ibid). The significant distance from the ocean and flat terrain is accompanied with little precipitation (Ryvarden 2011). The east and north experiences an annual precipitation of approximately 600-800 mm/yr (Falldorf *et al.* 2014). The difference in precipitation explains the lush characteristics of the west, as opposed to the east.

In addition, Hardangervidda experiences harsh winds (Ryvarden 2011). As a result, little heat from the sun is absorbed by the vegetation (ibid). Hence, plant growth is restricted (ibid).

3.3. Vegetation

The vegetation in Hardangervidda varies significantly from east to west and north to south. A potential explanation for these variations is the nutrient richness and water availability (Bhattarai *et al.* 2020). It is generally appreciated that energy and water are important elements for determining diversity (ibid). In their analysis, regarding the influence of soil water availability on the species turnover, Bhattarai *et al.* (ibid) found that two functional groups of alpine plant assemblages can be found on Hardangervidda. These entail lichen dominated, and vascular plant dominated regions. Lichen species are prevalent in dry and nutrient poor ridges (ibid). In Hardangervidda, Odland *et al.* (2014) found that the area covered by lichen reduces in accordance with increasing precipitation and altitude. On the contrary, vascular plants are found in moist areas (ibid). In addition, the nutrient gradient along moist areas separates the acidophilous species from calcareous species (Bhattarai *et al.* 2020). Hence, lichen species are more prevalent in the eastern parts of Hardangervidda, and vascular plants are found in the western parts of Hardangervidda.

Snow cover also influences the lichen cover and its availability for wild reindeer (Odland *et al.* 2014; Skogland 1978). In warmer winters, when the rate of icing is higher, the snowpack more impenetrable, reducing the availability of the of lichens (Bargmann *et al.* 2019). As lichen is the main winter fodder for wild reindeer, wild reindeer are therefore

significantly susceptible to warm winters and, hence, climate change. Thus, it is evident that the species are climate change losers.

3.4. Cultural and Recreational Landscape

HNP is a cultural landscape. It is exploited by a plurality of individuals for hunting, fishing, livestock grazing, recreation and more. For the local communities in the surrounding mountain villages, Hardangervidda is a part of their identity (Lurås 2020). Hunting is perhaps the most important cultural activity (see Bang-Andersen 2008).

There are several cultural monuments scattered all over Hardangervidda which depicts that the mountain region has been used since the start of the ice age retreat (Gundersen *et al.* 2021 (a)). During the period 4000-1700 BC, humans subsisted on hunting, fishing, and catching (Haakenstad 2010). Eventually, as the tree line elevated and humans had access rich animal and plant life, humans cultivated crops and plowed land (ibid). The increasing exploitation of the land led to a change in culture and society (ibid).

Moreover, HNP has been a popular recreational attraction. The area has been open up to the majority of the Norwegian population with the help of DNT. The first DNT cabin in Hardangervidda was built in 1878, found alongside the old traffic routes over Hardangervidda, Nordmannslepene (Lauritzen 2021). This is known as the Krækkja cabin. Subsequently, the first DNT cabins found within the national park are Vivelid Fjellstova and Sandhaug which began hosting tourists since 1890 and 1893, respectively (Lauritzen 1998). Currently, there are approximately, 15 DNT cabins and privately owned cabins for tourists located within the national park (Kartverket 2022). The route network has been expanded to the whole of the national park, allowing the hikers to pass through the national park from east to west, and north to south. Overall, in the Hardangervidda National Wild Reindeer region, 70 DNT cabins, 16 privately operated cabins for tourists (Kartverket 2022), and 36 mountain authority cabins (Eidfjord Fjellstyre; Fjellstyra på Hardangervidda (a); (b); (c); (d)) are prevalent. However, no information concerning the number of privately owned cabins in the regions was available.

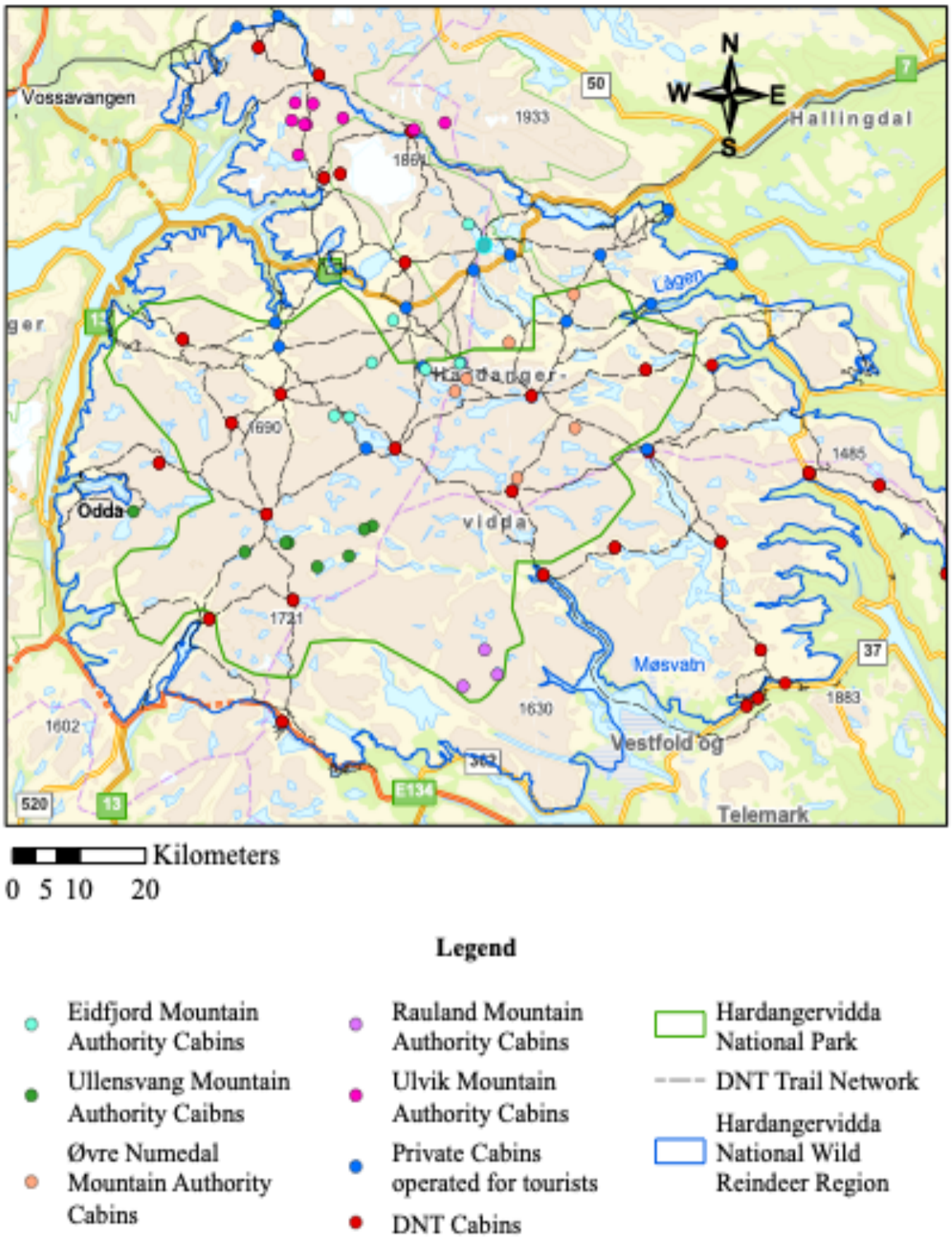


Figure 3: Map displaying privately operated cabins for tourists, DNT cabins, Mountain Authority Cabins (excluding the three cabins associated with Røldal Mountain Authority), and the DNT trail network in the Hardangervidda Nation Wild Reindeer Region. Datum: ETRS 1989. Coordinate System: ETRS 1989 UTM Zone 33N. Projection: Transverse Mercator (Sources: Data from Miljødirektoratet 2021 (d); (f); Kartverket 2022; Eidfjord Fjellstyre; Fjellstyra på Hardangervidda (a); (b); (c); (d); Map from Cecilie Veum)

3.5. Wild Reindeer

Approximately 90 % of the European wild reindeer is found in Norway (Ytrehus *et al.* 2021). In addition, 30 % is located in Hardangervidda National Wild Reindeer region (ibid). Hence, the wild reindeer of Norway and, more specifically, in Hardangervidda, are a 'responsibility species' (Kjørstad *et al.* 2017). A 'responsibility species' entails that the area hosts at least 25 % of the species' total population in Europe (ibid). Thus, all stakeholders have an international responsibility to sustain the species and preserve their natural habitat. Moreover, the species are appreciated as a flagship species due to the cultural significance. These features highlight the national and international value of the wild reindeer (Kaltenborn *et al.* 2014).

The western region of Hardangervidda is an important grazing area for the species during the summer period (ibid). During winter, the eastern regional are dominated by lichen and, therefore, is an important grazing are for the species during this period (ibid).

In 1900s, the wild reindeer population was at its minimum (ibid). This led to the development of hunting quotas (ibid). As a result, the species' population drastically increased until the 1950s (ibid). The subsequent consequences of the population increase entail overgrazing in regions such as Hardangervidda. Since then, Hardangervidda has experienced two situations of overgrazing (ibid). These conditions has shaped the management policies we have today (ibid).

There are three types of wild reindeer that differ due to the conditions of their habitat. The wild reindeer of Hardangervidda belongs to the tundra reindeer (Høland & Punsvik 2016). Tundra reindeer roam in large herds (ibid). Their movement patterns is seasonal, whereby they choose different grazing areas during different parts of the year (ibid). During the short summer periods, they exploit lush and rich grazing areas (ibid). During the winter periods, they retreat to lichen rich grazing areas and alpine plateaus (ibid).

As depicted in the introduction, in 2021, the wild reindeer of Norway were classified as 'near threatened' (Eldegard *et al.* 2021). A near threatened species entails that the population size is small and there is an ongoing reduction of more than 15 % over a period of 3 generations, including both past and future (ibid). The assessment is based on the winter population, the period of 1. February to 15. March. During the recent 10 years, the winter population has been stable at around 25,000 (+/- 3000) (ibid). During winter 2021, the herd size in Norway was approximately at 14,500 (ibid). This excluded the 20-25% of the wild reindeer that derived

from a domesticated source (ibid). Reindeer with a light genetical mixture of tame genes and wild genes were considered as wild (ibid). The boundary value for 'near threatened' after 'liable' is 15,000-16,000 winter population (ibid). In addition, during a period of 3-generation, an assumption of a 28 % decrease was recorded (ibid). The chronic wasting disease (CWD) is an important stimulator for the rapid population decline. The deadly disease led to the hunting and killing of the wild reindeer herd of Nordfjella, which is regarded as an irregular reduction. The introduction of CWD inevitably makes the situation more complex and urgent. However, this discussion is not in the scope of this paper.

Globally, the species are considered as vulnerable (ibid). Approximately 60% of the major populations are experiencing a population decline (Røed *et al.* 2014). Overall, there has been a 40 % decrease in population size over a period of three generations (Eldegard *et al.* 2021).

In the Hardangervidda national wild reindeer region, the population size during winter was 6,000 +/- 200 in 2021 (Eldegard *et al.* 2021). Since 2011, the population size has decreased by 4,000, approximately 40% (Hardangervidda Villreinutvalget (b)). During this period, the population peaked in 2014 with a population size of 10,195 (ibid). The reason for the fall was due to wrong stock assessments. However, the situation was acknowledged quickly. Nevertheless, a continued reduction in the population was subsequently caused by the CWD.

Subsequently, in April 2022, NINA published a report classifying each national wild reindeer region based on the quality norm for wild reindeer (Rolandsen *et al.* 2022). The report clearly stated that the wild reindeer regions are under threat. Among the 10 regions, none of the regions were considered as being under good conditions (ibid). Contrarily, 6 were classified as medium and 4 were classified as being in poor condition (ibid). Among the national wild reindeer parks in poor conditions was Hardangervidda. These classifications were based on the stock conditions, the lichen conditions, and their habitat and the human interference (ibid). Hardangervidda scored poor on the first and third sub-classifications, and medium on the second classification (ibid).

However, managing the wild reindeer in a sustainable way is challenging (Kjørstad *et al.* 2017). The challenge is due to their extensive use of area and their need for a large, unfragmented area, and their fear of humans. In addition, the species are significantly susceptible to the climate changes and outbreak of diseases. These elements demands for a much more comprehensive and adaptive management.

i. Wild Reindeer Hunting

The prehistoric relationship between hunters and wild reindeer holds a unique cultural and traditional value. In Norway, wild reindeer have been exposed to subsistence hunting since the retreat of the most recent ice age, for approximately 10,000 years (villrein.no (c)). The reindeer provided humans with the necessary food resources to settle in Norwegian mountain regions (Kaltenborn *et al.* 2015). The pre-historical relationship between hunters and wild reindeer has distinctly shaped the local culture (ibid). Essentially, hunters and wild reindeer are perceived as one, both a part of the interactions in nature.

Moreover, as the wild predation population has remained at a minimum, the wild reindeer population has strictly been managed by hunting, in attempt to keep a stable population. Hence, hunters and their interests has had a principal role in the management of wild reindeer (ibid). The stock size has been regulated in accordance with the carrying capacity of their habitat (Jaren & Punsvik 2016; Kjørstad *et al.* 2017).

Hunters are generally respectful towards the species they hunt. Figure 4 illustrates that hunters never hunt more wild reindeer than the number of wild reindeer quotas provided by the Hardangervidda Wild Reindeer Committee (HWRC) and the Wild Reindeer Commission of the Hardangervidda region (WRCHR). The data represented may both be due to the extreme conditions of the Hardangervidda and shorth hunting season, which makes hunting wild

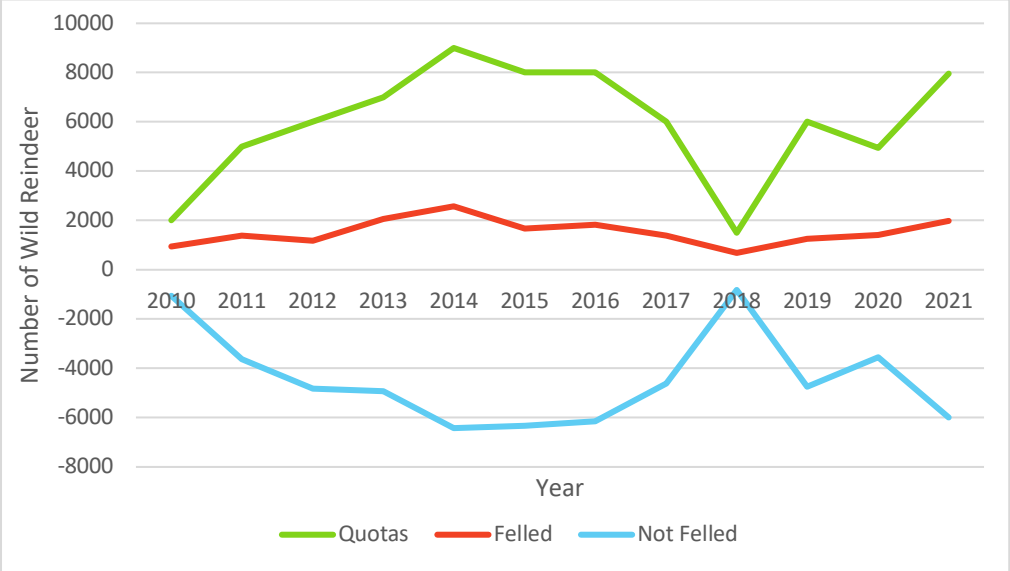


Figure 4: Graph representing the changes in quotas for hunting wild reindeer (green) and the number of wild reindeer felled (orange) and not felled (blue) in the Hardangervidda National Wild Reindeer Region (Source: Hardangervidda Villreinutvalget (a))

reindeer a challenging sport (Statskog SF 2020). However, it also reflects their awareness and respect of wild reindeer.

3.6. Legal Framework for the Management of Hardangervidda National Park.

In Norwegian law, a national park is defined as a demarcated natural area that is subjected to "[statutory protection provisions to protect distinctive or representative natural values within the area]" (Taraldrud 2021, p.399). It is premised on the Biological Act of 2009. The purpose of conserving national parks, in accordance with the Biodiversity Act of 2009, is to "[prevent a continuous influence on the natural environment and cultural heritage and secure an *undisturbed* experience of nature]" (ibid, p.402, emphasis not in original). A unique feature of the Norwegian national park law framework is that, in general, the relationship between exploitation and conservation of conserved areas is not perceived as polarised and conflicted (ibid). However, the conservation policies should also be prioritised over user interests within these areas (ibid).

HNP was established based on the Nature Conservation Act of 1970 (Gundersen *et al.* 2021 (b)). The initiative was premised on the particularly valuable ecological characteristics, and cultural heritage and cultural environment, that prompted international attention (Grøndahl *et al.* 2011). The purpose of the conservation entailed "[to conserve a part of a particularly valuable high mountain region in a way that the landscape, consisting of plants, animals, and natural and cultural heritage, and cultural environment, otherwise was preserved simultaneously as the region will be utilised for land use, environmentally friendly outdoor activities, and nature experience, hunting and fishing, and education and research]" (ibid). The authorities claimed the IUCN criterium of protected area category 2, *National Park*, would be used as the foundations for national park (ibid).

However, in practice, Hardangervidda National Park portrays the characteristics of protected area category 5, *protected landscape*. The category represents landscapes where "the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural, and scenic value" (Dudley 2008, p.20.). The purpose of conserving such areas is to protect the nature and the other traditional values (ibid).

IUCN's category 2 permits different forms of human activities and interferences within the conserved area (Taraldrud 2021). However, IUCN highlights that these activities should

not collide with the purposes of conservation (ibid). This is prevalent in the Norwegian Biodiversity Act of 2009.

The national park was established at a time when the term sustainability was becoming more prevalent. Following the Brundtland-report of 1987, acknowledging nature as something which "[must endure]" was replaced by the term "[*sustainable usage*]" (ibid, p.400, emphasises not in original). As Taraldrud (ibid, p.400, emphasis not in original) depicts, the goal of conservation transitioned from a "[*supply* strategy]" in accordance with a "[*protection* strategy]," towards a "[*sustainable* strategy]." Hence, conservation moved towards a more integrative approach, rather than restrictive approach.

A significant difference between the Biodiversity Act of 2009 and the Nature Conservation Act of 1970, is that it permits the establishment of national parks on private land (ibid). Consequently, compensation is provided for landowners and licensees in cases of economic loss (ibid).

HNP is unique to all other national parks in Norway, in that it does not have a National Park board. Rather, all municipalities have a responsibility to manage the national park within their borders (Grøndahl *et al.* 2011).

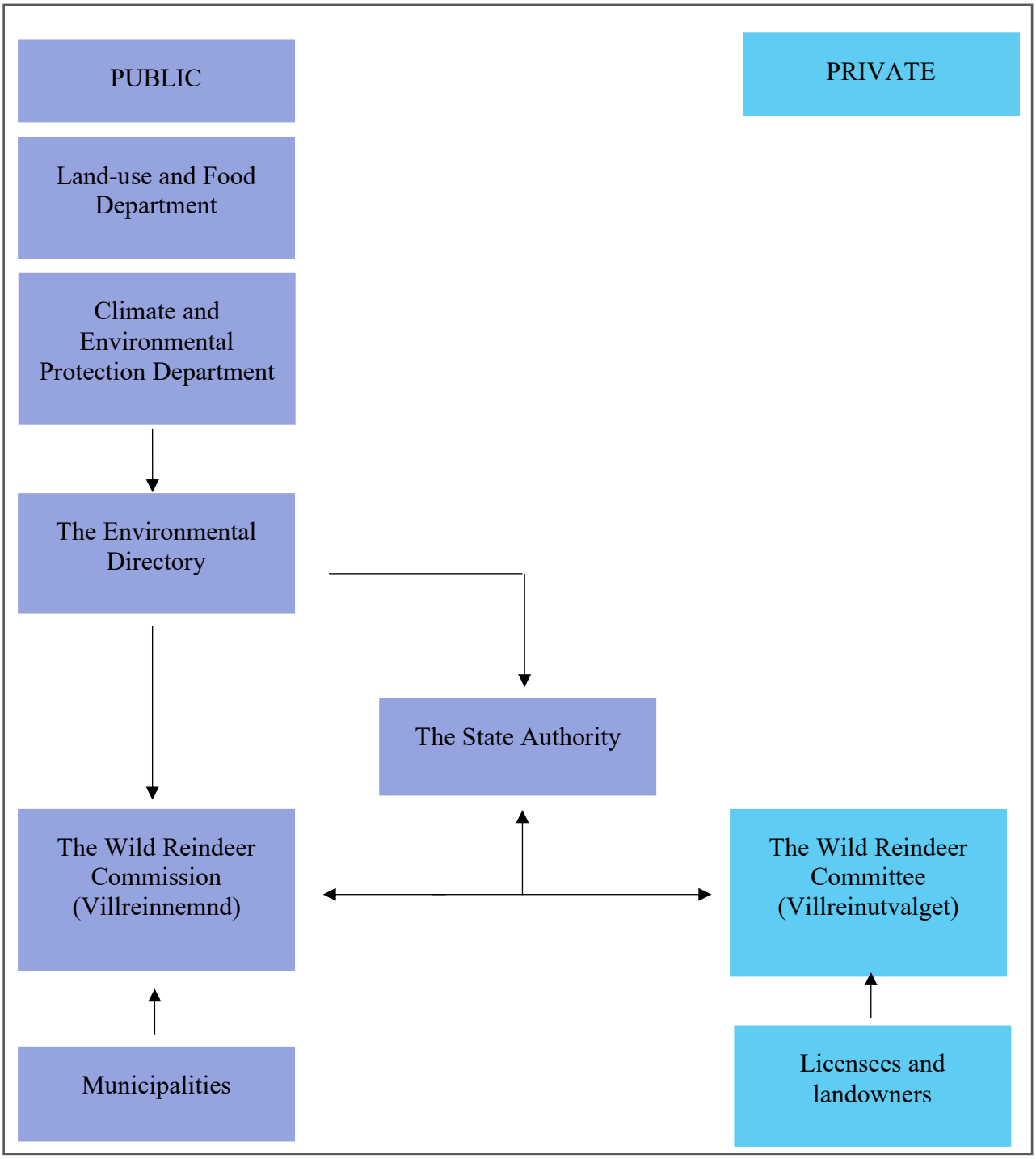


Figure 5: The Management System of Wild Reindeer in Norway (Source: Villrein.no(a))

Table 2: Stakeholders involved the management of Hardangervidda National Park and their role in management (Source: Jaren & Punsvik 2016; Villrein.no(a))

STAKEHOLDER	ROLE IN MANAGEMENT
Land-use and Food Department	Responsible for the Wild Reindeer Commissions and stock management. They do assignments that are in accordance with the Wild Law (Viltloven) and Mountain Law (Fjellova).
Climate and Environmental Protection Department	A political body. They are responsible for the management of the environment in Norway. They ensure that the political decisions are executed and develop the annual budgets relate to the environment and climate.
The Environmental Directory	They develop the regulations related to the environment, assign economic resources to the wild reindeer regions, assess the need of new knowledge, and provides research and surveillance with the necessary financial support.
State Administrators, the Environmental conservation Department: Vestland, Viken, Vestfold & Telemark	They are responsible for ensuring that all Stakeholders and interests related to wild reindeer are included in the areal management plan. They also provide guidance and advisory support to the WRCHR and HWRC. In HNP, the State Administrators play a bigger role than in other national parks as HNP park does not have a National Park Authority.
The Wild Reindeer Commission of the Hardangervidda Region (Villreinnemnd)	They are voluntary members appointed the Environmental Directory. They are responsible for approving elections, the stock plans and yearly hunting quotas for wild reindeer developed by the HWRC.
Municipalities: Eidfjord, Ullensvang (Vestland), Tinn, Vinje, (Viken), Hol and Nore & Uvdal (Vestfold & Telemark)	They are responsible for areal management in accordance with the Planning and Building Act.
The Hardangervidda Wild Reindeer Committee (Villreinutvalget)	They are in charge of the stock management. This entails counting and registering the wild reindeer population, developing goals and plans as how to meet these goals. In addition, they develop proposals for the hunting quotas. They are also middleman between licensees and authorities.

The State Nature Supervision (SNO)	They are responsible for surveilling national parks, ensuring the applicable rules are followed by the users. They also do research.
Statskog SF	They manage properties state properties, some of which are found in wild reindeer regions.
The Mountain Authorities	They manage properties that are owned by state. These properties maintain the user rights of local inhabitants. They are used as accommodation for local hunters and fishers.
The Norwegian Wild Reindeer Centers: South and North	They voice the need of the wild reindeer. They aim to promote sustainable management of the wild reindeer herd and habitat in Norway. They produce relevant knowledge that concerns the wild reindeer and their habitat

4. METHODS

4.1. Epistemological Approach

In this chapter, I will outline the methodological tools I used to obtain information, analyse, and interpret the results so as to be able to produce new knowledge in the context of conservation policy in general and for HNP in particular. However, before describing these tools, I will first elaborate on the epistemological approach of the thesis. Understanding the epistemological approach is necessary as it influences how the factual knowledge is chosen to be understood, perceived, interpreted, and justified (Cope 2002).

i. Post-structuralism

The thesis chooses to adopt a post-structural approach to epistemology. Post-structuralism can be acknowledged as an extension to structuralism. Structuralism understands that knowledge is produced by observing the underlying structures that exist within a system. It assumes that knowledge is objective (ibid). Structuralism may be appreciated as a critique to the idealistic perception of reality. Saussure argued that the meaning of language is not derived by an ideology or "mere reflection of reality" ([Smiths 2001, p.99], in Murdoch ibid, p.13). Rather, its meaning is derived by the elements that exists within our society (ibid). I choose to adopt a realistic ontological perspective.

Post-structuralism builds on structuralism in that it assumes that structures within a system is composed of elements with a plurality of heterogenous relations that overlap (Couper 2015). Understanding a system in this way, makes us aware that alternative meanings and interpretations exists (Murdoch 2006, p.15). Thus, one understands that the structures cannot be analysed objectively. Rather, "the reader [is] … an active agent in the generation of meaning" (ibid, 2006, p.15).

Thus, post-structuralism appreciates that knowledge is constructed by society, hence, knowledge production is by no means unbiased (ibid). It is rather shaped by the researcher's understanding and interpretations of data (ibid). The knowledge is further shaped by the readers interpretations of the knowledge produced by the researcher (ibid). These interpretations are influenced by the time and space in which it is observed (Cresswell 2013, p. 213; Couper 2015). I appreciate that knowledge is not hundred percent objective or subjective, but something in between. My analyses and interpretation aim to be free of political biases as far as possible as well as factual balanced. In this way will my thesis provide new knowledge for all stakeholders independent of their own position in the discourse.

ii. Epistemological Limitation

This thesis analyses a conflicted political discussion. Some have argued that post-structuralism is too relative (Cresswell 2013). Therefore, the knowledge produced from this thesis is shadowed by uncertainty. Hence, it is challenging to adopt these results if one is to produce measures to approach the conflict.

In addition, in post-structuralism one assumes that nothing exists beyond discourse (ibid). This assumption can be regarded as a 'hard' constructivist ontological approach. Constructivism assumes that the meaning of an objective is attributed by the subject (Gray 2018). Reality is defined by the individual. In this sense, one understands that reality is not shared. Understanding reality in this way is challenging in an epistemological sense because how do we know what knowledge to reflect on and develop if reality is not shared? How can we work together to produce knowledge if we do not analyse the same realities?

To approach this epistemological challenge, the thesis chooses to adopt 'soft' constructivism. 'Hard' constructivism claims that our conceptualisation and understanding of the world is solely shaped by social context (Robbins 2012). Hence, the reality is created by the individual (ibid). Contrarily, 'soft' constructivism acknowledges that the world is objective and exists independent of the categories we attribute it with (ibid). However, our perception is subjective (ibid). Our subjectivity filters how we understand and conceptualise reality (ibid). Arne Næss, for example, argued that *"different* feelings and perceptions are induced in different people by the *same thing."* (Næss 1989, p.47). Hence, a thing which should be objective, is perceived through our subjective lens (ibid).

Thus, by adopting 'soft' constructivism, the knowledge produced concerns a shared objective reality. However, one appreciates that the perception of this knowledge is slightly different. The subjectivity of the knowledge may explain why conflict prevails.

4.2. Research Design

i. Qualitative Case Study

The purpose of qualitative research is to obtain a holistic perspective of a contextual, 'real-life' phenomenon (Gray 2018). The purpose of adopting a qualitative research design is to gain a holistic understanding of the multiple perceptions, experiences, values, and arguments

that prevail among the different groups of stakeholders. This will be explored in a 'real-life' setting. Hence, a qualitative research design is optimal for this thesis.

Deduction

A deductive approach will be adopted in this thesis. I initiate my research with a theory, which helps to shape my research question. The research question will be premised on a conflicted discourse that will be analysed in the context of conservation policy in general and conservation policy with respect to reindeer and hikers at HNP. Moreover, to clarify, the purpose of this thesis is not to refute a theory or contribute to verisimilitude. Rather, the thesis aims to contribute to an advance of the theory. In addition, the thesis aims to contribute solutions to a conflicted problem in a real-life context by integrating the theory.

Case Study

This thesis has adopted a case study research design. The purpose of a case study is to explore, describe or explain a phenomenon in its geographical context (Yin 2014). It embraces a plurality of data collection and analysis strategies to gain an in-depth understanding of a small-scale phenomenon (Taylor 2016). The thesis strives to explore how a theoretical and philosophical debate realizes in a specific, geographical context. Therefore, a case study research design is appropriate for this thesis.

The case study is shaped as a *unique*, *single* case study and adopts an instrumental approach. Instrumental approach entails that the case study sheds light on the global challenge of finding the balance between disturbance and restriction in nature conservation.

Triangulation

Within the case study, I chose to use within-method triangulation as an attempt to collect the perspectives and knowledge of the stakeholders. The purpose of triangulation was to overcome the limitations of using one method and gain different perspectives of the situation. By adopting different methods, I was able to uncover a more comprehensive contextual framework. In addition, I could gain a more holistic understanding of the stakeholders' arguments. In this thesis, semi-structured interviews, document analysis and observation were adopted.

ii. Choice of case

The case was chosen on the background of its unique characteristics and interesting contribution to the theoretical and philosophical debate. The case has several features that enforce its uniqueness. Firstly, it has an international recognition in that the area provides nomadic landscapes for the largest proportion of a red-listed species globally. In addition, it is unique at a national scale in that it has a unique form of operation. Lastly, it is significantly relevant to the theoretical and philosophical debate as there prevails a conflict in finding the balance between disturbance and restriction in conservation.

4.3. Data Collection

i. Approaches to Sampling

Most informants were chosen through a purposive, non-probability sampling approach. Two purposive sampling strategies were adopted. These entailed critical case sampling and criterion sampling. Through critical sampling, key informants were chosen. Key informants entailed those who are considered a stakeholder in the management of wild reindeer or HNP. I tried to reach out to at least one person within all groups of stakeholders. The groups of stakeholders follow the list of stakeholders identified by Jaren & Punsvik (2016). Furthermore, criterion sampling was adopted to find informants which were characterised as ‘hikers. These were sampled during my time as a hiker in HNP.

Table 3: Overview of informants

Stakeholder	Date	Why are they involved?
DNT stakeholder 1-8	21.08 – 09.11.2021	Are dependent on hikers to sustain livelihoods. Operate the route network in HNP. Owns the cabin and routes that NINA proposes to remove.
Norwegian Hiker 1-11	21.08-25.08.2021	Recreate in HNP. Some are dependent on the DNT cabins. Their access to the park will be impacted by the changes in management policies.
International Hiker 1-5	23.08-25.08.2021	
The State Administrator: Viken	19.10.2021	Coordinates the Wild Reindeer Management. Provides guidance and advisory support to the Wild Reindeer Commission. In addition, plays a role in facilitating the value-making program, 'Wild Reindeer Mountains as a value-maker.' Lastly, is a part of the GPS monitoring of wild reindeer project.
The State Administrator: Vestland	19.10.2021	Coordinates the state administrator for the whole national park. In addition, is the case worker.
The Hardangervidda Wild Reindeer Committee	18.11.2021	Responsible for the stock management of wild reindeer in HNP. They also represent the licensees of Hardangervidda.
The Supervisory Committee	18.11.2021	Have no concrete assignments that concern wild reindeer. However, manage the motor traffic, in particular during the hunting season, in HNP which influences the wild reindeer.
MIMIR AS	02.03.2022	Have a role in facilitating the project 'Wild reindeer mountain as a value maker.' Aim of project is to stimulate economic growth in surrounding local communities. Follows the "Mountain Text."
NJFF Telemark	17.03.2022	Plays an important role in the transmission of key knowledge about hunting to hunters.
Mountain Authority 1-3	22.09-22.10.2021	Are dependent on local users to for profit and sustain the supply. They are responsible for taking care of the rights of users in Hardangervidda. This entails facilitating the access to the resources of Hardangervidda for the local population. They act in accordance with the 'Mountain Law.'

Table 4: Overview of stakeholders who were not interviewed

Stakeholder	Why are they involved?	Involved in data collection?
Land-use and Food Department	Responsible for the Wild Reindeer Commission of Hardangervidda and stock management.	No
Climate and Environmental Protection Department	Execute political decisions that will impact the conditions of the wild reindeer in HNP.	No
Wild Reindeer Hunters	Hunt wild reindeer in the Hardangervidda region for recreational, cultural, or economic purposes. Their hunting practice will be impacted by changes in the management policies. Also play a vital role in managing the stock size of the wild reindeer species.	No, to some extent, represented by Mountain Authority and NJFF Telemark in interview
Local inhabitants	Experience economic development through tourism and hunting. Also have a cultural tie to the region, whereby, the national park plays an important role in shaping the identity of the local community.	No
Private Cabin Owners	Use HNP.	No
Private Cabins Operated for Tourists	Are dependent on hikers to sustain livelihoods.	No
The Municipalities	Play an important in managing the area of HNP which lies within the municipality. Also manages infrastructural developments and tourist attractions along the edge zones of the park. They play an important role in halting bit-by-bit degradation.	Through Document Analysis
The Wild Reindeer Commission of Hardangervidda (Villreinnemnde)	Approve the stock plans and yearly hunting quotas of wild reindeer.	Through Conferences
Licensees and landowners	Sell wild reindeer hunting license to hunters. Dependent on this to sustain livelihoods and earn income.	Represented by Landowner association, in conference, and Hardangervidda Wild Reindeer Committee in interview
The Norwegian Wild Reindeer Centres	Research the conditions of the wild reindeer on Hardangervidda and acts as an 'ambassador' for the reindeer.	Through Conferences
Statskog	Sell hunting licenses to hunters.	No
The State Nature Supervision (SNO)	Research the conditions of wild reindeer. Ensure that applicable rules in the national park are followed.	Through Conferences
Norwegian Institute for Nature Research (NINA)	Research the conditions of the wild reindeer on Hardangervidda. They have documented the influence of the hikers on the DNT trail and route network and their influence on the habitat use of wild reindeer. Based on these results, they proposed the removal and movement of some DNT cabins and trails that lie in HNP.	Through Conferences and Document Analysis
The Environmental Directory	Assess the need for new knowledge regarding the wild reindeer of Hardangervidda and provide necessary resources to facilitate research. Also develop regulation that may influence the access to HNP.	Through Conferences and Document Analysis

ii. Interviews

Semi-structured interview was the most important form of data collection The purpose of using semi-structured was to obtain the experiences, perspectives, reflections, and understandings of the debate from each stakeholder. With this method, I aimed to determine the dominant and alternative discourses of the wild reindeer, the hikers and conservation that were prevalent in the conservation debate. A semi-structured interview rather than a structural interview was ideal as it made room for elaboration and expansions of views and opinions. This allowed an in-depth discussion and enhanced the truthfulness of their responses. All interviews were translated to English in the results.

Each interviewed lasted for ½ to 1 hour. Each informant had 7 equivalent questions (see appendix 1). The purpose of these questions was to gain an overall perspective of the value of HNP and perception of the situation. The remaining questions were shaped based on the informant's role and which group of stakeholders they belonged to. However, with more experience of using this method and more knowledge over the situation, the questions were slightly altered. Each interview was audio recorded to ensure that I would get all the information needed. However, several challenges are associated with this method which may influence the reliability and accuracy of the results.

Firstly, the interviewer may influence how the informant chooses to respond to a question. This is acknowledged as the 'interviewer effect' and may have considerable effect on the reliability of the method (Gray 2018). To minimise this effect, I followed Gray's (ibid) suggestion to standardise my behaviour to each interviewer and read questions directly as written, in a clear and nondirective way. In addition, I attempted to restrain from showing any physical or verbal indication regarding what may be *right* or *wrong*.

In addition, if the informant feels uncomfortable, confused, or rushed, they may alter how they choose to respond. This reduces the accuracy of the responses. As Mullings (1999) argues, building impartiality and trust between the interviewer and the informant is necessary in order to encourage free and honest responses. Hence, I attempted to create a space which allowed the informant to feel comfortable to share their thoughts. In addition, prior to the interview, the information was made aware about their anonymity and their opportunity to exit the interview at any time (see appendix 2).

Moreover, in some cases, these is a tendency for the informant to respond with unclarity or 'go off topic' (Gray 2018). To address this challenge, prior to the interview, the informant

was given both verbal and written information concerning the essence of the topic, the purpose of the interview and why the informant was chosen. I also kept an interview guide in hand to remind me of the topic in discussion.

Lastly, due to the corona restrictions, the majority of the interviews took place on zoom. This was time-efficient, which is generally difficult to obtain when conducting interviews (Gray 2018). However, a significant challenge with zoom was unstable internet connection and unclear microphone. In these situations, I was unable to note all the information given by the informants. In addition, interpreting body language was more challenging, this made it difficult to see if the informant felt uncomfortable. Hence, I had to pay more attention to this, which may have influenced the extent to which I was able to absorb the information provided by the informants. This challenges the reliability and accuracy of my results.

iii. Secondary Data

Prior to the field work, secondary data was reviewed. The purpose of this method was to a gain a broader understanding of the context, the situation and how history has shaped the context of Hardangervidda, and the relationship between humans and wild reindeer at Hardangervidda. In addition, the method was adopted to explore the parallel between context and theory. The method assisted me in determining who the key informants are, how to demarcate my research and how to shape my research questions. These are valuable benefits of using such a method (Tyrell 2016). All quotes were translated to English in the results.

As Tyrell (ibid) argues, it is necessary to consider the following questions when reviewing secondary data documents: *what is the purpose of the data*, *who produced the data*, and *what methods were adopted in the knowledge production?* (ibid). A post-structuralism appreciates the knowledge and 'reality' produced in these documents as interpretive and subjective. Hence, the purpose of these questions was to make me cautious of the subjectivity of the data.

The secondary documents included: national, regional, local, and organisational action plans, regional conservation plans, quality standards, academic articles by the Norwegian institute for nature research (NINA) and other relevant articles.

iv. Participatory and Non-Participatory Observation

Participatory and non-participatory observation was adopted as an exploratory tool to gain insights into the local and contextualised knowledge of the groups (Laurier 2016). It contributed to unravelling what is relevant, and if so why, and how certain objects and subjects are approached (ibid). The purpose was to explore which discourses concerning nature and conservation prevailed. All quotes were translated to English in the results section.

Two participatory observations were adopted in the field. The initial part of the fieldwork entailed hiking in HNP, adopting the position as a 'hiker'. Adopting such a position was significantly beneficial for me as it gave me deeper insights into the values, challenges and needs of being a hiker. As Gray (2018) puts it, it involved me, as an 'outsider', exploring 'insider' knowledge among hikers. The implication of my position in the knowledge production is discussed in section 5.2.

Due to time restrictions, participatory observation in the wild reindeer hunting community, an equally important group in this thesis, was not obtainable. This was a challenge as it contributed to biasness in my interpretation of the data. To approach this challenge, the second part of fieldwork entailed the participation of two conferences about wild reindeer conservation (see Table 5). The conferences were beneficial as it allowed me to explore the shared and not-shared values of wild reindeer and the conservation arguments. However, it was not enough to gain a deep understanding of the hunters' perceptions and arguments for how the HNP landscape should be shaped and conserved.

Both participation observations were overt. Among the hikers, I was open and stated that I was a researcher. During one of the conferences, a name tag depicted me as a student-researcher. In the other conference, I was open about being a researcher. The purposes for adopting an overt observation were ethical implications and to make me approachable for discussion.

However, it is necessary to appreciate, as Laurier (2016, p.171) highlights, how my "perceived position in the society influences their surrounding and the actions of others." The perception of my position contributes to bias in that the knowledge produced is influenced by the researcher's behaviour. To approach this, I chose to follow Gray's (2018) suggestion by recording the observed events thoroughly and comprehensively to allow re-interpretation at a later stage. This strategy played an important role in maintaining reliability.

Non-participatory observation was adopted for one conference about HNP (see Table 5). This was due to the restrictions placed by time and corona. The conference was digital and was published online. The method was covert as none of the participants of the conference were aware of my identity as a researcher. Covert observation is generally viewed as unethical (ibid). However, as the conference was published online, accessible for all, it was not considered unethical in thesis.

Table 5: Overview of the conferences participated, and the type of observation adopted during the conferences

Conference	**Type of observation**	**Date**
'Hardangervidda nasjonalpark 40 år' – Hosted by the State Administrator of Vestland, Eidfjord Municipality and the Norwegian Nature Centre	Covert, digital, non-participation	8-9.09.2021
'Fagdag Villrein 2021' – Hosted by the Wild Reindeer Commission of Hardangervidda	Overt, physical, participation	13-14.10.2021
'Vårmøte Hardangervidda' – Hosted by the Hardangervidda Wild Reindeer Committee and Wild Reindeer Commission of the Hardangervidda Region	Overt, physical, participation	2.04.22

4.4. Data Analysis

i. Thematic Analysis

In this thesis, a thematic analysis strategy was adopted for analysing and systematically identifying particular themes and categories within the data (Gray 2018). The purpose of adopting such an analysis approach was to clarify the main discussions that relate to the discourses of how to manage HNP. It provided me with an overview of the prevalent arguments and the different sides of the debate.

The data drawn from the interviews, data analysis and observation were implemented into NVIVO for coding. This was essential in order to organise the data for further analysis. The data was coded thematically using nodes. The themes were developed through careful reading and re-reading of the data and were chosen based on their relevance to the theory and research question. Another round of evaluation was carried out to determine the sub-nodes.

Following the coding process, I chose to follow Bazeley and Jackson's (in Gray 2018), proposal for forming an analytical account. This entailed to *describe* each theme and how it

was represented, *compare* the perception of the different stakeholders, and *relate* the different themes and sub-themes (ibid). Such an analytical account provided me with a holistic framework of the results which clarified the different arguments and allowed me to discuss and reflect the results.

Table 6: Table representing the nodes and sub-nodes identified in the thematic coding process

Nodes	**Sub-nodes**
Wild Reindeer as a Flagship species	- Priority - Conflict - Threats - Economic value/marketing - Recreational value - Cultural value
The Right of Public Access	- A place for everyone? - Threats - Access - Economic Value - Public Health
Management	- Pull strategies - Channelling - Hunting - Dynamic Adaptive Management - Restriction - Information

ii. Discourse Analysis

Following the thematic analysis, a discourse analysis of the data was adopted. Adger *et al.* (2002, p.683) define a discourse as a "shared meaning of a phenomenon." Discourses are socially constructed and can be distinguished based on their assumptions, claims and arguments concerning the phenomenon (Benjaminsen & Svarstad 2010). An important feature of a discourse entails homogeneity in the message itself and how the message is expressed and communicated (Adger *et al.* 2002). Homogeneity in the message means that there is a particular knowledge that is shared by those involved with the discourse (ibid). In addition, there is a consensus in the causes and solutions (ibid). Moreover, discourses may use narratives to illustrate features through storytelling (ibid).

A discourse analysis is closely linked to 'post-structural' philosophy and epistemology (Mattissek 2018). It appreciates the subjectivity of the truth that exists in social realities (ibid).

What constitutes as knowledge is coloured by power relations, identity, and subjectivity and more (ibid). The purpose of using a discourse analysis is to identify the knowledge that dominates in a society and how this knowledge is shaped by the social context. I use a discourse analysis to identify and clearly present the shared meanings of how wild reindeer and hikers should be managed in HNP. The narratives of these discourses were also explored, illustrating the *heroes, villains,* and *victims* of the discourse. The purpose of using such narratives was to clarify the different arguments of the discourses. An important feature of a discourse analysis is power. However, the discussion concerning power is not in the scope of this paper.

There exists no criterium which outlines how a discourse analysis should be structured and conducted. Hence, the process is open and flexible. However, I chose to follow a simplified model proposed of Fairclough model, outlined in Dimitri (2010). Firstly, the model looks at the overall context of the discourse. Subsequently, it explores the social practice and ideology which are prevalent in the context of where the discourse is identified. By ideology, I mean the shared beliefs or principles. Overall, as Adger *et al.* (2002, p.683) put it, a discourse analysis "focus[es] not directly on a specific phenomenon itself, but rather on claims concerning this phenomenon, claims-makers, and the claims-making process." The discourses were analysed in the context of their social, cultural, and geo-historical context.

Three discourses were analysed. These were: 'Wild Reindeer Discourse,' 'Hiker Discourse' and 'Management Discourse.' These were chosen premised on the dominant perspectives identified in the coding process and thematic analysis.

5. ANALYTICAL RESULTS

5.1. Wild Reindeer as a Flagship species – Wild Reindeer Discourse

In this section, I will illustrate how the wild reindeer are represented in the discussion concerning how to manage HNP. I outline the current conditions of the wild reindeer and how they are valued among the different stakeholders. These results are important as they illustrate the role which wild reindeer of Hardangervidda play in shaping the purpose of management. In addition, the plurality of ways in which the wild reindeer are valued may explain the different preferred future visions the stakeholders have of HNP.

i. Summary

Claim

Wild reindeer represent wild nature and are a vital resource for sustaining cultural, historical, and recreational activities. The wild reindeer are disturbed by physical development and human use of these structures, in particular hiking which is a dominant activity in the core areas. Hiking contributes to fragmentation of the wild reindeer habitat.

Claim-makers

All stakeholders

Argument

The value of wild reindeer makes them a vital species to conserve. However, disturbance and the continuous fragmentation of their habitat is worsening their conditions and the conditions of their habitat. A reduced and fragmented habitat area means they have less access to vital resources that sustain their needs. Hence, these processes are a threat to the wild reindeer. Therefore, to conserve and preserve the wild reindeer and their anthropocentric value, disturbance must be reduced, and fragmentation must the halted.

Solution

Reduce hiking in wild reindeer habitats.

ii. Context

Conditions

As highlighted in the 'Introduction,' conditions in the context of this thesis refers to the physiological qualities of the species, including weight and growth rate. In 2021, the Norwegian wild reindeer species were categorised as a near threatened species (Eldegard *et al.* 2021). This has sparked strong reactions among several actors at all scales. In their chronicle, Gulowsen and Håpnes (leader and professional leader of The Nature Conservation Association) (2022) depicted this as a "*warned catastrophe*." They argued that (ibid):

> "*The wild reindeer are losers when central authorities lack the will, courage, and muscles to stop environmentally degrading activities which, in the next round, ruin the basis of life for wild reindeer and the species' long-term survival possibilities*"

One can argue that the eradication of the wild reindeer herd in Nordfjella, in attempt to prevent the spread of Chronic Wasting Disease, undoubtedly plays the primary role in the rapid reduction of the herd size (Eldegard *et al.* 2021). Hence, reducing the Norwegian wild reindeer species to 'near threatened.' However, research shows the fragmentation processes stimulated by human activities have placed a significant toll on the species (Gundersen *et al.* 2021(b)). Hence, it is clear that human activity also plays an important role.

Some stakeholders felt that if no changes were implemented to the policies and our attitude towards nature and wild reindeer, the extinction of the species is a quite likely future scenario. This worry is particularly influenced by the Chronic Wasting disease. Although the discussion concerning the Chronic Wasting Disease (CWD) is not in the scope of this paper, the access to habitat and tourism and hunters plays a significant role in combating the disease. The Norwegian Food Safety Authority proposed to reduce the herd size of Hardangervidda to a minimum sustainable level. In accordance with the fragmentation of their natural habitat, the proposal has sparked worry. As Gundersen mentioned in the 'Spring meeting about wild reindeer' (2022), the wild reindeer are, in general, in a situation where they need more space. This means that the fragmentation processes must be reversed. This view is prevalent at a national scale. In the VKM **(**The Scientific Committee for Food and the Environment) report (Ytrehus *et al.* 2021), which illustrated the possibilities for eradicating CWD, the Environmental Directory and the Norwegian Association for Food Safety proposed to increase the wild reindeer's area usage on Hardangervidda. The argumentation for creating more space

for wild reindeer was premised on the fact that an increase in density of wild reindeer contributes to increase in infections (ibid). This measure entails the need to reduce human activity and interference in the area (ibid). In addition, as the measure is seen as a time-consuming process, it needs to be implemented fast (ibid). However, fragmentation has also been positive in the situation concerning the CWD. In 2016 Nordfjella recorded its first case of CWD in wild reindeer (Ytrehus *et al.* 2021). The authorities implemented a strategy to eradicate the wild reindeer population in this region to remove the disease completely (ibid). The separation of Hardangervidda and Nordfjella played an important role in the attempt to prevent the spread of the disease. Although, despite this, CWD was still recorded in the Hardangervidda national wild reindeer region in 2020 (ibid).

Overall, based on these conditions, the question concerns how to manage HNP in order to move the species from 'near threatened' to 'viable.'

Flagship Species

Among the stakeholders, there is a consensus that the wild reindeer of HNP is a flagship species. A flagship species is understood here as a symbol for the conservation of an area (Bowen-Jones & Entwistle 2002). The wild reindeer are considered as a principal component of the management of Hardangervidda. There is a consensus on the importance of conserving wild reindeer in South Norway both nationally and internationally (see Kaltenborn *et al.* 2014; Kaltenborn *et al.* 2015). It is clear that the species play an important role in all aspects of the local society. In particular, the environmental, cultural, and economic aspects. Regarding the environment, the nomadic species requires large areas. Hence, their conservation promotes a more sustainable disturbance to the species within its habitat. In this sense, their characteristics as a flagship species trickles down to preserving several other species.

As Andersen & Hustad illustrate in their report concerning the wild reindeer (2004, p.2):

> "*Most are in consensus that the Norwegian wild reindeer deserve a strong national value anchoring and a holistic management strategy that secures the wild reindeer's unmanageable future as a species, experience value and harvesting resources simultaneously as living local communities can develop*"

Andersen & Hustad illustrate the recreational (*'experience value'*) and economic value (*'harvesting resource'*) of the species. It seems that the significance of wild reindeer in

policy documents is premised on these values and their roles in the development of local communities.

All management policies and documents concerning HNP and the geographic region of Hardangervidda that were analysed in this thesis are indirectly and directly connected to the species. Within the Regional Report for Hardangervidda 2019-2035, the three most frequent words were related to wild reindeer, when excluding all conjunctions, place names, pronouns, and numbers from the text. These entailed 'the wild reindeer' (*villreinen*), 'wild reindeer region' (*villreinområde*) and 'wild reindeer' (*villrein*). Similar results were identified in the Regional Report for Hardangervidda 2011-2025. The four most frequent words entailed 'the wild reindeer's' (*villreinens*), 'traffic' (*ferdsel*), 'wild reindeer regions' (*villreinområder*) and 'wild reindeer' (*villrein*). The results clearly portray the significance of wild reindeer in the management of HNP.

The significance of the species in regional and municipal documents was also encouraged by national authorities. Among which, the importance of wild reindeer was illustrated in the Ministry for the Environment's assignment letter to the State Administrators of 2007. Among the overall aims of the assignment, one entailed that:

> "*The wild reindeer should have a central place in Norwegian mountain fauna, also in the future, and it is a national goal that the wild reindeer regions will be secured*" (Viken Fylkeskommune *et al.* 2021, p.6)

The letter concerned the management of mountain areas which are important for the wild reindeer's future in Norway (ibid).

In addition to policy documents, the wild reindeer are included to a large extent in DNT documents. In DNT's Action plan for nature, cultural heritage, and environment (2021-2024), wild reindeer was the only species which was highlighted. Their 6th main goal of the plan entailed (p.18):

> "*To contribute to a sustainable wild reindeer management and facilitate for outdoor tourism that considers wild reindeer and domesticated reindeer*"

The consideration of wild reindeer in DNT's report may be a response to significant political press from other stakeholders regarding DNT's role in the conflict between wild reindeer and humans.

Moreover, most stakeholders argued that the wild reindeer need to be prioritised. Rather than the wild reindeer suffering the consequences of human interference, it was advocated that humans should adapt to the needs of the wild reindeer. The argument illustrates a hierarchical relationship between wild reindeer and the remaining species within the region, including humans. The view was prevalent among some DNT stakeholders. As one depicted:

"*The reindeer must be allowed to go where it wants, and human traffic must adapt to the wild reindeer*" (DNT Interview, 2021)

The view was shared by the Leader of the WRCHR in the conference 'Hardangervidda Jubileumskonferanse,' where he stated (2021):

"*The wild reindeer's needs must receive the first priority when considering measures*"

In addition, the need to prioritise wild reindeer seemed to be a popular view within the local population of Ullensvang municipality. Figure 6 shows how a large proportion of the local population in Ullensvang agrees, to some extent, that the areal usage of wild reindeer should be superior to other areal exploitation of the mountains where they exist (Selvaag *et al.* 2018, p.43).

Overall, the results indicates that wild reindeer play a significant role in shaping the management discourse of HNP. It encourages a species-oriented management approach, which highlights and prioritises the needs of the wild reindeer. The reasons for prioritising wild reindeer may be premised on the different values that the species attribute.

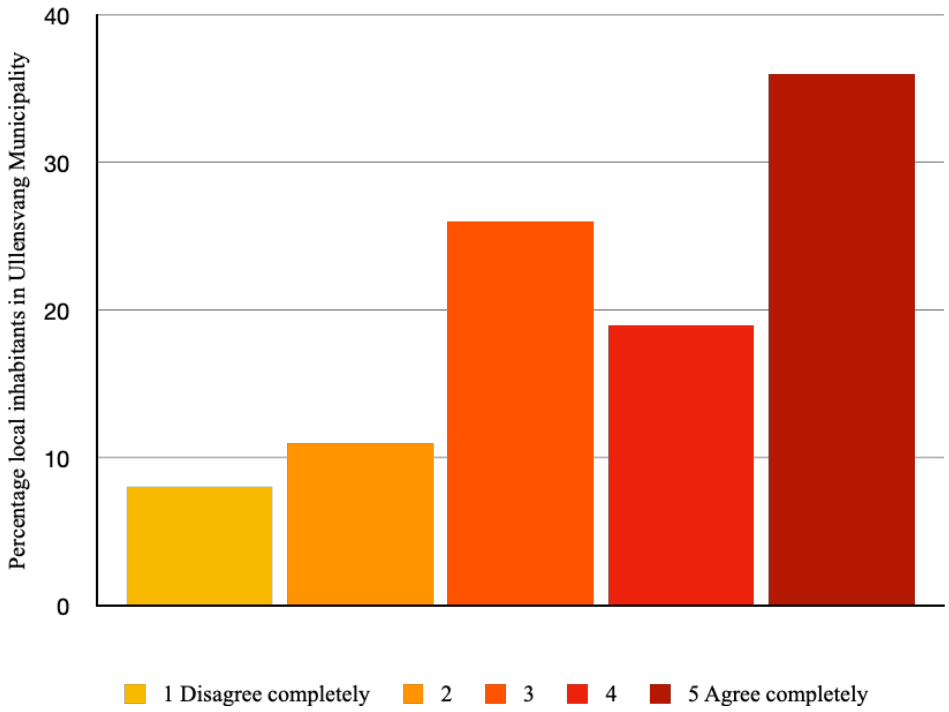


Figure 6: Graph representing the percentage of local inhabitants in Ullensvang municipality concerning the extent to which they agree to the statement: "The Wild reindeer's habitat should be superior to other areal exploitations of the areas of the mountains where wild reindeer exists."(Source: Sevlaag et al. 2018, p.43)

Value

The value of the wild reindeer attributed by different stakeholders shape their characteristics of being a flagship species.

The overall values attributed to the wild reindeer were anthropocentric. Two main anthropocentric values were identified among the interviews, conferences, and policy documents. These entailed hunting values and marketing values.

The intrinsic value of the species was also recognised. This was mostly illustrated through the pre-historical connection between the species and the Hardangervidda area. However, in general, these values were given little attention in my sources.

Hunting Value

Wild reindeer are highly valued in the hunting community. The species provide a product to sustain the unique local traditional practice. Hunting shapes the distinctiveness, identity, and culture of the mountain villages. In addition, the species are valued as a product in the hunting tourism industry as a source for recreation and as an exclusive food source.

As Farstad depicts in the 'Jakt- og fiskepodden' (Statskog SF 2020), Norway is the only country which offers wild reindeer hunting. Hence, it is an exclusive sport. The hunting of wild reindeer is significantly popular. In 2020, there were approximately 7,900 wild reindeer hunters in Norway (SSB 2021). The state forest association may experience as much as 10x more applicants than the number wild reindeer hunting cards available (ibid). This also transpires more private business to operate, which stimulate economic growth in the rehion. As Miljødirektoratet depicts (2022):

"*Hunting creates economic value and is therefore an important basis for industry development and value creation in the districts*"

Marketing Value

The NOU 1974:30A considered the reindeer as the most important species in Hardangervidda, in an economic sense (1974). It seems they still play a significant role in the local economy. Wild reindeer can be regarded as an exclusive attraction, a '*kvalitetsbudbringer'* (quality messenger). They play a vital role in promoting economic development in districts.

Their role in marketing is clearly illustrated in the project 'Villreinfjellet som verdiskaper' (The wild reindeer mountain as a revenue generator). The project was initiated in 2017 with the aim of prompting a "*broad value creation connected to the 10 national wild reindeer regions, especially directed towards different parts of tourism*" (Miljødirektoratet 2020, p.3).

One element of the project regards the sub-project 'Mennesket og Reinen' (Human and Wild reindeer). The advisory company for tourism, MIMIR AS (advisor for sustainable tourism), illustrated in the interview (2022) that the purpose of this project is to facilitate a value-creation in the Hardangervidda and Nordfjella region by stimulating a sustainable environment-based tourism that is directed towards wild reindeer. The project aids local tourism stakeholders to develop their own unique stories of wild reindeer as a strategy to attract tourist and develop the local tourism industry. Through this process, wild reindeer are valued in the sense that they provide a unique tool for aiding local development. The process encourages the preservation of wild reindeer and their habitat, and, subsequently, the species within the habitat.

Intrinsic Value

Lastly, the pre-historical relationship between the wild reindeer, Hardangervidda and humans was somewhat discussed. It was highlighted that the human-reindeer interaction through pre-historic time and after that has played an important role in shaping the identity of Hardangervidda. Visible signs after pitfalls and trap-systems are still present in Hardangervidda. Hence, wild reindeer are considered as a key part of the Hardangervidda.

In particular, the intrinsic value strengthened the role hunters have in managing the wild reindeer. This will be further discussed in the management discourse and discussion.

The intrinsic value and vulnerability of Hardangervidda's wild reindeer, and their significant proportion (30 %) of the European wild reindeer population has gained an international recognition (Ytrehus *et al.* 2021). The international recognition has undoubtedly encouraged a greater awareness of the species in conservation policies.

Wild?

Vaa (2012, p.29, emphasis in original) depicted that wild reindeer "*has become a brand, a symbol of mountains and nature, preferably untouched*." Vaa's depicton of wild reindeer seems to be a dominant discourse among the stakeholders. However, it seems that the 'wild' nature of these species may be questioned. The results highlighted two features which allow us to doubt their 'wild' characteristics. These are the mixture of domesticated and wild genes in the wild reindeer of Hardangervidda and the mere absence of wild predators.

Mixture of domesticated and wild genes

Firstly, it is estimated that the wild reindeer of Hardangervidda consists of 70% domesticated reindeer (Punsvik *et al.* 2016). Following the termination of the domestication of reindeer, the domesticated reindeer were released into the wild reindeer habitat with the assumption that "a reindeer is a reindeer" (Reimers *et al.* 2012, p.1544). However, studies illustrate that such introgressions of domesticated may have negative implications for the wild reindeer population. In their study, Røed *et al.* (2014) highlighted that such introgressions may result in population decline, loss of genetic diversity and, ultimately, population extinction.

Strict Regulation through Hunting

Moreover, in practical, no wild predators are prevalent in HNP. Wolverine may be found in some areas and wolves very rarely. As Kjørstad *et al.* (2016) highlighted in their report concerning the environmental quality of wild reindeer, the wolverine and wolves have played

an important role in forming the biology of the wild reindeer in high mountain regions such as Hardangervidda. Nevertheless, the number of wild predators has been excluded due to the domestic animals and the hunting practice of the landowners (see Miljødirektoratet 2018 (c); (f)).

As a result, the wild reindeer are no longer regulated by natural predation (Christensen *et al.* 2004). Following the overgrazing and the resulted hunger in the 1960s and 70s, the management authorities concluded that the wild reindeer will be regulated through hunting (ibid). These regulations are based on the carrying capacity of the wild reindeer habitat (ibid). An instability of the wild reindeer population is natural. However, it was decided to keep the population as stable as possible. Therefore, hunters are seen as the prime managers of the wild reindeer species. Such a perception of the hunters was shared by the plurality of stakeholders. As the leader of the WRCHR depicted:

"*Hunting … is the only justifiable way to operate wild reindeer management*"
(Hardangervidda Jubileumskonferanse 2021)

It seemed no one really question the lack of wild predators. Although, Kjørstad *et al.* (2016) accentuated that for the wild reindeer to avoid predation, they are reliant on large areas which allow them to move away from regions where the wolves are bounded during breeding seasons. In the current state of their fragmented and small habitat, an uncontrolled population of wolves could bring considerable effects on the wild reindeer population in Hardangervidda.

iii. Narrative

In this section, I outline the narrative of the wild reindeer prevalent in the discussion. Overall, a crisis narrative was observed, whereby the wild reindeer were perceived as the ultimate victim. The victimisation was caused by the second-home complex developments and hikers, which were painted as the villains.

Victim

There is a consensus that there exists a conflict between non-motorized traffic and wild reindeer. It is generally appreciated that non-motorized traffic contributes to the distress of wild reindeer and the fragmentation of their habitat. In this conflict, the wild reindeer are depicted as the victim. The victimisation transpires from the worsening of their conditions and

fragmentation of their natural habitat. Their inability to withstand these conditions as a response to the changes invoked by human interferences and climate change has sparked urgency to the situation.

Illustrating the species as a victim has inevitably played a significant role in the management discourse. In addition, it has invoked conflict whereby different actors are depicted as villains.

Villains

Two dominant 'villains' were identified in the analysis. These were the development of second-home complexes along the edge-zone and hikers.

Second-home complex development and bit-by-bit degradation

The development of second homes along the edge of HNP has sparked worry among the stakeholders. It is perceived as an important contributor to the bit-by-bit degradation. In the Hardangervidda Jubileumskonferanse (2021), the leader of WRCHR depicted bit-by-bit degradation as "*the worst enemy for wild reindeer.*"

The main issue with the development is that it stimulates an increase of non-motorized traffic inside and around the national park. Several stakeholders argued that the increase of such traffic contributes to increased disturbance of wild reindeer by hikers. In addition, it strengthens the fragmentation along the boundaries of the wild reindeer regions (Gundersen *et al.* 2021 (b)).

In their report, Gundersen *et al.* (2021 (b)) showed that second homes, also considered private cabins, have the second most negative influence of all human activity on the wild reindeer's preferred habitat selection in Hardangervidda, following houses. The results were premised on 8 wild reindeer regions in Norway, including Hardangervidda, during the periods of summer (1. July to 15. August) and winter (1. February to 15. March) (ibid). The results indicate the central role second homes play in the conflict between humans and wild reindeer.

The role of second homes in the conflict has also been highlighted by environmental organisations in Norway. Already in 2004, WWF-Norway published an article 'En framtid for villreinen,' (A future for wild reindeer), within which this was discussed. The authors advocated that:

"*The second-home complex developments in Southern Norway's mountain regions must be subjected to national guidelines to avoid further loss of the functional regions for wild reindeer*" (Christensen *et al.* 2004, p.14)

Among the guidelines purposed, one entailed to (ibid, p.14):

"*Establish construction-free buffer sones around the functional areas*"

Since, establishment of HNP, there have been strict regulations prohibiting the constructions of new cabins in the region, although there have been developments of existing cabins. However, the edge-zone of Hardangervidda national wild reindeer region has experienced a significant increase in second homes during the recent years. According to the SSB (2020), there were 828 leisure buildings recorded in Hardangervidda wild reindeer habitat, along the Hardangervidda national wild reindeer region in 2019. A leisure building entails a "[*cabins, summer houses, year-round residential houses and farmhouses that are used as a holiday home*]" (ibid). Between January 2014 to December 2018, the region experienced an increase of 127 leisure buildings, 15 % of the current amount (ibid).

In the interviews and document analysis, the phenomenon was subjected to significant criticism. One DNT stakeholder advocated that (Interview 2021):

"*The cabin complex developments along the 'edge-zones' of Hardangervidda are perceived as a threat to both the wild reindeer and the Right to Public Access*"

Hikers

Hikers have been depicted as 'villains' by some stakeholders. However, it seems that hikers' role in the …. has been a polarised discussion for several years.

The report 'Villrein og Samfunn' by Andersen and Hustad (2004) can be considered one of the early reports discussing the effects of human interference on wild reindeer. They highlighted that (p.39):

"*It is traffic (by foot and on ski) which sparks behavior reactions, while fixed installations (high voltage power lines, cabins, roads with traffic etc.) influence the wild reindeer's behavior to a small extent*."

Hikers are villains in the sense that they disturb the wild reindeer, distorting their normal behaviour and restricting their access to habitat and resources (Gundersen *et al.* 2021 (b)).

Perhaps a significant issue with hikers concerns the lack of information about the wild reindeer. As presented in Table 1, most of the hikers interviewed had no knowledge about wild reindeer. Knowledge of wild reindeer regarded the understanding of its basic biology, its relation to humans, its habitat usage, how it is managed and its health and struggles. The implications of the lack of knowledge may result in little regard to the species when disturbing their habitat. One can argue that this comes into conflict with the duties that accompany the RPA, to show consideration towards the environment.

However, the narrative depicting hikers as villains is not shared by all stakeholders. As one DNT stakeholder informant (2021) argued:

"*It is unreasonable to give more responsibility to a stakeholder who uses the area because it is permitted*."

The argument makes a fair point. It highlights that the liberal policies implemented in HNP permit such an extent of disturbance by hikers.

Identifying hikers as a villain makes us question the extent to which Hardangervidda is a place is open for everyone. This question was asked to the majority of stakeholders. Among the DNT stakeholders, there was a general hope that Hardangervidda could be a space for both wild reindeer and people. However, in order to achieve such a landscape in Hardangervidda, as one DNT stakeholder illustrated (interview, 2021):

"*That means that everyone must take their part of the responsibility.*"

In other words, it means hikers must consider the duties of the RPA.

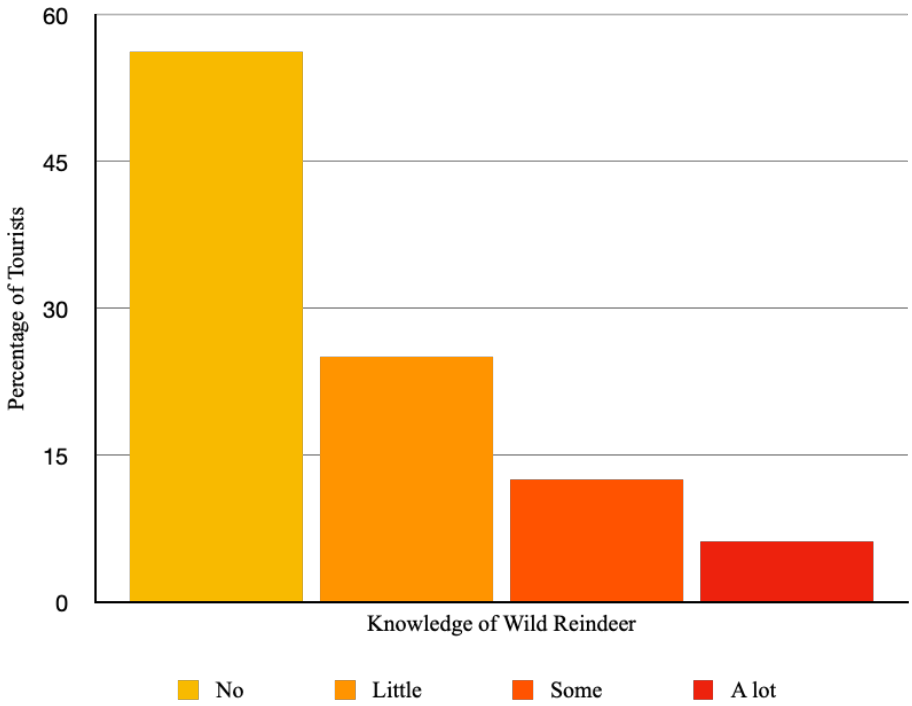


Figure 7: : Graph representing the percentage of hikers that have 'No', 'Little', 'Some' and 'A lot' of knowledge of wild reindeer (Source: Field Work)

However, some argued that Hardangervidda can't be open for all. Rather they argue that the different areas are open for everyone during different parts of the year. The argument calls for a more dynamic or restrictive management approach. As Tor Punsvik highlighted in the Wild Reindeer 'Subject day' conference (2021):

"*We must implement restrictions on our traditional free right to movement in the outfields!*"

Yet, restricting the RPA is undoubtedly a challenging and unpopular strategy to implement. This will be further discussed in the 'Management discourse.'

5.2. The value of the Right of Public Access – Hiker Discourse

In this section, I will illustrate how the hikers and the RPA are depicted in the discussion regarding the management of HNP. I outline the identity of hikers and how DNT plays a role in facilitating hiking in HNP. I then illustrate the narratives that define the dominant hikers,

whereby hikers are depicted as *victims*. Essentially, the value that the RPA attributes inevitably restrains any opportunity to restrict the hikers' access to the national park.

i. Summary

Claim

The access to nature and the 'nature experience' is necessary to sustain the public health of the Norwegian population. In addition, the interaction with nature will encourage humans to take care of nature. The restriction of nature from the removal of facilitation infrastructure and the reduction of the ideal 'nature experience' ensued by second-home developments along the fringe zone of Hardangervidda national park threatens the RPA.

Claim-makers

Hikers; DNT; MIMIR; State Authority; The Environmental Directory

Argument

Through the Right of Public Use, humans have a right to roam freely uncultivated nature as long as this exploitation is acceptable regarding the goals for protection nature. DNT enables and facilitates such access to HNP for the majority of the Norwegian population with their infrastructure. The removal of their infrastructure, including trails and cabins, will thus restrict the access to HNP and constrain the Right of Public Use. Consequently, such restriction will have a negative impact on the public health of the Norwegian population.

In addition, the development of second homes along the fringe zones contribute to the bit-by-bit degradation of HNP. As a result, it degrades the supposed 'pristine, untouched' nature. Therefore, bit-by-bit degradation poses a threat towards the ideal 'nature experience.'

Solution

DNT cabins must be preserved, and bit-by-bit degradation must be halted.

ii. Context

Identity

Most the hikers interviewed were Norwegian, 78 %. The remaining were German.

Among the hikers, cabin was the most popular choice of stay. 71% hikers opted for cabins, while 6 % stayed only in tents and 23 % used both options. There were a plurality of reasons for their choice of stay. However, in general, the choice of tenting was premised on the wish to remain alone. In some cases, tents were used because the distance between the cabins felt too long. Contrarily, the choice cabins was premised on the food sources, showers, and a sense of safety. The results tell us that the majority of hikers prefer some form of soft facilitation when hiking in HNP. This may imply that closing cabins will inevitably reduce the number of hikers. However, as all hikers were interviewed at the DNT cabins, it excludes a large number of individuals who choice to only tent in the study.

Role of DNT

DNT was considered as significantly valuable for all hikers. This is not surprising as all hikers were interviewed at the tourist cabins. Three main values of DNT emerged in the results-analyses. These were accessibility, safety, and sustainability. When asked about the value of DNT, all hikers mentioned accessibility. They argued that the tourist cabins and marked routes enhance the accessibility of the national park and, thus, opens the region to a large proportion of the population. As one hiker mentioned:

"*There needs to be facilitation so that new people can gain the nature experience, or else it becomes an exclusive club*"

In addition, some mentioned that DNT offered them a sense of safety when being in the mountain. It is a place where they could get food resources and other necessary resources. It is also a place to stay if the weather is poor. Lastly, several argued that DNT played a crucial role in ensuring the sustainability of the region. The cabins adopts a sharing-economy strategy. Such a strategy is sustainable as it discourages the establishment of private cabins which are space-consuming and exclusive.

iii. Narrative

Victim

In the hiker discourse, the hikers were generally perceived as victims. They are victimised in that their right of access to HNP, through the RPA, is threatened by restrictive measures.

> "*The paradox is that the public's access to nature is restricted through poorly made decisions because the one hand doesn't know what to do with the other.*" (DNT General Secretary, Hardangervidda Jubileumskonferanse, 2021)

However, this is a marginal narrative. It was generally appreciated that hikers have some responsibility in the preservation of wild reindeer enacted by the duties that accompany the RPA. One hiker (interview, 2021) argued that:

> "*The formal responsibility lies with the authorities, but we all have a responsibility as users to take into account the wild reindeer.*"

Villains

Two main villains were acknowledged in the hiker discourse. These are bit-by-bit degradation and restriction.

Bit-by-bit degradation

> "*Bit-by-bit degradation of Norwegian nature is a threat towards our natural heritage and the outdoor tourism*" (DNT 2021(a), p.20)

The process of bit-by-bit is considered a villain by some actors because it threatens the anthropocentric value of nature that is attributed by outdoor tourism. The process contributes to the diminishing of the natural resources of the Hardangervidda region. As a result, there is less 'untouched' nature available that facilitates the ideal 'nature experience.' As DNT (2021b, p.13) highlighted:

> "*Degradation of green area and fragmentation of coherent nature areas lead to landscape changes, reduced biodiversity, and poorer possibilities to experience good nature experiences*"

Some have argued that bit-by-bit degradation is a result of the fragmentary management structure of HNP. As one DNT stakeholder (interview, 2021) depicted:

"*The fact that research points to the need to lay down paths, this is because of a poor and not very holistic/comprehensive area management of wild reindeer over time.*"

Restriction

As depicted in the context, DNT plays a vital role in preserving the RPA. Through their infrastructure, they open the national park up for most of the Norwegian population. Therefore, restrictive measures can be related to those that remove and reduce the quality of infrastructures that facilitate hiking. Such infrastructures entail tourist cabins, trails, and bridges. Although the hikers respected the need to remove infrastructure in order to preserve the wild reindeer, principally, such restriction has a significant implications on the RPA.

Within the discussion of restriction, privatisation was indirectly discussed among the stakeholders, and implicitly brought up by some. Privatisation threatens the RPA in that it advocates for the reduction of infrastructures that facilitate hiking. As a result, the access to nature is reduced. Such a perception of privatisation is also illustrated in Environmental status (Miljøstatus) report of the RPA (see Miljødirektoratet 2021 (a)). According to the one Mountain Authority (Interview, 2021):

"*In Røldal, multiple representatives work to close the hiking trails*"

Some depicted that the purpose for closing hiking trails was to preserve the wild reindeer's habitat and health. However, it was also mentioned that some stakeholders who wish to restrict tourism wished to keep the space exclusive for private stakeholders. As one DNT stakeholder (interview, 2021) illustrated:

"*Some local private cabin owners want to close of the hikers and have the mountain for themselves*"

The argument for preserving HNP as an exclusive space for private and local stakeholders was also highlighted by one stakeholder during the Spring Meeting Hardangervidda 2022. They argued that all the DNT cabins should be bought up by the mountain authority and used as a place of accommodation for local hunters and fishers.

Moreover, the influence other accommodations within HNP on wild reindeer, which were not owned by DNT, was not included in the NINA report 'Recommendations and Suggestions (Gundersen *et al.* 2021 (b)). This sparked concern among several of the actors, in particular among DNT. DNT highlighted that there are some weakness and lacking elements in the report. As one DNT stakeholder (interview, 2021) depicted:

> "*NINA has gained the accommodation statistics from our cabins. However, this does not correspond with the data of accommodation in other private business, mountain authority cabins and other. … The usage of the trail network has increased. This is what we should focus on, what type of usage has increased?*"

If one exaggerates these results, one can see that the restriction of hikers will shape HNP as an exclusive space for private stakeholders and wild reindeer. Hardangervidda no longer becomes a place for everyone, and the RPA will be jeopardized or severely constrained. This clearly threatens hiker's access to the HNP.

5.3. Management Discourse

In this section, I elaborate on how the management of HNP is perceived by the stakeholders. I aim to illustrate the different purposes of management, and the different strategies regarding how to manage HNP. I explore whether HNP is perceived as a place which may be open for all.

i. Context

Historically, the purpose of establishing HNP was to preserve the wild reindeer and prevent further development of the infrastructural developments in the area, such as hydroelectric power plants. However, when the national nature conservation council initiated

the development of HNP, there was immediate concern regarding the restrictions it may place on the local stakeholders and their user rights (Ryvarden 2011). Hence, special rules were adopted. Due to the large proportion of private ground that exists within the national park, the user interests are more extensive and liberal than in other national parks (ibid).

In Norway, national parks are generally premised on the purpose to preserve the area based on the resources they provide humans. The area is conserved to promote a sustainable disturbance of the area. Such a conservation approach contradicts to, for example, American national parks where more restrictive measures are implemented.

The liberal characteristics of National Parks in Norway is clearly prevalent in the regulation of the conservation of HNP. The Biodiversity Act 2009 defined the purpose of establishment as "[*to conserve a part of a distinctive valuable high mountain region in a way that the landscape with plants, animal life, natural and cultural heritage and cultural environmental is* ***preserved****, simultaneously as the region will be used for* ***land use****,* ***environmentally friendly outdoor tourism,*** *and* ***nature experience****,* ***hunting and fishing*** *and* ***education and research***]" (Naturmangfoldloven, 2009, §1). When asked about the value of HNP, most stakeholders advocated that its value is premised on the resources that may be exploited by humans. Most stakeholders, directly and indirectly, advocated for their conservation to sustain cultural, recreational, and business-related aspects.

As one hiker depicted (interview, 2021):

> "*[Hardangervidda national park] is a recreation region, a resource which we need to take care of and* ***use***"

The area is disturbed by a plurality of stakeholders. It was evident in the results that the area is a contested resource. The results illustrated that stakeholders have different approaches to and perceptions of the management of Hardangervidda based on their relation to the area. Within the management discourse, the purpose of management seemed to be premised on four dominant stakeholders. These were wild reindeer, hunters, hikers, and the local communities. These purposes opted for *an ecosystem service* approach. It entails conserving the area to sustain the benefits it provides different sectors in the society. Hence, regarding wild reindeer, the species are conserved to sustain their anthropocentric values. The sectors identified in the results analysis include the local market, outdoor tourism, and hunting.

Local Market: The Wild Reindeer Mountains as a Revenue Generator

As mentioned previously, it was evident in the results that the wild reindeer in HNP are valued as a product to promote economic development in the surrounding mountain villages. Managing the national park in sustain this economic value of wild reindeer entails preserving the resources for wild reindeer to sustain its source as an *attraction*. Among the stakeholders, the state authorities were the biggest proponents of this.

However, managing the national park in this way provoked worry among some stakeholders. The main reason for their doubt was related to the possible increase in tourism, in particular in the wild reindeer region. The secretary of HWRC (interview 2021) argued that:

> "*A […] factor that is negative for conserved areas, especially the last years, is the marketing of national parks as an attraction ('tiltrekkningskraft'). It is a strategy that conserved areas shall be used to pull people in and get more economic resources. Then there will be an increase in disturbance.*"

However, the strategy plays an important role in informing users. Several advocated that information is vital as it encourages hikers to act in a more sustainable and respectful way. MIMIR AS (interview, 2021) highlighted that:

> "*We wish to convey knowledge about wild reindeer that trigger feelings. This motivates people to take care of the reindeer… Many customers wish to do the right thing. However, they need to know what the right thing is to do and why*"

Outdoor Tourism and Public Health

Outdoor tourism as a form of recreation is appreciated as an important symbol of the Norwegian lifestyle, culture, and identity in Norwegian law. In the governmental report of 'Outdoor tourism', nature is defined as the "[*source to health and life quality*]" (St. meld. 18, p.1). In the results analysis, these elements may be considered as the two main benefits of recreation. Outdoor tourism is appreciated as the tool to facilitate the experience of nature.

During the interviews with hikers, a large proportion of responses to the question, 'What is the most important resource of Hardangervidda?' were related to mental health and wellbeing. Among the answers, the most frequent were, '*Nature experience*' (33%), '*Alone*' 22%), '*recreation*' (19%) and '*Freedom'* (11%). Hence, it was prevalent that the area is considered as an important resource for promoting public health.

"*You can get away from the crowd and the hectic life*" (Hiker Interview, 2021)

Thus, preserving and sustaining HNP is seen as necessary to maintain its source for recreation and public health. Among the stakeholders that have this view, DNT may be considered the strongest proponent. DNT plays the central role in facilitating outdoor tourism and managing the Right to Public Access.

"*It is important to secure people's access to Hardangervidda*." (DNT Interview, 2021)

Figure 9 portrays important areas for outdoor tourism. The results show that HNP is a significantly valuable area for outdoor tourism. In addition, the results clearly portray the importance of facilitation for securing a good experience quality of nature. In the national park, areas with a higher amount of facilitation for tourism also showed a better quality of nature experience. In addition, these areas also had a higher frequency of disturbance. Hence, the figure demonstrates that to sustain good quality experience of outdoor tourism, a certain extent of facilitation is necessary.

A: Trail signs

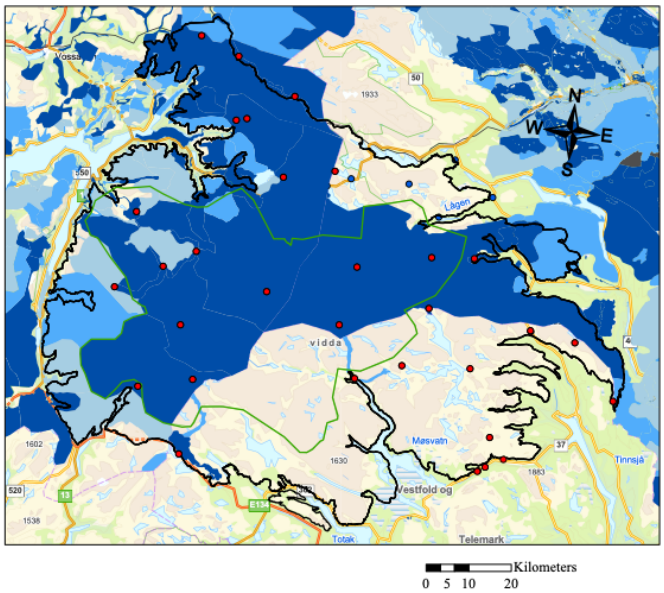
B: Trail signs

C: Bridge for tourists

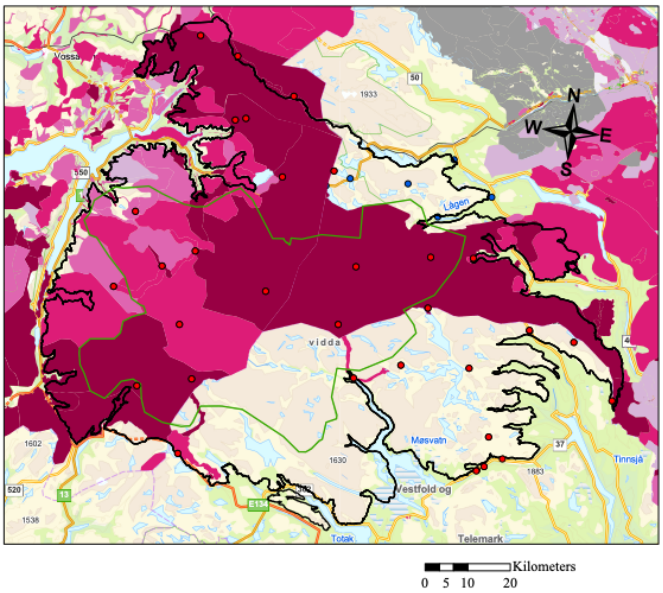
D: Trail

Figure 8: Pictures representing the types of facilitation for tourism at Hardangervidda National Park (Source: Fieldwork)

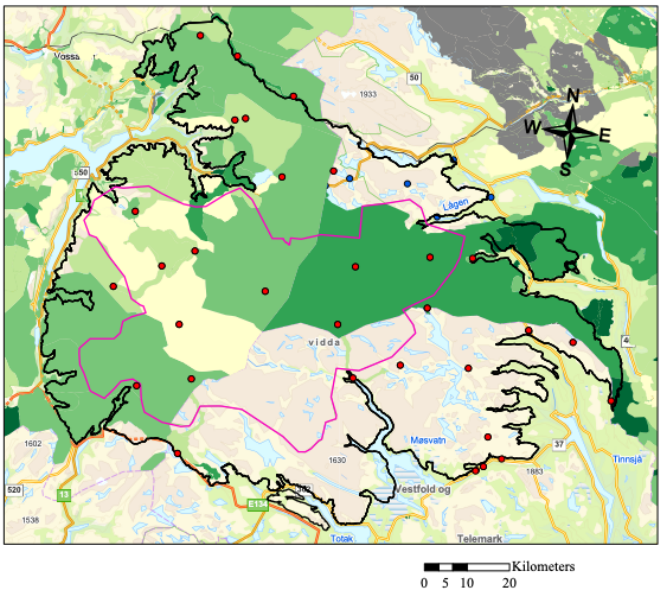
A. Value of area for outdoor



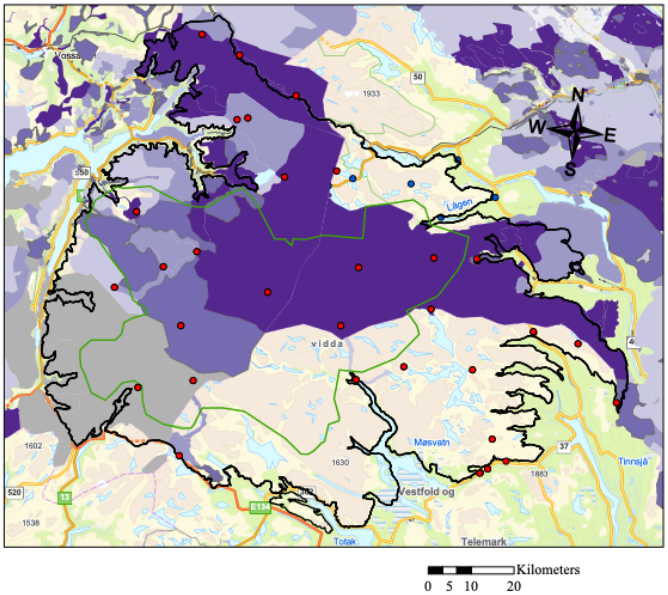
B. Experience quality



C. Extent of facilitation for outdoor



D. User frequency



Legend

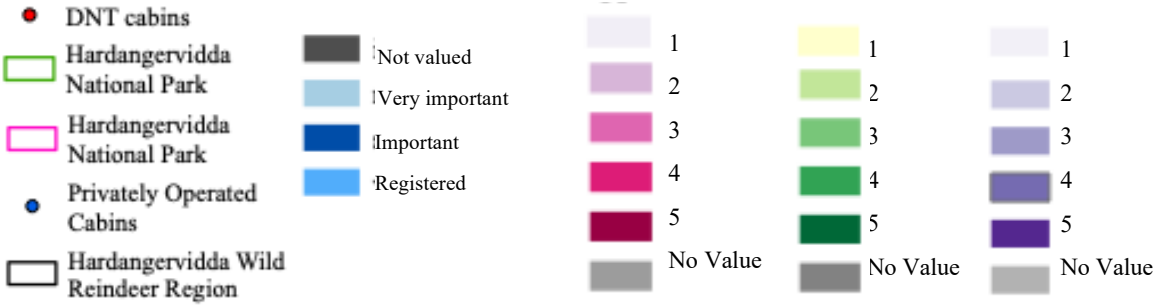


Figure 9: Maps representing A. the value of area for outdoor tourism, B. Experience Quality, C. Extent of facilitation for outdoor tourism, D. User frequency. Datum: ETRS 1989. Coordinate System: ETRS 1989 UTM Zone 33N. Projection: Transverse Mercator (Sources: Data from Miljødirektoratet 2021 (b); Map from Cecilie Veum, 2022

Hunting

Hunting is also perceived as an important source of recreation and economic development in the local community. In particular, this concerns the hunting of wild reindeer.

As the secretary of the HWRC depicted (interview, 2022):

> "*The primary source of income for all mountain authorities and private licensees in Hardangervidda is the sale hunting licences. The sale of wild reindeer hunting license is very important. […] The renting of fishing and cabins is also very important.*"

Managing HNP with the purpose of sustaining its resources for hunters invokes a different management strategy. Such a management strategy may perhaps implement more restrictive measures towards hikers. Among some stakeholders, it was considered a challenge that hikers disturbed the hunting of wild reindeer. However, this challenge seemed to have little significance.

> "*The mountain authority sees a conflict between wild reindeer habitat usage and hikers on trails*" (Mountain Authority Interview, 2021)

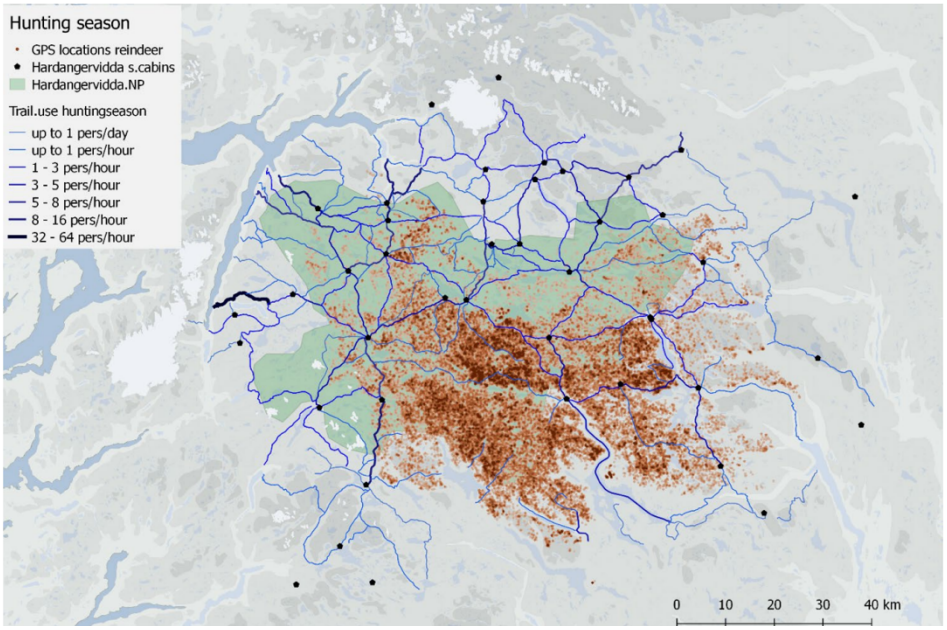


Figure 10: The trail index representing the medium value for trail use during the hunting season for the summer 2017-2018 (20. August to 1. October) and the GPS data for 95 female wild reindeer for the same dates in the period 2001 – 2018. (Source: Data and map from Gundersen et al. 2021 (b), p.41)

Figure 10 illustrates a medium rate of hiking along the trails in HNP during the hunting period. The figure demonstrates the possible fragmentary characteristics of the hiking trails. The implications entail a distortive behaviour of wild reindeer, which inevitably influences the hunting of wild reindeer. Despite the little significance, some measures were adopted to reduce the conflict between hikers and hunters. These measures included closing some DNT cabins and routes during the hunting period.

Moreover, some facilitation is necessary to enable hunting in HNP. The secretary for the HWRC stated that:

> "*The most important factor [for hunting of wild reindeer] is the opportunity to transport in and out of the area they are going to hunt in. In Hordaland, helicopters are primarily used. In Telemark cars (outside the national park), boat and helicopters. In Buskerud is cars and tractors. The following most important factor is access to accommodation and overnight stay*."

Thus, a restrictive use of the park for all stakeholders would significantly constrain hunting practices in HNP.

ii. How?

The management of Hardangervidda has received significant critique among the stakeholders. Discontent for the management was shared by most other stakeholders. One Mountain Authority (interview 2021) depicted that:

> "*Wild reindeer management has been critically poor in the last 20 years*."

The stakeholders advocated for different approaches as to how Hardangervidda should be managed. These approaches are premised on different purposes of management on behalf of hunters, wild reindeer, hikers, private licensees, cabin owners, and other stakeholders. The results clearly illustrated that the wild reindeer and HNP is a contested resource.

The discussion concerning the extent to which humans should, perhaps, be restricted from the national park is not new. In 1990, the Directory of Nature Conservation (now

Environmental Directory) performed a consultation which concerned the new trail and route network (see Hage *et al.* 1990). The report highlighted the challenge between wild reindeer and outdoor tourism (ibid). One of their proposals were as follows (ibid, p.29):

> "*It should … be considered to use resources from the Wildlife Fund to move infrastructure for outdoor tourism in the mountains away from particularly important passages for wild reindeer*."

Pull-Strategies

Claim: Hikers disturb the wild reindeer. However, hikers also do have a right to *sustainably* exploit HNP through the Right of Public Use.

Claim-makers: State Administrators, MIMIR AS.

Argument: Hikers frighten the wild reindeer and, thereby, disrupt their behaviour. Consequently, the trail and route network contribute to a fragmentation of the wild reindeer's habitat within HNP, whereby hikers restrict them from crossing trails. Therefore, the wild reindeer are restricted from using their whole habitat. Hence, hikers must remain separate from vulnerable wild reindeer regions.

However, the hikers also have a right to access HNP through the Right of Public Use. Infrastructures that facilitate such access, such as trails, are therefore important to preserve the Right of Public Use. Thus, manipulative strategies should be adopted to draw hikers away from vulnerable wild reindeer regions, though, still allowing some form of access.

Solution(s): Channelling and Attractions.

Channelling

Channelling was seen as the most important and optimal strategy for managing tourism and preserving the habitat for wild reindeer. The State Administrator (interview 2021) argued:

> "*Much of the problem will be solved through the trail and route network. To channel traffic by facilitating good route information.*"

Channelling regards a pull-strategy which invokes a dualistic relationship between hikers and nature. It creates two types of spaces in the park. One for the hikers and one for the wild reindeer. All stakeholders seemed to acknowledge channelling as a beneficial strategy to both preserve access to HNP and reduce the disturbance of humans on wild reindeer. It is considered as a 'win-win strategy' in that it preserves the RPA, while preserving a larger extent of the wild reindeer's habitat. One Mountain authority (interview 2021) argue that:

"*The marked trails are an important tool for channelling traffic. If the trail is channelled the right way outside the vulnerable areas, then it is very important too for steering the traffic*"

Selvaag *et al.* (2018, p.43) found that most hikers (81%) mostly use marked roads/trails. Hence, it is evident that such a strategy may prove beneficial. DNT plays a central in managing the channelling of traffic. However, the marketing strategy also may play an important role by creating attraction along the routes, encouraging hikers to remain on the trails.

"*If one … can channel and steer the traffic to facilitated cultural heritages in less vulnerable regions along the edge-zone, this would encourage a larger local economic value-making.*" (The Environment Directory (Miljødirektoratet), 2020, p.8)

DNT were strongly supportive of channelling. As the General Secretary of DNT depicted in the conference 'Hardangervidda Jubileumskonferanse' (2021):

"*We need to channel the traffic. Our trail and cabin network is important for that*."

Attraction

Another strategy that was advocated for by DNT entailed promoting attractions and events close to the DNT cabins. The purpose of the strategies, as with channelling, entailed to draw hikers away from vulnerable areas for wild reindeer. Attraction is also considered a pull-strategy in that it encourages hikers to move towards these attractions, rather than hiking in the vulnerable areas where no attractions are. As DNT highlighted in an interview (2021), they argued that:

"*Develop daily offers around the cabins so that people can stay close to the cabins and don't influence large areas.*"

MIMIR AS plays an important role here in helping DNT facilitate a sustainable tourist attraction.

However, as the results presented in the purpose of conservation, hikers generally wish to be alone when hiking in the mountains. Hence, perhaps, these attractions have the opposite effect than what they intend in that hikers choose to move away from these attractions. In addition, these attractions may draw more people to the areas close to the wild region in general.

Conservation Through Use

Claim: It is through the interaction between humans and nature that humans will see the value of nature.

Claim-makers: DNT; hikers

Argument: Through the interaction between humans and nature, humans will see the value and purpose of preserving its resources. Hence, it is necessary that humans have access to nature in order for them to support conservation.

Solution(s): Conserve through sustainable use.

"*We believe in the conservation of nature through exploitation. By introducing nature to humans and exploiting (bruke) nature, human may see the value of nature and wish to preserve nature.*" (DNT Interview, 2021)

DNT strongly argued for the integration of humans and nature. They believed that forming a relation to nature was necessary to encourage the preservation of nature.

DNT worried that the lack of connection with nature would result in less care for nature. Hence, it is seen as necessary to preserve access to nature. As the General Secretary for DNT depicted in the conference 'Hardangervidda Jubileumskonferanse' (2021):

"*By removing people away, it will weaken the engagement for conservation and maintenance of nature. However, it should undoubtedly be understood on nature's premises*."

In order to secure humans' access to nature, facilitation is necessary. Otherwise, as mentioned previously, without facilitation, nature becomes inaccessible for a large proportion of the population.

It is important to consider what type of use DNT refers to in their mantra 'conservation through use'. Information plays an important role here in informing hikers about what a sustainable use entails in the context of HNP. The information is primarily premised on the vulnerability of wild reindeer. DNT have advocated for the importance of informing users. They adopt two main strategies. These include the app 'ut.no' and posters in the cabins.

Figure 11: Poster informing about wild reindeer in Sandhaug DNT cabin '[Conservation of the wild reindeer]' (Fieldwork)

Figure 12: Poster informing about wild reindeer in Torehytten DNT cabin '[Don't disturb the wild reindeer!]' (Fieldwork)

However, general lack of knowledge of wild reindeer among hikers shows us that these sources of information are not enough.

Restriction

Claim: Hikers disturb the wild reindeer and disrupt the wild reindeer hunting culture.

Claim-makers: A group of locals

Argument: Hikers frighten the wild reindeer and, thereby, disrupt their behaviour. The disturbance restricts the wild reindeer from exploiting their whole habitat. In addition, the disruption makes it more challenging to hunt wild reindeer. Hence, to preserve the wild reindeer and wild reindeer hunting culture, hikers should be separated completely from wild reindeer.

Solution(s): Restrict hikers from HNP.

The majority of the hikers argued for the necessity to leave some areas 'untouched' to preserve the habitat for wild reindeer. However, a complete restriction was not popular. As one hiker argued (Interview, 2021):

> "*If it is necessary to put down trails to preserve the wild reindeer then we should do it. However, if we put down all trails then it restricts access*."

In this thesis, restriction is understood as reducing the accessibility of nature by removing facilitation. The main restrictive measures proposed regard those suggested by NINA in their report 'Anbefaling og Tiltak' (Recommendations and Suggestions) (Gundersen *et al.* 2021 (b)). Among the strategies proposed, two entailed removing the DNT cabins 'Torehytten' and 'Hellevassbu' and their surrounding trails. Removing trails involves removing the associated trail signs and removing them from the maps. The purpose for these suggestions was to improve the movement pattern possibilities for wild reindeer towards the west (ibid).

Several stakeholders appreciated that some restrictive measurements are necessary preserve the wild reindeer population. As the State Administrator (interview, 2021) states:

> "*The biological diversity has a clear measure of showing restrictions. We need to acknowledge that restrictions will come*."

Figure 13: Picture of the trail from 'Torehytte' to 'Litlos' that NINA proposed to remove in their report 'Anbefaling og Tiltak' (Recommendation and Measures) (Fieldwork)

Figure 14: Picture of the DNT cabin 'Torehytten' which NINA proposed to remove in their Report 'Anbefaling og Tiltak' (Recommendation and Measures) (Fieldwork)

However, the discussion concerning restriction is significantly polarised. Many stakeholders have advocated against restriction. Among the strongest opponent is DNT. As the General secretary for DNT depicted (Hardangervidda Jubileumskonferanse 2021):

"*New knowledge research demonstrates that it is the offers available for the public – our offer – that should be cut out. We argue that this is like peeing on oneself when one is freezing. It is a quick fix which won't stand over time*."

In addition, some argued that removing facilitation may have little effect on the movement of hikers in HNP. In some cases, they advocated that it may contribute to a more chaotic disturbance of the areas.

"*If we move trails and, hence, close some cabins, we might experience that this will have no influence on the area as they may choose tent [instead of using cabins]*." (State Administrator Interview, 2021)

Nevertheless, a significant challenge regards the unpopularity of moving towards restrictive measures. When the park was implemented, the policies were quite liberal. The purpose was to attract the locals' support. However, as the State Administrator (interview 2021) highlighted:

"*We haven't been strict enough in the beginning. Hence, it challenging to be more restrictive now*."

Thus, implementing restrictive measures seems to be a mere impossible task. Therefore, focusing on more indirective strategies that manipulate the movement of hikers in HNP is more dominant in the management discourse.

Adaptive and Dynamic Management

Claim: Hikers disturb the wild reindeer. However, hikers also do have a right to *sustainably* exploit HNP through the Right of Public Use.

Claim-makers: Secretary of HWRC; Mountain Authority; State Authority; DNT

Argument: Hikers frighten the wild reindeer and, thereby, disrupt their behaviour and movement patterns. Consequently, the wild reindeer are not able to exploit their whole habitat. In addition, loss of calves may occur to disruption during the calving period. Hence, in particular areas of HNP and times of year when the wild reindeer are particularly vulnerable, such as during the calving period and hunting period, hikers should remain separate the wild reindeer to protect the wild reindeer and the wild reindeer hunting tradition. At the same time, the access to HNP also must be maintained to preserve the Right of Public Use. Therefore, access to less vulnerable areas should be permitted.

Solution(s): An adaptive and dynamic management regime based on the most up-to-date knowledge

As with channelling, a dynamic management approach was also seen as an optimal strategy. An adaptive dynamic management approach entails adopting restrictive approaches in some areas during a specific period of the year, while enabling more integrative approaches in the remaining areas. The strategy is based on knowledge and changing conditions. Such an

approach was perceived as beneficial among most stakeholders as it permitted a degree of exploitation whilst preserving some areas for wild reindeer.

"*We must have an adaptive management, a management that adapts to the best knowledge. Adaptive management requires new knowledge.*" (Stier Lier Hansen, Hardangervidda Jubileumskonferanse 2021)

"*We mean the best solution is adaptive management*." (Leader of the WRCHR Hardangervidda Jubileumskonferanse 2021)

DNT were also advocates for an adaptive and dynamic strategy. One dynamic strategy DNT adopts to preserve the wild reindeer entails closing several cabins during the calving period. 'Closing' entails removing the cabins from the booking sites and locking the cabins. Although the cabins are still accessible for hikers with a key, they argued that closing them would reduce the number of hikers in those areas.

An adaptive and dynamic approach enables the access of HNP by everyone. As the secretary of the HWRC argued (interview, 2021):

"*There is not space for everyone [in Hardangervidda National Park]. There is a place for everyone in parts of Hardangervidda, during particular periods of the year*."

However, the challenge of adopting such an approach draws back to the management of Hardangervidda on behalf whom. As one Mountain Authority depicted (interview, 2021):

"*During the hunting season there is a conflict of interest between those who hunt and those who wish to enjoy nature. Who has the right to be there? Who disturbs the reindeer the most?*"

5.4. Summary

Overall, there was a general concern regarding the wild reindeer's conditions. Two groups of villains were dominant in these concerns. These were second home developments along the fringe-zones and bit-by-bit degradation, and hikers. The villains were illustrated as fragmenting and reducing the quality of the wild reindeer regions and disturbing the behaviour of the wild reindeer.

Moreover, the wild reindeer have several anthropocentric values. These include being a product for hunting, observation, and storytelling. These features were seen as significantly valuable for sustaining the economy of the surrounding mountain municipalities. It was clear that the different values attributed to the wild reindeer shaped how one wish to manage HNP. There was a consensus that the wild reindeer must be conserved. However, there was disagreement concerning what the optimal strategy is for managing the HNP. Most stakeholders wished to sustain the access to the national park for hikers, which entail maintaining some infrastructures that facilitate hiking. However, restriction was also discussed by some stakeholders.

In general, on the side of the debate, DNT advocated for conservation through sustainable exploitation. They believed that restricting access would have negative implications on how the wild reindeer and region is valued. On the contrary, some argued that the infrastructures that facilitate hiking should be reduced, restricting access to the park. The most popular strategy was channelling of hikers. It was argued that such a strategy would manipulate most hikers away from vulnerable wild reindeer regions within the park, enabling access to nature while preserving the wild reindeer.

6. DISCUSSION

In this section, I will explore the relationship between the empirical results and the conceptual findings. I will start by answering the main research question. Subsequently, I will elaborate on the sub-research questions and how they relate to the main research question.

6.1. Answering the Research Question: "*To what degree should hikers be restricted from Hardangervidda National Park?*"

The results illustrated a consensus between the stakeholders concerning the urgency to change the current management strategies of HNP in order to preserve the wild reindeer and their natural habitat. The initial purpose of the national park was to preserve Hardangervidda and the wild reindeer, halt the expansion of hydropower infrastructure, and indirectly, preserve the RPA and the right to harvest, hunt, and fish (NOU 1974:30A, 1974)

However, based on the report by Gundersen *et al* (2021 (b) and Rolandsen *et al.* (2022), it is prevalent that the management of the national park is not attaining its purpose. The wild reindeer's conditions are significantly poor in HNP (ibid).

Essentially, a conflict between the wild reindeer and the RPA is evident. There was a consensus among the stakeholders that the current management strategies are insufficient. However, there were disagreements regarding how the management strategies of the national park should be improved. Among the disagreements, one concerned the extent to which hikers should be restricted from the park. Restriction, as mentioned previously, regards the removal of infrastructures which facilitate hiking. The results and conceptual findings depicted that the interests of the different users influence the extent of restriction they argue is necessary.

This thesis initially focused on the *'hikers'* as a user group. However, the wild reindeer hunters appeared to be an equally important group in the shaping the landscape of the national park, although, they were rarely mentioned in the debate. In the results, a clear separation of the *'hikers'* and *'hunters'* was evident. In the wild reindeer discourse, these two groups were illustrated as having different relations to nature. The hikers were appreciated as separate to nature, while hunters were perceived as a part of nature. On the contrary, in the hiker discourse, such a distinction was not prevalent. The implication of such a distinction in the wild reindeer discourse is that it draws the attention towards the hikers. There were several reasons for such a distinction.

Firstly, as Essen & Tickle (2019, p.1) depict, the modern hunting is acknowledged as a "societal duty" that sustainably manages and monitors the wildlife populations and produces sustainable meat resources. However, at the same time, hunting is also considered as a recreational hobby (ibid). Such a perception of hunting is evident in the wild reindeer hunting of Hardangervidda.

In the overall debate, hunters were acknowledged as the wild reindeer's most important *'care-taker'.* Such a depiction of the hunters can be due to the fact that, without the hunters, it is argued that wild reindeer would be prone to over-grazing and, subsequently, an unstable population rate, which invokes a negative connotation (Miljødirektoratet 2022 (c)). The purpose of hunters in managing wild reindeer has been to balance the wild reindeer herd size in accordance with their natural grazing resources (Kjørstad *et al.* 2017). The purpose is premised on historical experiences and the perception that nature should exist in *balance*, in accordance with the carrying capacity, and remain static without change, a characteristic of the nature-culture dualism (Smith 2008). Humans have taken the place of other large carnivores (lynx, wolverine, wolf, bear) that earlier '*managed*' the populations. This seems to be a dominant narrative (see Miljødirektoratet 2022 (c)). Hence, their important role in the management of the wild reindeer may explain the lack of light shed on them as a group in the discussion. Essentially, a functionalistic perception of the hunter-nature relationship is prevalent here. The hunters are clearly perceived as a part of the interactions that exist in nature, and invokes the perception that nature thrives with hunters' interference, which mirrors key characteristics of functionalism (Callicott *et al.* 1999; Robertson & Hull 2002).

In addition, the pre-historical narratives illustrate an ecocentric and mutualistic relationship between hunters and wild reindeer. The practice of hunting wild reindeer holds an immense traditional and cultural value. It was evident in the 'Fagdag Villrein 2021' conference (13-14.10.2021) that their general attitude towards wild reindeer is respect. However, the changing relationship between hunters and wild reindeer was not mentioned within these narratives. The pre-historical hunting was premised on subsistence (Holand & Punsvik 2016). Hunting was necessary to sustain the livelihoods of the local mountain population (ibid). In addition, the species was considered the most important in Hardangervidda, in an economic sense (NOU 1974:30A, 1974). Yet, disregarding the economic value, one can argue that the hunting of wild reindeer is no longer a necessity, but rather a recreation (Essen & Trickle 2019). How may the changing relationship between hunters and wild reindeer influence the discussion? One may argue that acknowledging such a changing relationship will influence the

extent to which hunters are painted as a part of nature. It shapes HNP as a recreational landscape, or even a hunting reserve, if one is to restrict hikers. Nevertheless, it is important to appreciate the lack of knowledge concerning hunters' impact in the research of this thesis. As the research in this thesis was initially only directed towards hikers, the lack of knowledge on hunters inevitably creates a sense of bias in my results. Therefore, for future research, more focus should be directed on hunters. In addition, it is important to appreciate that hunting in HNP is already very restricted. Exploiting the national park for hiking is notably more liberal.

Contrarily, within the wild reindeer discourse, the narrative outlines a storyline whereby the hikers visit the national park with the intention to get away from the busy life and experience the *peaceful, open,* and *alpine* landscape. Such a narrative invokes an externalisation of the hikers from nature. The narrative clearly mirrors the nature-culture dualism (Smith 2006). A compositionalistic perception is prevalent here, whereby hikers disturb the interaction that exist in nature (Callicott *et al.* 1999). In the debate, the narrative seems to be dominant in the overall debate (see Miljødirektoratet (c) 2022).

However, one may also argue that the demarcation of the national park has reinforced such an externalisation of the supposed wilderness that exist in the national park from the hikers (Bluwstein & Lund 2016). The nature that exists within HNP, including the wild reindeer, is painted as something which should remain separate from humans (Williams 2020), mirroring highlights the nature-culture dualism. Nature becomes something which should remain static (Smith 2006). Such a perception of nature, and wild reindeer, supports the need for hunters to stabilise the wild reindeer populations.

Ultimately, such an externalisation of hikers supports the argument that hikers should be completely restricted from HNP. HNP should rather be a landscape for wild reindeer and local users.

Overall, in the wild reindeer discourse, both sides of the theoretical and philosophic debates are present. On the one side, HNP is exploited for fishing, hunting of wild reindeer and goose, harvesting, and sheep and cow grazing. Such a landscape clearly illustrates a *second* nature, whereby nature is shaped by the dynamic interactions of humans and the other organism that exist in nature. HNP, thus, becomes a socio-ecological landscape, institutionalised by the local inhabitants. As mentioned in the conceptual framework, such nondualistic and mutualistic relationship between humans and nature reflect typical European conservation policies (Linnell *et al.* 2015). It clearly reflects the purpose of conserving nature in the context of Natura 2000

which is to co-manage biologically diverse landscapes, such as HNP, while preserving humans as "an integral part" of these landscapes (Tsiafouli *et al.* 2013, p.1031).

At the same time, the management of Hardangervidda's wild reindeer population invokes a sense of static nature, contradictory to the characteristics of *second* nature. The reindeer are managed with the purpose of sustaining the carrying capacity of the wild reindeer landscape (Jaren & Punsvik 2016). Hence, the management focuses on maintaining a stable population rate (Benjaminsen *et al.* 2015). Such a static perception of nature, or wild reindeer, invokes a rigid view to the question regarding how much change is acceptable. It does not only become a political question, as advocated by Gundersen *et al.* (2021(b)) but also one influenced by perception of the human-nature relationship. Regarding change, the change triggered by hikers is perceived as unacceptable in the wild reindeer discourse (ibid). One could argue that the aim to keep the wild reindeer population stable plays a significant role in externalising hikers. The hikers are not a part of the stabilisation, but rather disturbing it. Such a depiction of hikers may explain why the proposed management strategies are almost only directed towards the hikers as a group. Nevertheless, I do not wish to question the extent to which hikers do disturb the wild reindeer. The research by NINA clearly highlights this (ibid). However, I wish to draw more attention towards the hunters. What may be considered problematic is the lack of discussion concerning the hunter's role. By directing restrictive policies only on hikers, the landscape may be shaped to become a hunting reserve.

The differentiation of these two groups is prevalent in several other European contexts. In their study on the mountains of Jämtland in Sweden, Wall-Reinius & Prince (2019, p.4) argued that the mountain landscape is for some "an arena for nature conservation, for recreation and as an escape from civilisation – while for others it represents a realm of inhabitation where calls for local development and economic survival have been persistent, though not always heard and perhaps more seldom adhered to." Their argument can inevitably be found in the context of HNP, in particular between locals involved in the wild reindeer hunting industry, and hikers.

Conversely, in the hiker discourse, the focus rather highlights the ecocentric and mutualistic relationship between wild reindeer and hikers, and the ecocentric and anthropocentric value of the national park. The narrative highlighted the immense importance nature has on the physical and mental wellbeing of the Norwegian population (see Miljøverndepartementet 2008). In addition, the RPA is deeply rooted in the Norwegian culture and plays an important role in this discourse (Miljødirektoratet 2021 (a)). Therefore, restriction

on this law is ultimately *inapplicable*. This may explain why most of the strategies proposed attempt to shape HNP as a space for both hikers and wild reindeer.

Thus, it is therefore a dominant desire in the hiker discourse to preserve the landscape of HNP, due to its anthropocentric value. The anthropocentric value invokes a sense of respect towards nature and, in particular, the wild reindeer. Such respect was evident among the hikers interviewed. In addition, these values encourage the exploitation of the landscape. However, the hikers were open to change how they exploit the landscape to preserve the wild reindeer. There was a clear agreement that the exploitation in HNP should be grounded on nature's premises. This clearly reflects anthropocentrism (Thomas & Barton 1994). Such values of nature encourage an integration of hikers and nature. Hikers are illustrated as being a part of the interactions in nature so as long as the exploitation is *sustainable*, reflecting the characteristics of functionalism (Robertson & Hull 2002). Ultimately, this narrative of hikers supports the argument that hikers should be allowed access to HNP, although, with some restrictions.

The anthropocentric relation to HNP highlights the difference between the North American and European conservation cultures. The North American conservation culture, which externalises humans from nature, as evident in the 'half-earth' discourse, is more related to narrative which externalises hikers from nature in the wild reindeer discourse (Linnell *et al.* 2015. However, the interactive, nondualistc, and mutualistic relationship between hikers and wild reindeer evident in the hiker discourse is more reflective of the European conservation culture (ibid).

Although, at the same time, the intrinsic value of nature was also recognised by the hiker group. The narrative of the hikers discourse illustrated both hikers and wild reindeer with an intrinsic value, reflecting an ecocentric relationship between the two (Kopnina *et al.* 2015).

In conclusion, as Wall-Reinius & Prince (2019, p.3-4) highlighted in their study, "the glorification of environmental values to protect areas with magnificent scenery instils national pride and forms a common identity which continues to be an important element of nature conservation." Their argument accurately represents the context of HNP. For hikers, HNP is a recreational landscape with an open, pristine, and peaceful scenery. HNP is one of several mountain landscapes with a beautiful landscape that fosters the Norwegian national pride, further cultivated by the Right to Public Access. The access to nature has an immense value in the Norwegian culture. The hiker discourse depicts mutualistic and interactive relationship

between hiker and nature. Therefore, the restriction of hikers from HNP is not perceived as necessary. In fact, principally, such restriction will have negative implications on the public health of the Norwegian population. Simultaneously, HNP has deep roots in the local identity (NOU 1974: 30B, 1974). This particularly concerns the wild reindeer of Hardangervidda and the wild reindeer hunting industry (ibid). The wild reindeer discourse paints a mutualistic and interactive relationship between hunters and wild reindeer. However, the relationship between hikers and wild reindeer is static and disruptive. Hence, to sustain the wild reindeer, a restriction of hikers is seen as optimal. Thus, it is evident that how the relationship between hikers and nature/wild reindeer is perceived shapes the arguments regarding the extent to which hikers should be restricted from HNP.

In the following sections, I will explore themes evident in the sub-research questions. The purpose is to explore how different discussions may influence the answer to the main research question. I will first explore the purposes of conserving HNP and how the purposes shape the role of hikers in HNP and the implications of restricting hikers. Following this, I will elaborate on whether HNP landscape can be shaped as a place for all, and which strategies may provide such a landscape. Lastly, I will shortly discuss the extent to which the wild reindeer are wild species and how this may influence the debate.

6.2. Sub-question 1: *A National Park for Whom?*

As illustrated in the results, there are a plurality of purposes for managing HNP. In addition, HNP is a landscape exploited by a plurality of stakeholders with different user interests. Hence, the purposes of managing HNP impacts a large no of individuals to different extents. As MIMIR AS argued, sustainability is about priority. This argument relates to Gundersen *et al.*'s (2020) argument that differentiating between acceptable and unacceptable change is a political matter regarding who one wishes to prioritise. Hence, it is reasonable to assume that the prioritised stakeholders depict what future landscape of HNP one aims to form and how such landscapes influence the extent to which hikers should be restricted from HNP.

In this section, I will elaborate on the different purposes of management and for whom these purposes are directed towards. I will explore how these purposes influence the relationship between hikers and wild reindeer, and the extent to which hikers should be restricted from HNP. Subsequently, I will discuss the arguments of the different stakeholders.

It is important to understand the arguments in this section with a collective perspective. On an individual level, the groups may be split into a plurality of sub-groups. In particular, hunters may be split into local hunters, foreign hunters, landowners. In addition, the individual may be associated with several different groups. Thus, adopting an individualistic perspective, the situation becomes much more complex. Hence, the purpose of grouping the stakeholders is to simplify the discussion.

i. Purpose

As depicted in the result-analysis, the purpose for establishing HNP was premised on preserving the wild reindeer population and preserve the user rights to hunt, fish, and harvest. It was evident that the wild reindeer attribute a plurality of values for different stakeholders (Kaltenborn et al. 2017; Kaltenborn et al. 2014). These values are generally anthropocentric. There was merely any consideration of the species ecocentric value. The lack of considerdation stimulates a concern regarding the purpose of managing the wild reindeer and how that may influence the narratives illustrated.

Essentially, the purpose of preserving the wild reindeer can be split into five groups. Firstly, as highlighted previously, the wild reindeer have deep cultural and prehistorical values, in particularly, in the hunting community and the local mountain municipalities (Smukkestad 2000). As Singsaas (2021), highlighted in her interview, "[if a mountain village lost their hunting opportunities, the village would then lose much of their uniqueness, identity, and culture]." Such a perception was clearly evident in the 'Fagdag Villrein 2021' conference (13-14.10.2021). However, in modern times, the wild reindeer also gained a significant recreational value. The hunting of wild reindeer is an exclusive sport which sustains recreational opportunities for hunters from all over Norway (Mysterud et al. 2020 (a); Statskog SF). Hence, the purpose of preserving HNP is ultimately to preserve the wild reindeer, as well as the hunting culture. Thus, there may be a greater wish to restrict hikers to reduce the disturbance of wild reindeer. Although, the results showed that the conflict between hikers and hunters was not so significant.

Secondly, premised on the 'Mountain Text' and the state's policy to promote tourism and, subsequently, economic growth in the mountain municipalities, the wild reindeer have become a brand for tourism in HNP (Miljødirektoratet 2020). MIMIR AS plays an important role in facilitating the branding of wild reindeer. The wild reindeer both represent unique cultural-historical values and are a brand for 'wilderness' (Gundersen *et al.* 2020; Vaa 2012). As

depicted in the conceptual framework, one of the key policies to promote economic growth in these mountain areas is through branding the Norwegian mountainous nature and cultural-historical values (St. meld 65). The purpose of managing HNP then becomes to preserve the wild reindeer to sustain their role in the tourism strategy. As Child *et al.* (2019) highlight, the demarcation of the national park may mitigate an increase in the commercial value of the nature that exists inside HNP, including wild reindeer. However, the purpose also entails to preserve the hiker's access to HNP, through the Right to Public Access, as they are the targeted group in the tourism industry. Although, it is important to note that MIMIR AS aims to form attractions that pulls hikers away from the most vulnerable wild reindeer areas, reducing the spatial overlap of hikers and wild reindeer. Hence, HNP becomes shaped as a landscape that is open for both wild reindeer and hiker, though a segregation of the two is perceived as necessary (Gundersen *et al.* 2019). Such pull-strategies will be elaborated in the following section.

Moreover, the wild reindeer also attribute an important economic value for the local mountain villages (Bråtå 2010), in particular through the selling of wild reindeer hunting licences. As highlighted in the results, the business plays an immensely important role for local licensees and landowners and inevitably has a spill-over effect to the local region. Thus, the purpose of preserving HNP boils down to preserving the wild reindeer of Hardangervidda and the wild reindeer hunting culture. Hence, there may be a greater wish to restrict hikers from HNP to sustain a greater space for the wild reindeer.

Furthermore, as depicted previously, the access to Norway's mountain areas is considered an essential resource to promote public health and has an immense recreational value (Miljøverndepartementet 2008). Hence, the purpose of preserving HNP becomes to sustain its resources for recreation and preserve the 'nature experience' it offers to hikers. There is a wish to preserve the pristine, untouched, and open nature that exists in HNP, the area where hikers can escape from mundane activities and daily life in the society. This purpose clearly reflects the nature-culture dualism (Smith 2006).

Lastly, the Norwegian authorities clearly have an international responsibility to preserve the wild reindeer of Hardangervidda (Rolandsen *et al.* 2022). The intrinsic value is acknowledged at an international scale. The international recognition undoubtedly places a significant pressure on the state to draw more awareness on the wild reindeer of Hardangervidda.

Overall, it is clear that the purposes generally evolve around wild reindeer. However, the purposes seemed to be premised on the anthropocentric values they attribute for the different stakeholders. Hence, it is clear how the different interests shaping the present and future landscape of HNP. The stakeholders that are prioritised inevitably influences what is considered as unacceptable change and what change one strives to stimulate. Thus, this inevitably influences the main research question as it influences the extent to which hikers should be restricted.

ii. The stakeholder's arguments

Figure 12 illustrates the polarised debated concerning 'a lot of disturbance' vs 'no disturbance' of hikers and 'The Right of Public Access' vs 'The Landownership Rights.' The aim of the figure is to summarise the different perspectives that are prevalent in the debate. As mentioned in the conceptual framework, the figure is a simplified model and does not include the complexity of the debate. However, it clarifies the different positions the stakeholders have in the debate.

Firstly, among the stakeholders who adopted the hiker discourse was DNT. The main purpose of DNT is to facilitate sustainable outdoor tourism. Essentially, they play a significant role in shaping HNP as a place for all, by facilitating access through routes, signs, and cabins. Through their slogan 'conservation through use,' they argued that exploiting nature sustainably is necessary to sustain the ecocentric relationship between hikers and nature. They advocated that such a strategy would encourage hikers to appreciate the intrinsic value of nature and, thereby, motivate hikers to take care of the environment. Their purpose is essentially anthropocentric, to preserve the opportunity for current and future population to recreate in and experience nature. This purpose may mostly relate to a CSS conservation strategy. Such a strategy aims to preserve the nature in order to sustain its resources that promote wellbeing and social justice (Kopnina *et al.* 2015).

Moreover, another group of stakeholders who also acquired the hiker discourse was MIMIR AS. However, their focus was on aiding the local economy through facilitating sustainable tourism along the edge zones of the national park. Hence, preserving the access to nature plays an important role for the local economy. One may argue that such a purpose closely relates to a 'new conservation' strategy (Kopnina *et al.* 2015). Conserving nature is perceived as beneficial as it may indirectly stimulate economic development (ibid).

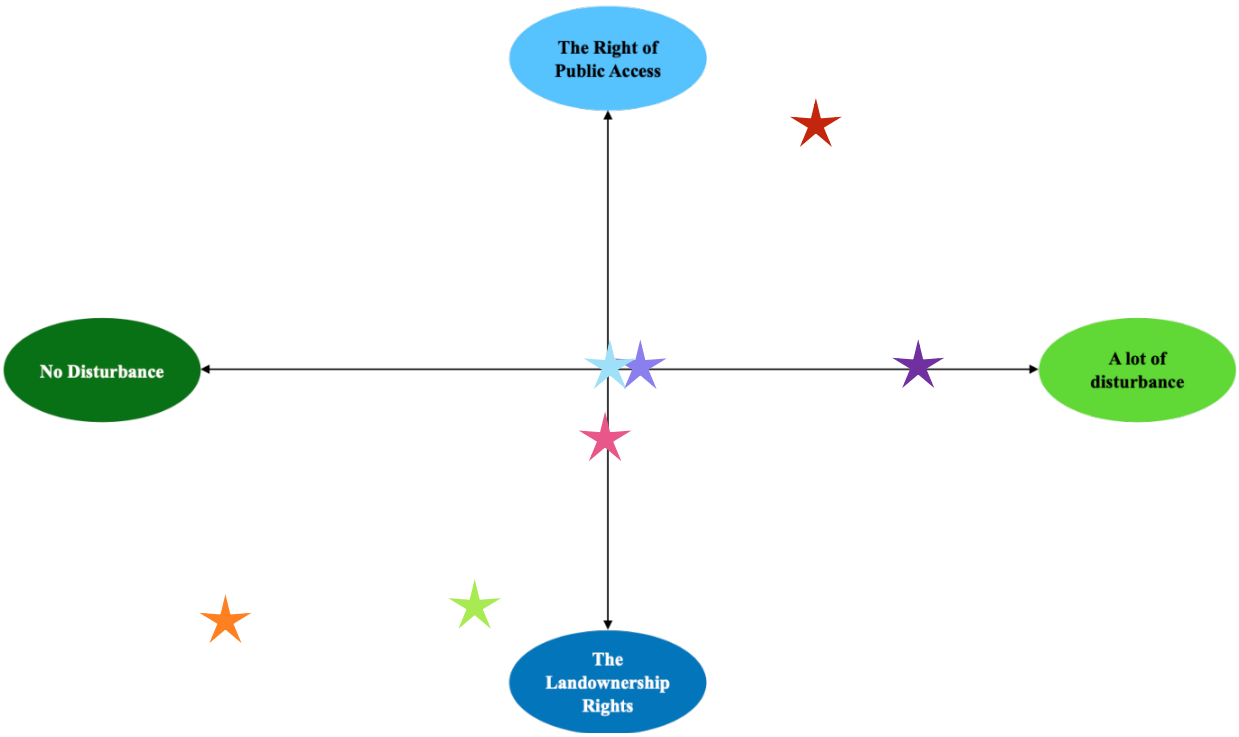


Figure 15: Figure illustrating the polarized debate concerning 'a lot of disturbance' vs 'no disturbance' of hikers and 'The Right to Public Access' vs 'The Landownership Rights'. Red: DNT, Dark Purple: MIMIR AS, Orange: A group of locals, Pink: Hardangervidda Wild Reindeer Committee, Light Purple: The State Administrators, Light Blue: The Environmental Directory, Light Green: Mountain Authority

Furthermore, among other stakeholders who adopted the wild reindeer discourse was a group of locals, the HWRC and the Mountain Authorities. Based on the verbal assertions of other stakeholders and the discussions in the conferences, it seemed that some locals urged a reduction of human interference in the national park. For some, the argument for their claim was to preserve the wild reindeer. For others, it was to preserve the cultural and traditional practices, such as hunting. Whilst for others, it was to sustain their own recreation in the park with minimum human encounter and maintain the sense of 'peace' (*fred*) and 'stillness' (*stillhet*). Hence, adoptive restrictive measures towards hikers are favourable within this group.

The Mountain Authorities prioritised preserving Hardangervidda's resources and the access of these resources for local inhabitants, as stated in the 'Mountain Law' (Fjellova – fjell, 1975, §3). This entails maintaining infrastructures, such as cabins, that facilitate the exploitation of these resources. As highlighted in the results, cabins offering overnight stay are considered an important infrastructure to enable locals to hunt wild reindeer. Such a focus may be considered typical of European nature landscapes (Linnell *et al.* 2015). HNP becomes a cultural landscape that is shared as a whole by locals (ibid). This purpose was evidently premised on sustaining the anthropocentric value of the national park as a whole for the local

inhabitants. Such an attitude inevitably relates to the CSS conservation approach, as shared by DNT. However, the mountain authorities group only focuses on the local habitants, whilst DNT primarily focus on the hikers. It was highlighted by a few mountain authorities that the hikers do, to some extent, trigger a conflict with wild reindeer hunters.

The HWRC were strong advocates of a dynamic and adaptive approach which shapes a landscape that is open for all during a particular period of the year and in a particular area. This approach will be elaborated in the following section. With such an approach, they argued for preserving both the Right of Public Use and wild reindeer. However, they seemed to prioritise the wild reindeer and the anthropocentric values of wild reindeer for locals.

Moreover, the State Administrator strived to create a future landscape that is open for all stakeholders and preserves the habitat for the wild reindeer. Essentially, they wish to preserve HNP as a cultural landscape, preserving the user rights, and as a natural landscape, preserving the natural resources of the park. Such a landscape combines a dynamic relationship between the CSS and 'traditional' conservation approach (Kopnina *et al.* 2015). They aimed to achieve this through channelling. Such an approach separates two types of landscapes in HNP. One for sustainable exploitation and observation and one for the wild reindeer to roam freely (Wall-Reinius & Prince 2019). This will be further elaborated in the following section.

Overall, based on the discussion, it is evident that the extent to which hikers should be restricted from HNP is influenced by which group is prioritised in the formation of the management policies. It is clear that the groups convey different interests and prioritise different groups to some extent. However, undoubtedly, the wild reindeer are considered the most important 'stakeholder' in this the management discourse. In addition, it seems this prioritisation is primarily premised on the economic and recreational value they attribute. Thus, one could argue that such a prioritisation shapes the landscape of HNP as a wild reindeer park and hunting reserve.

6.3. Sub-question 2: *Can Hardangervidda National Park be managed as a space where both the wild reindeer and the Right of Public Access is preserved?*

This question explores whether Hardangervidda national park may be open as a place for everyone and how such a place may be achieved. In general, most stakeholders strived to find management strategies that would sustain the Right to Public Use and improve the

conditions of the wild reindeer by preserving their natural habitat. In this section, I will elaborate on the different management strategies proposed by the stakeholders and how these strategies relate to the ethical, theoretical, and philosophical debate.

i. Channelling and Attraction

In the results, these strategies were considered the most optimal by the stakeholders in general. These strategies entail a static and restrictive relationship between hikers and nature. They are pull-strategies which attempt to draw hikers away from nature and control their movement within Hardangervidda National Park through manipulative measures. They are compositionalistic in that they indirectly advocate for a separation of hikers and nature (Callicott *et al.* 1999).

As Wall-Reinius & Prince (2019) argue, the channelling of hikers through trail networks clearly reflects a nature-culture dualism perspective. As they highlight, such infrastructures "are a way to order human presence in the landscape by limiting human involvement with the natural sphere" (ibid, p.15). As a result, hikers may observe the landscape of HNP on the side-lines. The nature, including the wild reindeer, becomes a landscape of wilderness and pristine, untamed nature (ibid).

The strategies adopt a species-centred approach (Jenkins & Williamson 2003). The strategies aim to preserve the wild reindeer's habitat by keeping human interference to a minimum. This is due to the flagship symbol of the species (ibid; Kaltenborn *et al.* 2014). However, the approach also aims to preserve the HNP as a cultural landscape, with a focus on preserving the Right to Public Use. Essentially, the overall intention of the strategies is to preserve Hardangervidda National Park as a place which is open to all, whilst gaining control over the movement of hikers in the region.

It is an effective approach considering the notion that hikers generally follow marked trails and attraction points (Selvaag *et al.* 2018). However, it may also reduce the quality of 'nature experiences,' thereby, drawing those seeking *wilderness* away from attraction points and further into the wild reindeer regions. As Gundersen *et al.* (2015) highlight, it is therefore important to understand the preferences and tolerances of the hikers.

ii. Conservation through use

This strategy advocates for a dynamic and mutualistic hiker-nature relationship. It adopts a functionalistic approach, appreciating hikers as a part of the interactions that exist in nature (Callicott *et al.* 1999). Nature is clearly illustrated as a *second* nature, whereby the landscape is shaped by socio-ecological processes (Biersack 2006). As with the channelling and attraction strategies, this strategy aims to preserve HNP as a place open for all through sustainable exploitation.

Essentially, the purpose is to sustain HNP's resources that offers the 'nature experience' to hikers while maintaining this experience for future generations. This clearly reflects the 'ecosystem service' whereby sustainable exploitation is encouraged with the intention of preserving the anthropocentric values of nature.

Such a strategy adopts a biodiversity approach. Sustainable exploitation regards an intermediate level of disturbance. As depicted in the conceptual framework, it is at this level the highest level of biodiversity will be achieved in terms of the intermediate disturbance hypothesis (Grimes 1979). Hikers may be a part of this intermediate level of disturbance, contributing to a healthy environment (ibid).

However, it is important that DNT clarifies what such sustainable exploitation entails and that hikers are informed. The results clearly depicted that hikers don't necessarily know how to behave in a way which is considerate for wild reindeer due to their lack of knowledge of wild reindeer. Providing the hikers with the necessary information needed to be considerate towards the wild reindeer is therefore important to create such a dynamic and mutualistic relationship between hikers and wild reindeer.

iii. Restriction

Restriction invokes a static, external relationship between hikers and nature. The strategy is based on the narrative which illustrates hikers as disturbing the interactions that exist in nature. It clearly reflects the nature-culture dualism in that a separation of hikers and nature is perceived as necessary to preserve the wild reindeer (Smith 2006). In addition, the strategy undoubtedly manifests the 'Half-Earth Movement' (NHH). It is species-centred (Jenkins & Williamson 2003), in that HNP is shaped as a natural landscape for wild reindeer.

Among the stakeholders, this was the least popular management strategy. I argue that that main reasons for this are premised on the anthropocentric values that both the wild reindeer and the natural resources of Hardangervidda National Park provide. Restricting complete access would inevitably have implications on the public health of Norwegian population. In addition, it would restrict the project 'The wild reindeer mountains as a value-maker.' This would inevitably have an implication on the local economy.

The unpopularity of complete restriction has been highlighted in previous studies. In their study on the management preferences of visitor and locals in Dovre-Sunndalsjell National Park, Gundersen *et al.* (2015) found that neither the locals nor the visitors were open to a complete restriction of the whole park. However, while hikers were open to restricting particular areas to preserve the wild reindeer region, the locals generally preferred to remove trails and cabins (ibid). This would essentially reduce the accessibility of the park and is, therefore, considered a form of restriction. However, the restriction is primarily directed towards hikers. Hence, such restriction creates an exclusive landscape, only open for locals.

Nevertheless, based on the report by Gundersen *et al.* (2021(b)), it seems that such a strategy would be the most beneficial for the wild reindeer.

iv. Dynamic and Adaptive Approach

A dynamic and adaptive approach was among the most popular strategies. These results correspond to previous studies. Gundersen *et al.* (2015) found in their study, hikers visiting the national park are generally supportive of restricting access in particular areas. The illustrated that hikers are generally more flexible and may move to other areas of the park as long as trail network and cabins were still available in these areas (ibid).

The strategy adopts a dynamic, integrative, and restrictive relationship between hikers and nature. It entails adopting some restrictive measures in some areas of the national park, during some parts of the year, while leaving the rest open for exploitation.

Such an approach is both time and resource consuming. It requires strict monitoring, whereby it continuously adapts to the current landscape and the most up-to-date research. In addition, it requires an improved data accessibility, whereby the data is available for all stakeholders.

Essentially, this is a species centred as it adapts to the needs of the wild reindeer (Jenkins & Williamson 2003). The exploitation of HNP is shaped by wild reindeer and the research. By research, I mean the most up-to-date knowledge concerning the needs of the wild reindeer to sustain and preserve their current and future populations. However, the strategy can also be acknowledged as a cultural landscape approach. It permits a degree of exploitation for all stakeholders in different areas during different times of the year. In this way, it sustains user rights and the RPA.

I argue that this approach is the most optimal if one strives to form a landscape that is open for all. As clearly portrayed by Gundersen *et al.*(2021), it is unrealistic to assume that the park may be exploited by all to the same extent as it is today while preserving the wild reindeer. Some form of restriction is essential to ensure that the wild reindeer may be categorised as 'Liable' again. However, the access to the park is also essential to improve the public health of the Norwegian population and aid the development of the local economy, among others. In addition, as highlighted previously, in their study, Gundersen *et al.* (2015) found that the restriction of an area was not popular among the locals due to the park's role in traditional agriculture and subsistence. It is reasonable to assume that such a perception would be similar in the context of HNP.

6.4. Sub-question 3: *To what extent are the wild reindeer wild species?*

Before elaborating on the discussion, I will first demarcate the definition of '*wild*,' or '*wildness*.' Child *et al.* (2019, p.1108) define wildness as the extent to which the species "exist autonomously in evolutionary and ecologically functioning populations where genetic and phenotypic diversity enables natural selection to produce adaption." A wild species is a species which exists in its natural state (Cookson 2011). That being a state which is undomesticated and uncultivated, independent of human interference (ibid). Although, in different landscapes with degrees of human interference, different degrees of wildness may still be prevalent (Child *et al.* 2019). This relates to the extent to which the species are prone to selective pressures, and whether the species may "adapt to these pressures through natural selection and fulfil their functional roles within the landscape" (ibid, p.1108).

The results illustrated key factors which may influence the *wildness* of the wild reindeer of HNP. These entail their genetic formation premised on the historical taming of reindeer during the 19th century and the characteristics of their predators.

Firstly, as highlighted in the results, the wild reindeer species consists of approximately 70% of domesticated reindeer genes (Punsivk *et al.* 2016). This discussion concerns the role of epigenetics on shaping wild characteristics of wild reindeer. Multiple behavioural studies illustrated that with increased percentage of domesticated genes, the lower the vigilance, alertness, and flight response of the wild reindeer (Gundersen *et al.* 2022; Røed *et al.* 2014; Reimer *et al.* 2012). Although, the exposure to hunting will inevitably increase the fright responses and vigilance (ibid).

In addition, it is important to highlight that there exists a lack of knowledge regarding the long-term, evolutionary effects hunting has on the wild reindeer (ibid). Hence, there is little knowledge regarding the extent to which hunting plays a role in forming the epigenetics of the wild reindeer.

Moreover, the primary predator of the wild reindeer today is humans. As mentioned previously, hunting of wild reindeer is acknowledged as the most important management strategy of wild reindeer. It controls the dynamic characteristics of wild reindeer overtime. However, to what extent may this be distinguished from the domestication of the reindeer? One can argue that such a control of the wild reindeer population removes the natural selection process (Child *et al.* 2019). An important discussion here concerns the extent to which reintroducing wild predators may change the dynamic that exists in HNP. Perhaps the fact that these predators are almost extinct in the park shapes the park as a wild reindeer and human park, rather than a national park.

Alongside humans, wild predators such as wolverine and wolves have played a significant role in shaping the wild reindeer of Hardangervidda (Kjørstad *et al.* 2016). Hence, it is reasonable to assume that the political decision to keep the wild predators at a low has had an important influence on the wild reindeer. Perhaps one could simply argue that reintroducing these species would stimulate a nature selection process of the wild reindeer and, thereby, reduce the need for hunters to stabilise the wild reindeer population. Although, it not as simple as this, several factors play into this (ibid). An important factor regards the need for large areas. As Kjørstad (ibid) outlined in their report, the wild reindeer need large unfragmented areas to avoid their predation by wild predators. Hence, with the current fragmented state of Hardangervidda, the wild reindeer could be prone to a massive population decline if the wild predators were re-introduced. Essentially, this argument implies that the wild reindeer would be unable to adapt to such a change. Returning to the definition mentioned above, the wild reindeer then don't attribute the *wild* characteristics.

Another important element of this discussion concerns the selectiveness of wild reindeer hunting. In general, hunters tend to shoot the strongest reindeer. On the contrary, wild predators generally pray on the weakest reindeer. Thus, with this in mind, it is clear that reintroducing wild reindeer would have significant implications on the dynamic of the wild reindeer population.

Lastly, in a theoretical perspective, the demarcation of the national park also plays a role in invoking the wilderness characteristics of the wild reindeer. As briefly mentioned previously, the boundaries clearly invoke a separation of humans and nature (Bluwstein & Lund 2016). Hence, the demarcation creates a distinction between humans and wild reindeer, strengthening their *wild* characteristics.

Thus, based on the definition provided by Child *et al.* (2019), the wild reindeer don't attribute the *wild* characteristics. This is essentially due to their inability to adapt to pressures through natural selection. Their population and general behaviour are essentially shaped by human interference. This discussion plays an important role in shaping the research question. I argue that the 'wild' characteristics of the species invokes a different imagery of the species and their landscape than 'tame.' As Child *et al.* (ibid) highlight, wildness is associated with a landscape free from humans. Therefore, the landscape of wild reindeer, and, thereby, the HNP landscape, should remain separate from humans. Such a separation is emphasised through the demarcation of the national park (Williams 2020). Thus, drawing back to the main research question, a complete restriction of the hikers would be considered ideal. However, appreciating the wild reindeer as not wild invokes a different perception of the extent to which hikers should be restricted. Rather, one could argue that a restriction is not necessary, as the landscape becomes one which is exploited by humans.

6.5. Concluding remarks

Thus, the discussion highlights the complexity of the main research question, which investigates the extent to which hikers should be restricted from HNP. It is clear that a plurality of perspectives to this question persists. It was argued in the discussion that these perspectives are significantly shaped by the different user interests of these groups. Although, as highlighted previously, the arguments must be understood in a collective perspective. At an individual level, it becomes more complicated due to the fluidity and the connectedness of these individuals and their relation to the groups. Nevertheless, cynically, I argued that the user

interests shape how one envisions the future landscape of HNP. Hence, these interests shape how one perceives the extent to which hikers as a group should be restricted from HNP. Therefore, the answer to the main research question is dependent on which group one chooses to prioritise. This inevitably draws in the political element of the political ecological framework.

7. SUMMARY

The aim of this thesis was to unravel and explore the theoretical, philosophical, and ethical debate concerning human's place in nature in an empirical context. Essentially, I aimed to analyse how the debate unravels in the context of Hardangervidda National Park, with a particular focus on hikers and wild reindeer. Though, wild reindeer hunters also became a key group in this discussion. I strived to explore the different perspectives regarding the extent to which hikers should be restricted from HNP in order to preserve the wild reindeer of Hardangervidda. In this thesis, restriction concerned the removal of infrastructures, or reduction in the quality of infrastructures, that facilitate hiking, such as cabins and trails. Based on data obtained through qualitative interviews, document analysis and observation of conferences, the thesis concludes that the user interests, perceptions of wild reindeer and the relation to wild reindeer shapes the perceptions of the extent to which hikers should be restricted from HNP. In addition, the thesis highlighted that more attention should be drawn on other users of HNP and their role in the conservation of wild reindeer.

Overall, it is a political discussion about priority. This priority concerns what future landscapes one aims to shape and, as Gundersen *et al.* (2021b) highlight, what change is considered as acceptable. The results demonstrated that the wild reindeer are primarily attributed with anthropocentric values. The thesis argued that these values play a significant role in shaping the landscapes which the stakeholders aspire to have in HNP. The different landscapes invoked different perceptions of the human-nature and hiker-hunter relationships. Thus, these different landscapes attribute different answers to the main research question.

However, it is also an ecological discussion about the needs of wild reindeer to sustain the current and future populations at HNP. It concerns how to manage HNP in a way which preserves the species and their habitat and move the species from 'near threatened' back to 'liable.' The thesis concluded that a dynamic and adaptive approach premised on updated knowledge is the most optimal strategy to obtain this.

This research contributes to the literature by highlighting the complexity of the relationship between humans and nature, and how this complexity unfolds in conservation policies. The essential aim of conservation is to create space for nature and sustain its natural resources. However, the extent to which humans, and which groups of humans, may be a part of these spaces is not explicit. This was clearly identified in HNP.

The thesis mentioned the importance of the tourism in sustaining the economic development of the surrounding local municipalities. However, more explicit knowledge is needed on how the tourism plays a role and to what extent hikers plays a role in this economic development. Such knowledge would provide insight in how the restriction of hikers would have implications on the surrounding local municipalities.

In addition, the thesis chose to adopt a collective perspective assuming all individuals in one group shares attitudes, perceptions, and values. However, such a depiction of the individuals. Hence, more knowledge concerning the diversity in each stakeholder groups is essential in such a discussion. The knowledge would provide a deeper understanding of the different values of HNP and wild reindeer, and the purposes of exploitation.

Lastly, it is essential that the current research on the wild reindeer continuous to transpire in the future. This is to ensure that the management of HNP is best suited to the current conditions of the wild reindeer habitat.

REFERENCES

Adger WN., Benjaminsen TA., Brown K. *et al*. 2002 Advancing a Political Ecology of Global Environmental Discourses. *Development and change.* Vol.32(4). Oxford & Boston: Wiley, pp.681-715

Andersen R., Hustad H. (red.). 2004. Villrein & Samfunn. En veiledning til bevaring og bruk av Europas siste villreinfjell. *NINA Temahefte.* Vol.27.

Balmford A., Green RE., Scharlemann JPW. 2005. Sparing land for nature: exploring the potential impact of changes in agricultural yield on the area needed for crop production. *Global Change Biology.* Vol.11. Blackwell Publishing Ltd. pp.1594-1605. Doi:10.1111/j.1365-2486.2005.01035.x

Bang-Andersen S. 2008. Prehistoric reindeer hunting in the southern Norwegian highlands, in Grimaldi S., Perrin T. (eds.) *Mountain Environments in Prehistoric Europe: Settlement and Mobility Strategies from the Palaeolithic to the Early Bronze Age.* Archaeopress, Oxford, pp.63-70.

Baptista JA. 2014. The ideology of sustainability and the globalization of a future. *Time & Society.* Vol.23(3). pp.358-379. Doi:10.1177/0961463X11431651

Bargmann T., Vetaas OR., Wheatcroft E., *et al.* 2019. Effects of weather and hunting on wild reindeer population dynamics in Hardangervidda National Park. *Population Ecology.* Vol.62(1). pp.91-104. Doi:10.1002/1438-390X.12030

Benjaminsen TA., Reinert H., Sjaastad E. *et al.* 2015. Misreading the Arctic landscape: A political ecology of reindeer, carrying capacities, and overstocking in Finnmark, Norway. Norwegian Journal of Geography. Vol.69(4). pp.219-229 Doi:10.1080/00291951.2015.1031274

Benjaminsen TA., Rohde R., Sjaastad E. *et al.* 2006. Land Reform, Range Ecology, and Carrying Capacities in Namaqualand, South Africa. *Annals of the Association of American Geographers.* Vol.96(3). pp.524-540

Benjaminsen TA., Svarstad H. 2010. Politisk Økologi: Miljø, Mennesker og Makt. Universitetsforlaget.

Biersack A. 2006. Reimagining Political Ecology: Culture/Power/History/Nature, in Biersack A., Greenberg JB. (eds.) *Reimagining Political Ecology.* Durham & London: Duke University Press, pp.3-40

Bitustøyl K. 2016. Tamreindrifta sterkt prega av det samiske, in Vaa J., Bitustøyl K. (eds.) *Reinen på Hardangervidda.* Villreinutvalget for Hardangervidda. pp.67-100

Blaikie P. 1991. Land degradation and society. New York: Routledge

Bhattarai P., Bhatta KP., Zhang Y. *et al.* 2020. Microtopography driven plant species composition in alpine region: a fine-scale study from Southern Norway. *Journal of Mountain Science.* Vol.17. pp.542-555. Doi:10.1007/s11629-019-5488-6

Bluwstein J., Lund JF. 2016. Territoriality by Conservation in the Selous-Niassa Corridor in Tanzania. *World Development.* Vol.101(2018). pp.453-465. Doi:10.1016/j.worlddev.2016.09.010

Bowen-Jones E., Entwistle A. 2002. Identifying appropriate flagship species: the importance of culture and local contexts. *Oryx.* Vol.36(2). pp.189-95. Doi:10.1017/S0030605302000261

Bråtå HO., Hagen SE., Overvåg K. 2010. Villreinen og villreinfjellet som kilde til verdiskaping og samfunnsutvikling. Lillehammer: Østlandsforskning.

Büscher B., Fletcher R., Brockington D. *et al.* 2017. Half-Earth or Whole Earth? Radical ideas for conservation, and their implications. *Oryx.* Vol.51(3), pp.407-410.

Callicott JB., Crowder LB., Mumford K. 1999. Current Normative Concepts in Conservation. *Conservation Biology.* Vol.13(1). pp.22-35

Chaudhary S., McGregor A. 2018. A critical analysis of global ecosystem services (*Paristhitiki sewa*) discourse in Nepal. *Land Use Policy.* Vol.75. pp.364-375. Doi: 10.1016/j.landusepol.2018.03.024

Child MF. Selier SAJ., Radloff FGT. *et al.* 2019. *A framework to measure the wildness of managed large vertebrate populations.* Vol.33(5). pp.1106-1119. Doi: 10.1111/cobi.13299

Collins. 2022. Definition of 'ecosystem.' [Internet]. Available at: <https://www.collinsdictionary.com/dictionary/english/ecosystem> [Read: 16.05.22]

Convention on Biological Diversity (CBD). 1992. Text of the Convention. United Nations.

Cookson LJ. A Definition for Wildness. *Ecopsychology.* Vol.3(3). p.187-193. Doi: 10.1089/eco.2011.0028

Cope M. 2002. Feminist Epistemology in Geography, in Moss P. (ed.) *Feminist Geography in Practice. Research and Methods.* Oxford: Blackwell Publishers Ltd, pp.43-56.

Couper P. 2015. A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies. London: SAGE Publications Ltd

Christensen H., Johansen F., Håpnes A. *et al.* 2004. En framtid for villreinen. 2.ed. WWF-Norge

Cresswell T. 2013. Geographic Thought. A Critical Introduction. Sussex: John Wiley & Sons.

Dittmer J. 2010. Textual and Discourse Analysis, in DeLyser D., Herbert S., Aitken S. *et al.,* (eds.) *The SAGE Handbook of Qualitative Geography.* SAGE Publications. Ltd.

DNT. 2021(a). Bærekraftstrategi 2021-2030. Den Norske Turistforening.

DNT. 2021(b). Handlingsplan for nature, kulturarv og miljø 2021-2024. Den Norske Turistforening.

Ducarme F., Flipo F., Couvet D. 2020. How the diversity of human concepts of nature affects conservation of biodiversity. *Conservation Biology.* Vol.35(3). Wiley Periodicals LLC, pp.1019-1028. Doi:10.1111/cobi.13639

Dudley N. (Editor) 2008. Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN.

Eidfjord Fjellstyre. Hyttene. [Internet]. Available at: <https://www.eidfjord.kommune.no/eidfjord-fjellstyre/tenester/fjellstyrehyttene/hyttene/> [Read: 05.04.22]

Eldegard K., Syverstsen PO., Bjørge A., *et al.* 2021. Pattedyr: Vurdering av rein Rangifer tarandus for Norge. *Norsk rødliste for arter 2021.* Artsdatabanken.

von Essen E., Tickle L. 2019. Leisure or Labour: An Identity Crisis for Modern Hunting? *Sociologia Ruralis.* Vol.60(1). p.174-197. Doi: 10.1111/soru.12271

Falldorf T., Strand O., Panzacchi M. *et al.* 2014. Estimating lichen volume and reindeer winter pasture quality from Landsat imagery. *Remote Sensing of Environment.* Vol.140. pp.573-579. Doi: 10.1016/j.rse.2013.09.027

Fjellova – fjell. 1975. *Lov om utnytting av rettar og lunnende m.m. i statsallmenningane.*

Fjellstyra på Hardangervidda (a). Hytter og steinbuer. [Internet]. Available at: <http://www.hardangervidda-fjellstyra.no/hytter-ovre-numedal> [Read: 05.04.22]

Fjellstyra på Hardangervidda (b). Hytter Rauland Fjellstyre. [Internet]. Available at: <http://www.hardangervidda-fjellstyra.no/hytter-rauland> [Read: 05.04.22]

Fjellstyra på Hardangervidda (c). Hytter/steinbuer – Ulvik Fjellstyre. [Internet]. Available at: <http://www.hardangervidda-fjellstyra.no/hytter-ulvik> [Read: 05.04.22]

Fjellstyra på Hardangervidda (d). Hytter Ullensvang Fjellstyre. [Internet]. Available at: <http://www.hardangervidda-fjellstyra.no/hytter-ullensvang> [Read: 05.04.22]

Flemsæter F. 2014. Moralske landskap i utmarka. *Tidsskrift utmark.*

Forskrift om vern for Hardangervidda nasjonalpark. 1981. *Forskrift om vern for Hardangervidda nasjonalpark- Odda, Ullensvang og Eidfjord kommunar, Hordaland, Vinje og Tinn kommunar, Telemark, Hol, Nore og Uvdal kommunar, Buskerud.*

Gray D. 2018. Doing Research in the Real World. 4th edition. London: Sage Publications Ltd.

Green RE., Cornell SJ., Scharlemann JP., *et al.* 2005. Farming and the Fate of Wild Nature. *Science.* Vol.307(5709). pp.550-55. Doi:10.1126/science.1106049

Grime JP. 1979. Plant Strategies and Vegetation Processes. Chichester: Wiley.

Grøndahl KK., Alsaker S., Nordheim-Larsen K. 2011. Forvaltningsplan - Hardangervidda nasjonalpark med landskapsvernområde.

Gundersen V., Mehmetoglu M., Vistad OI. *et al.* 2015. Linking Visitor Motivation with Attitude Towards Management Retrictions on Use in a National Park. *Journal of Outdoor Recreation and Tourism* Vol.9. pp.77-86 Doi: 10.1016/j.jort.2015.04.004

Gundersen V. Myrevold KM., Rauset GR. 2020. Spatiotemporal tourism: pattern in a large reindeer (Rangifer tarandus tarandus) range as an important factor in disturbance research and management. *Journal of Sustainable Tourism.* Doi: 10.1080/09669582.2020.1804394

Gundersen V., Selvaag SK., Dokk JG. *et al.* 2021 (a). Ferdsel i Hardangervidda villreinområde. Antall brukere og fordeling på areal over tid. *NINA Rapport 1909.* Lillehammer: Norsk Institutt for Naturforskning.

Gundersen V., van Moorter B., Panzacchi M. *et al.* 2021 (b). Villrein-ferdselsanalyser på Hardangervidda. Anbefalinger og tiltak. *NINA Rapport 1903.* Norsk institutt for naturforskning.

Gundersen V., Vistad OI., Panzacchi M. *et al.* 2019. Large-scale segregation of tourists and wild reindeer in three Norwegian national parks. *Tourism Management.* Vol.75. pp.22-33. Doi: 10.1016/j.tourman.2019.04.017

Gunn, A. 2016. *Rangifer tarandus*. The IUCN Red List of Threatened Species 2016: e.T29742A22167140. Doi:10.2305/IUCN.UK.2016-1.RLTS.T29742A22167140.en [Accessed: 07 January 2022]

Haakenstad H. 2010. Hardangervidda – Til Lågens Kilder: Vandringer, fiske, natur og kulturhistorie. Oslo: Skog og varde.

Hage T., Johansen B., Lund TR. *et al.* 1990. Forslag til mål og retningslinjer for Norsk Sti- og Løypeplan. Del 1: Areal behov og tilrettelegging of lengre fotturer og skiturer i Norge. Høringsutgave. Direktoratet for naturforvaltning.

Haines-Young, R. 1986. The Critical Rationalist View, in Haines-Young, R (ed.) *Physical geography: its nature and methods.* London: Harper & Row, pp.42-73

Hardangervidda Villreinutvalget (a). Kvoter. [Internet]. Available at: <https://www.villreinutval.no/Kvoter-og-felling> [Read: 15.03.22]

Hardangervidda Villreinutvalget (b). Minimumstellinger. [Internet]. Available at: <https://www.villreinutval.no/tellinger> [Read: 15.03.22]

Hefny M., Pereira E., Palm C. 2005. Linking Ecosystem Services and Human Wellbeing, in Capistrano D., Samper CK., Lee MJ. *Et al.* (eds.) *Ecosystems and Human Well-being: Multiscale Assessments.* Vol.4. Washington: IslandPress, pp.43-60.

Holand Ø., Punsvik. T. 2016. Villrein – en suksessfull art, in Punsvik T. (ed.) *Villreinen. Biologi – Historie – Forvaltning.* Arendal: Friluftsforlaget, pp.11-25

IUCN. 2022. Biodiversity Conservation. [Internet]. Available at: <https://www.iucn.org/regions/europe/our-work/biodiversity-conservation> [Read: 23.02.22]

IUCN. 2022. Protected Areas. [Internet]. Available at: <https://www.iucn.org/theme/protected-areas/about/protected-area-categories> [Read: 28.01.22]

Jaren V., Punsvik T. 2016. Forvaltning av villrein, in Punsvik T. (ed.) *Villreinen. Biologi – Historie – Forvaltning.* Arendal: Friluftsforlaget, pp.385-393.

Jenkins M., Williamson D. 2003. Case Study No. 5: Effectiveness of Biodiversity Conservation, in FAO (ed.) *Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries.* Rome: FAO. [Internet]. Available at: <https://www.fao.org/3/y4586e/y4586e06.htm> [Read: 04.02.22]

Jones M., Daugstad K. 2007. Usages of the "cultural landscape" concept in Norwegian and Nordic landscape administration. *Landscape Research.* Vol.22(3). pp.267-281. Doi:10.1080/01426399708706515

Kaltenborn BP., Andersen O., Gundersen V. 2014. The role of wild reindeer as a flagship species in new management models in Norway. *Norwegian Journal of Geography.* Vol.68(3). pp.168-177. Doi:10.1080/00291951.2014.904400

Kaltenborn BP., Hongslo E., Gundersen V. *et al.* 2015. Public perceptions of planning objectives for regional level management of wild reindeer in Norway. *Journal of Environmental Planning and Management.* Vol.58(5). pp.819-836. Doi:10.1080/09640568.2014.898204

Kaltenborn BP. Mehmetglu M., Gundersen V. 2017. Linking social value of wild reindeer to planning and management options in South Norway. *Arctic.* Vol.70(2). pp.129-140. Doi: 10.14430/arctic4647

Kartverket. 2022. Turrutebasen. [Electronic dataset]. Available at: <https://kartkatalog.geonorge.no/metadata/d1422d17-6d95-4ef1-96ab-8af31744dd63> [Accessed: 10.02.22]

Kjørstad M., Brøthun S., Gundersen V. *et al.* 2017. Miljøkvalitetsnorm for villrein. Forslag fra en ekspertgruppe. *NINA Rapport 1400.* Trondheim: Norsk Institutt for Naturforskning.

Kopnina H., Washington H., Gray J. *et al.* 2018. The 'future of conservation' debate: Defending ecocentrism and the Nature Needs Half movement. *Biological Conservation.* Vol.217. pp.140-148.

Kothari A., Demaria F., Acosta. A. 2014. Buen Vivre, Degrowth and Ecological Swaraj: Alternatives to sustainable development and the Green Economy. *Development; Houndmills.* Vol.57(3-4). pp.362-375. Doi:10.1057/dev.2015.24

Laurier E. 2016. Participant and Non-participant Observation, in Clifford N., Cope M., Gillespie T. *et al.* (eds.) *Key Methods in Geography.* 3rd edition. London: SAGE Publications Ltd.

Lauritzen PR. 1998. Hyttene på Hardangervidda og Skarvheimen. Boksenteret.

Lauritzen PR. 2021. turisthytte. [Internet]. Available at: <https://snl.no/turisthytte> [Read: 23.02.22]

Lindsay S. 2012. Statistical Generalization, in Mills AJ., Durepos G., Wiebe E. (eds.) *Encyclopedia of Case Study Research.* SAGE Publications Inc. Doi:10.4135/9781412957397

Linnell JDC., Kaczensky P., Wotschikowsky U. *et al,* 2015. Framing the relationship between people and nature in the context of European conservation. *Conservation Biology.* Vol.29(4). Society for Conservation Biology. pp.978-985.

Loconto A., Desquilbet M., Moreau T. *et al.* 2020. The land sparing – land sharing controversy : Tracing the politics of knowledge. *Land Use Policy.* Vol.96. pp.103610-103623.

Lurås R. 2020. Hardangervidda er ein del av identiteten til folk i fjellbygdene. *NRK.* [Internet]. Available at: <https://www.nrk.no/vestfoldogtelemark/_-dei-lokale-har-eigarskap-til-hardangervidda-1.15272004> [Read: 23.02.22]

Mace GM. 2014. Who's conservation? *Science.* Vol.345(6204). pp.1558-1560.

Mattilsynet & Miljødirektoratet. 2021. Mål, strategi og tiltak for håndtering av skrantesjuke i Norge etter positivt funn på Hardangervidda september 2020. Mattilsynet & Miljødirektoratet.

Mattissek A. 2018. Geographic Methods: Discourse Analysis, in Warf B. (ed.) *Geography.* Doi:10.1093/OBO/9780199874002-0179

McGinn MK. 2012. Credibility, in Mills AJ., Durepos G., Wiebe E. (eds.) *Encyclopedia of Case Study Research.* SAGE Publications Inc. Doi:10.4135/9781412957397

Miljødirektoratet. 2021 (a). Allemannsretten. [Internet]. Available from: <https://miljostatus.miljodirektoratet.no/tema/friluftsliv/allemannsretten/> [Read: 10.03.22]

Miljødirektoratet. 2021. (b). Friluftslivsområder – kartlagte. [Electronic dataset]. Available from: <https://kartkatalog.geonorge.no/metadata/friluftslivsomraader-kartlagte/91e31bb7-356f-4478-bcba-d5c2de6e91bc> [Read: 14.02.22]

Miljødirektoratet. 2022. (b). Jakt. [Internet]. Available from: <https://miljostatus.miljodirektoratet.no/Tema/Friluftsliv/Jakt/> [Read: 10.03.22]

Miljødirektoratet. 2021. (c). Jerv i Norge. [Internet]. Available from: <https://miljostatus.miljodirektoratet.no/tema/arter/rovdyr-og-rovfugler/jerv/> [Read: 12.05.22]

Miljødirektoratet. 2021. (d). Naturvernområder. [Electronic dataset]. Available from: <https://kartkatalog.geonorge.no/metadata/naturvernomraader/5857ec0a-8d2c-4cd8-baa2-0dc54ae213b4> [Read: 11.10.21]

Miljødirektoratet. (e) 2021. Ulv i norge. [Internet]. Available at: <https://miljostatus.miljodirektoratet.no/tema/arter/rovdyr-og-rovfugler/ulv/> [Read: 12.05.22]

Miljødirektoratet. 2020. Villreinfjellet som verdiskaper. [Internet]. Available from: <https://soknadssenter.miljodirektoratet.no/FilSkjemavedlegg?id=55&token=qkC19-HTLEdPe_OOEaQoNhsgc65jENMJjAyb6Nv5iEU1> [Read: 27.02.22]

Miljødirektoratet 2021 (f). Villreinområder. [Electronic dataset]. Available from: <https://kartkatalog.geonorge.no/metadata/villreinomraader/fc59e9a4-59df-4eb3-978a-1c173b84bf4e> [Read: 11.10.21]

Miljødirektoratet. 2021 (g). Villrein. [Internet]. Available at: <https://www.miljodirektoratet.no/ansvarsomrader/arter-naturtyper/vilt/villrein/> [Read: 20.03.22]

Miljødirektoratet. 2022. (c). Villrein I Norge. [Internet]. Available at: <https://miljostatus.miljodirektoratet.no/villrein> [Read: 19.05.22]

Miljøverndepartementet. 2008. Naturopplevelse, Friluftsliv og vår psykisk helse. Rapport fra det nordiske miljøprosjektet «Friluftsliv og psykisk helse.» [Internet]. Available at: <https://www.regjeringen.no/globalassets/upload/md/vedlegg/rapporter/t-1474.pdf> [Read: 19.05.22]. Nordon Nordisk Ministerråd.

Mitchell N., Rössler M., Tricaud PM. 2009. World Heritage Cultural Landscapes: A Handbook for Conservation and Management. Paris: UNESCO.

Mullings B. 1999. Insider or outsider, both or neither: some dilemmas of interviewing a cross-cultural setting. *Geoforum.* Vol.30. pp.337-350. Doi:10.1016/S0016-7185(99)00025-1

Murdoch J. 2006. Post-Structuralist Geography: A Guide to Relational Space. London: Sage Publications Ltd.

Myhre T. 2021. økosystemtjeneste. [Internet] Available at: <https://snl.no/%C3%B8kosystemtjeneste> [Read: 5.02.2022]

Mysterud A., Riverud IM., Gundersen V. *et al.* 2020 (a). The unique spatial ecology of human hunters. *Nature Human Behaviour.* Doi. 10.1038/s41562-020-0836-7.

Mysterud A., Strand O., Rolandsen CM. 2020 (b). Embracing fragmentation to save reindeer from disease. *Conservation science and practice.* Vol.2(8). Wiley. Doi:10.1111/csp2.244

Nature Needs Half (NNH). The Science. [Internet]. Available at: <https://natureneedshalf.org/> [Read: 2.02.2022]

Natumangfoldloven. 2009. *Loven om forvaltning av naturens mangfold*

NIBIO. 2022. AR50. [Electronic dataset]. Available at: <https://kartkatalog.geonorge.no/metadata/4bc2d1e0-f693-4bf2-820d-c11830d849a3> [Read: 21.04.22]

NOU 1974:30A. 1974. *Bruke nav Hardangervidda.* Oslo: Miljøverndepartementet.

NOU 1974:30B. 1974. *Hardangervidda, natur – kulturhistorie – samfunnsliv.* Oslo: Miljøverndepartementet.

Næss A. 1989. The environmental crisis and the deep ecological movement, in Rothenberg D. (trans.) *Ecology, Community and Lifestyle: Outline of an Ecosophy.* Cambridge: Cambridge University Press, pp.23-34. Doi:10.1017/CBO9780511525599.003

Næss A. 1973. The shallow and the deep, long-range ecology movement. A summary. *Inquiry: An Interdisciplinary Journal of Philosophy.* Vol.16(1-4). pp.95-100. Doi:10.1080/00201747308601682

Odland A., Sandvik SM., Bjerketvedt DK. *et al.* 2014. Estimation of lichen biomass with emphasis on reindeer winter pastures at Hardangervidda, S. Norway. *Rangifer.* Vol.34(1). pp.95-110. Doi: 10.7557/2.34.1.2852

Osman, R.W. (2015) The Intermediate Disturbance Hypothesis, in Faith, BD. (ed.) *Encyclopedia of Ecology* (second edition). Elsevier, pp.1442-1451.

Overvåg K., Skjeggedal T., Sandström C. 2016. Management of mountain areas in Norway and the persistence of local-national conflicts. *Journal of Environmental Planning and Management.* Vol.59(7). pp.1186-1204. Doi:10.1080/09640568.2015.1062747

Phalan B., Onial M., Balmford A. *et al.* 2011. Reconciling Food Production and Biodiversity Conservation: Land Sharing and Land Sparing Compared. *Science.* Vol.333(6047). pp.1289-1291. Doi:10.1126/science.1208742

Punsvik T., Vaa J., Lund SE. 2016. Hardangervidda villreinområde, in Punsvik T. (ed.) *Villreinen. Biologi–Historie–Forvaltning.* Arendal: Friluftsforlaget. pp. 229-241.

Rauland Turist AS. Geologien på Hardangervidda. [Internet]. Available at: <https://hardangervidda.com/geologi-hardangervidda/> [Read: 21.04.22]

Robbins P. 2012. Political ecology: a critical introduction. 2nd edition. Chichester, UK: J. Wiley & Sons.

Robertson DP., Hull PB. 2002. Beyond Biology: Toward a More Public Ecology for Conservation. *Conservation Biology.* Vol.15(4). Wiley for Society for Conservation Biology, pp.970-979.

Rolandsen CM., Tveraa T., Gundersen V. 2022. Klassifisering av de ti nasjonale villreinområdene etter kvalitetsnorm for villrein. Første klassifisering – 2022. *NINA Rapport 2126.* Norsk institutt for naturforskning.

Ryvarden L., Tvedt KA. 2021. Hardangervidda nasjonalpark. [Internet]. Available at: <https://snl.no/Hardangervidda_nasjonalpark> [Read: 23.02.22]

Schenk C. 2015. Rewilding Europe, in Wuerthner G., Crist E., Butler T. (eds.) Protecting the Wild: Parks and wilderness, the foundation for conservation. San Francisco: Foundation for Deep Ecology, pp.96-104.

Scoones I. 2021. Beyond the 'Balance of Nature': Pastoralists' Alternative Perspectives on Sustainability. *Nomadic Peoples.* Vol.24(1). pp.114-117. Doi:10.3197/np.2021.250110

Selvaag SK., Gundersen V., Dokk JG. *et al.,* 2018. Brukerundersøkelse i Hardangervidda nasjonalpark. Sommeren 2017. *NINA Rapport 1530.* Norsk institutt for naturforskning.

Singsaas M. Gundersen V. 2021. Fritidsbygg, friluftsliv og ferdsel i villreinområder: Sonering som forvaltningsredskap? *Tidsskrift for Utmarksforskning.* Vol.2021(1). Fjell-forsk-nett, pp.37-56.

Singsaas M. 2021. «Tradisjon og destinasjon» - om sosial berekraft i villreinfjell.» [Internet]. Available at: <https://www.telemarksforsking.no/tradisjon-og-destinasjon-om-sosial-berekraft-i-villreinfjell/> [Read: 02.01.2022]

Skjeggedal T., Overvåg K., Ericsson B., Arnesen T. 2011. Utfordringer til en fjellpolitikk. *Tidsskrift for Utmarksforskning.* Vol.2011(1&2). Fjell-forks-nett, pp.104-111.

Skogland T. 1978. Characteristics of snow cover and its relationship to wild mountain reindeer (*Rangifer tarandus tarandus* L.) feeding strategies. *Arctic and Alpine Research.* Vol.10. pp.569-579. Doi: 10.1080/00040851.1978.12003996

Smith N. 2008. Uneven Development. Nature, Capital, and the Production of Space. 3rd edition. Georgia: The University of Georgia Press.

Smukkestad B. 2000. Villrein på Hardangervidda, in Lande A., Stålberg R. (eds.) *Seminar om Hardangervidda.* [Internet]. Available at: <https://openarchive.usn.no/usn-xmlui/bitstream/handle/11250/2439137/notat2000_3.pdf?sequence=1&isAllowed=y> [Read: 01.05.22]. pp.22-28.

SSB. 2021. Aktive jegere. [Internet]. Available at: <https://www.ssb.no/jord-skog-jakt-og-fiskeri/jakt/statistikk/aktive-jegere> [Read: 12.05.22]

SSB. 2020. Flere nye hitter i unike villreinområder. [Internet]. Available at: <https://www.ssb.no/natur-og-miljo/artikler-og-publikasjoner/flere-nye-hytter-i-unike-villreinomrader> [Read: 27.02.22]

SSB. 2017. Åtte av ti går i skog og fjell. [Internet]. Available at: <https://www.ssb.no/kultur-og-fritid/artikler-og-publikasjoner/atte-av-ti-gar-i-skog-og-fjell> [Read: 28.03.22]

State Administrators in Hordaland, Buskerud, and Telemark. 2018. Vurdering av dagens forvaltningsmodell for Hardangervidda nasjonalpark og framlegg til ny modell. *Fylkesmannen i Hordaland, MVA-rapport 2018-03.*

Statskog SF. 2020. #50 Villreinjakt. [Podcast]. 27. March. Available from: <https://www.statskog.no/jakt-og-fiske/podcast> [Accessed: 10.03.22]

St. meld. nr.18 (2015-2016). *Friluftsliv – Natur som kilde til helse og livskvalitet*

St. meld. nr.65. (2002-2003). *Tilleggsbevilgninger og omprioriteringer i statsbudsjettet medregnet folketrygden 2003.*

Stokke KB., Haukeland JV. 2017. Balancing tourism development and nature protection across national park borders – a case study of a coastal protected area in Norway. *Journal of Environmental Planning and Management.* Doi: 10.1080/09640568.2017.1388772

Taraldrud KE. 2021. 21. Rettslige Rammer for Etablering og Forvaltning av Nasjonalparker ved Kysten, in Hauge KB., Stokke KB. (eds.) *Integrert kystsoneforvaltning. Planfaglege, samfunnsvitenskapelege og juridiske perspektiv.* Oslo: Universitetsforlaget. pp.398-418.

Taylor L. 2016. Case Study Methodology, in Clifford N., Cope M., Gillespie T., *et al.* (eds.) *Key Methods in Geography.* 3rd edition. London: SAGE Publications Ltd.

Terborgh J. 2015. Foreword, in Wuerthner G., Crist E., Butler T. (eds.) Protecting the Wild: Parks and wilderness, the foundation for conservation. San Francisco: Foundation for Deep Ecology, pp.xi-xvii

The Future of Conservation (FoC). 2022. About the Future of Conservation debate. [Internet]. Accessible at: <https://www.futureconservation.org/about-the-debate> [Read: 4.02.22]

Thomas G. 2010. Doing Case Study: Abduction Not Induction, Phronesis Not Theory. *Qualitative inquiry.* Vol.16(7). pp.575-582. Doi:10.1177/1077800410372601

Thompson SCG., Barton MA. 1994. Ecocentric and Anthropocentric Attitudes Towards the Environment. *Journal of Environmental Psychology.* Vol.14. pp.149-157.

Thorsnæs G. 2021. Hardangervidda. [Internet]. Available at: <https://snl.no/Hardangervidda> [Read: 23.02.22]

Tsiafouli MA., Apostolopoulou E., Mazaris AD. *et al.* 2013. Human Activities in Natura 2000 sites: A Highly Diversified Conservation Network. *Environmental Management.* Vol.51(5). Pp.1025-1033. Doi:10.1007/s00267-013-0036-6

Tyrell N. 2016. Making Use of Secondary Data, in Clifford N., Cope M., Gillespie T., *et al.* (eds.) *Key Methods in Geography.* 3rd edition. London: SAGE Publications Ltd.

Undebakke NP. 2000. Fra «Naturvern til Ressursvern»? in Lande A., Stålberg R. (eds.) *Seminar om Hardangervidda.* [Internet]. Available at: <https://openarchive.usn.no/usn-xmlui/bitstream/handle/11250/2439137/notat2000_3.pdf?sequence=1&isAllowed=y> [Read: 01.05.22]. pp.49-52.

Ut.no. Utforsk Hardangervidda. [Internet]. Available at: <https://ut.no/utforsker/omrade/1235/hardangervidda/hytter> [Read: 28.02.22]

Vaa J. 2012. Frå iskanten til nasjonalpark og regionalplan, in Vaa J., Bitustøyl K. (eds.) *Reinen på Hardangervidda.* Villreinutvalget for Hardangervidda, pp.11-36.

Villrein.no (a). Forvaltning – Hvem er hvem? [Internet]. Available at: <https://www.villrein.no/forvaltning-hvem-er-hvem> [Read:15.04.22]

Villrein.no (b). Hardangervidda Villreinområde. [Internet]. Available at: <https://www.villrein.no/hardangervidda-2> [Read: 28.02.22]

Villrein.no (c). The Culture Bearer. [Internet]. Available at: <https://www.villrein.no/the-culture-bearer> [Read: 12.05.22]

Wall-Reinius S., Prince S. 2019. Everyday life in a magnificent landscape: Making sense of the nature/culture dichotomy in the mountains of Jämtland, Sweden. *ENE: Nature and Space.* Vol.2(1). SAGE, pp.3-22.

Watts MJ. 2000. Political ecology, in Sheppard E & Barnes T. (eds.) *A Companion to Economic Geography.* Blackwell: Oxford, pp.257-274.

Williams, A. M. 2020. Geographies of conservation III: Nature's spaces. *Progress in human geography.* Vol.44(4). London: SAGE Publications, pp.789-801.

Wilson, O. E. 2016. Half-Earth: Our planet's fight for life. New York: Liveright Publishing Corporation.

WWF. 2021a. [Internet] Available at: <https://livingplanet.panda.org/en-us/> [Read: 14.12.21]

Yin RK. 2014. Case Study Research. Design and Methods. 5th edition. London: SAGE Publications Ltd.

Ytrehus B., Asmyhr M.G., Hansen H. *et al*. 2021. Handlingsrommet etter påvisning av skrantesyke (Chronic Wasting Disease) på Hardangervidda - grunnlag for fremtidige forvaltningsstrategier. *Vitenskapelig uttalelse fra Vitenskapskomiteen for Mat og Miljø.* Oslo: Vitenskapskomiteen for Mat og Miljø (VKM)

Appendix 1: Equivalent interview questions for all informants. Translated from Norwegian to English

Question 1: What is the value of Hardangervidda National Park?

Question 2: What is the value of DNT?

Question 3: What is your relation to the place?

Question 4: Do you have a role in the management of Hardangervidda National Park, and if so, what is your role?

Question 5: Who is responsible for protecting the wild reindeer?

Question 6: What is the biggest threat against wild reindeer?

Question 7: Have you observed/experienced a conflict between hikers and the wild reindeer hunters?

Appendix 2: Consent form translated from Norwegian to English

Are you interested in taking part in the research project:

"To what extent should we restrict the exploitation of Hardangervidda National Park for recreation"?

This is an inquiry about participation in a research project where the main purpose is to understand stakeholder's perception of the conservation and exploitation of Hardangervidda National Park. The research project is a master thesis from the geographical institute at the University of Bergen. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the Project

The purpose of this master project is to identify and understand the perspectives regarding the conservation and facilitation for the exploitation of Hardangervidda National Park.

The project will mainly focus on the management of hikers on Hardangervidda, as well as the management of wild reindeer. The project aspires to understand the prevailing conflicts which concerns the facilitation for hikers, conservation of wild reindeer and the preservation of place identity.

The research questions include:

- To what extent should we restrict the exploitation of Hardangervidda National Park for recreation
- How do we balance sustainable exploitation and conservation of Hardangervidda National Park?

Who is responsible for the research project?

The University of Bergen is the institution responsible for the project.

Cecilie Veum – Master Student from the Geographical institute

Ole Reidar Vetaas – Supervisor

The project is cooperating with the Senior Researcher, Vegard Gundersen, from the Norwegian Institute for Nature Research (NINA).

Why are you being asked to participate?

You have been asked to participate due to your role in the management of Hardangervidda National Park.

What does participation involve for you?

If you chose to take part in the project, this will involve that you participate in an interview. It will take approx. 45 minutes. The interview includes questions about:

- Do you have any thoughts concerning the management of visitation of Hardangervidda?
- Do you experience any conflicts regarding the management of wild reindeer?

I will use a tape recorder and make notes for this interview.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

These stakeholders will have access to the data:

- Cecilie Veum – Master Student
- Ole Reidar Vetaas – Professor and supervisor from the Geographic institute of the University of Bergen

To ensure that no unauthorized individual will get access to the data, the data will only be

stored on the research server of Cecilie Veum, with protected password. Your name and contact information will be replaced with a code.

The personal data will be deleted when the research protect is finished.

The participant will not be recognizable in publications. You will be coded as '….'

What will happen to your personal data at the end of the research project?

The project is scheduled to end May 2022. The information will then be deleted.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with the University of Begen NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- The Geographical Institute of the University of Bergen via Ole Reidar Vetaas, ole.vetaas@uib.no, and Cecilie Veum
- Our Data Protection Officer: Janecke Helene Veim, personvernombud@uib.no
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Project Leader	Student
Professor Vetaas	Cecilie Veum
Supervisor	

Consent form

I have received and understood information about the project *"*How is the expansion of DNT cabin perceived by stakeholders*"*? and have been given the opportunity to ask questions. I give consent:

- ☐ to participate in an interview

I give consent for my personal data to be processed until the end date of the project, approx. May 2022

(Signed by participant, date)