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NINA Report

The potential for large carnivore-based wildlife tourism in Norway: a critical review

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Norwegian Institute for Nature Research

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Linnell, J. D. C. & Immerzeel, B.2023. The potential for large carnivore-based wildlife tourism in Norway: a critical review. NINA Report 2167. Norwegian Institute for Nature Research.

Lillehammer, August 2023

ISSN: 1504-3312
ISBN: 978-82-426-4960-7

AVAILABILITY
Open

PUBLICATION TYPE
Digital document (pdf)

QUALITY CONTROLLED BY
Bjørn Kaltenborn

SIGNATURE OF RESPONSIBLE PERSON
Research director Kristin Evensen Mathiesen (sign.)

CLIENT(S)/SUBSCRIBER(S)
WWF-Norway

CLIENT(S) REFERENCE(S)

CLIENTS/SUBSCRIBER CONTACT PERSON(S)
Zanete Andersone-Lilley

COVER PICTURE
Croatian brown bears at feeding site © John Linnell

KEY WORDS
wildlife, large carnivore, bear, wolf, lynx, wolverine, tourism, conflict

NØKKELORD
Rovvilt, Bjørn, ulv, gaupe, jerv, turisme, konflikt

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Abstract

Linnell, J. D. C. & Immerzeel, B.2023. The potential for large carnivore-based wildlife tourism in Norway: a critical review. NINA Report 2167. Norwegian Institute for Nature Research.

It is often claimed that wildlife-based tourism can offset some of the costs associated with its conservation or improve the level of tolerance among rural people. However, while this may be the case in some situations for some species, there is no reason to believe that this is a universal generality. In this report we explore the potential for large carnivore-based tourism to bring about conservation benefits in Norway.

Norway has a developing nature-based tourism sector with growth potential. The wildlife-based tourism component is small and poorly developed with the exception of a few specific locations where species like whales, seabirds and eagles offer predictable sightings. There are currently no wildlife-based tourism enterprises that focus on large carnivores. There are many enterprises in European countries. Many of these products offer the possibility to see large carnivores included in a wider package of outdoor activities. The products that offer the best guarantees to see, and / or photograph, large carnivores depend on the use of feeding stations.

The Norwegian government have decided on small and specific population goals, and very specific zones for all large carnivore species. Lethal control, using hunter harvest or operations conducted by government employees enforce these limits. Accordingly, Norway has very low densities of large carnivores with unpredictable presence in any given area, making it practically difficult to develop large carnivore centered products. There are also massive conflicts associated with livestock depredation, and large carnivores have become symbolic of wider societal divisions. Large carnivore tourism will be highly controversial in Norwegian rural areas.

Legislation is generally favourable to nature-based tourism because of the right of access to land for private people and ecotourism operations. However, this only applies to access on foot. Vehicle access to private road networks requires permission from landowners and any infrastructure requires planning permission. Organised activity in protected areas may also require permission from state authorities. The large scales at which large carnivores move imply that access to very large areas of land is needed. There are also very tight restrictions on off-road motorized travel and the use of food to attract large carnivores is essentially prohibited.

There are three widely discussed mechanisms that potentially link wildlife tourism to positive conservation outcomes. These involve (1) offsetting economic costs and / or providing opportunities for rural livelihoods, (2) increasing knowledge, and (3) changing values. Even if it the practical obstacles could be overcome, the specificities of the Norwegian management situation imply that none of these mechanisms are likely to directly link tourism with improved conservation outcomes on short to medium time scales. These mechanistic linkages are also very poorly documented in most areas of the world. However, we speculate that there may be a longer-term mechanism through processes that use broader nature / culture-based tourism to open for an acceptance for a greater diversity of ways to appreciate and interact with nature / wildlife that may contribute to improved conservation outcomes via broader social changes. This will operate over longer time scales and may well be associated with shorter term conflicts. We recommend that any such products present a broad range of nature and wildlife components that clearly show the historic and ongoing interconnections (both positive and negative) between nature, wildlife and rural activities / livelihoods. Large carnivores can be a part of this package but would benefit from not being disproportionally in focus.

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Sammendrag

Linnell, J. D. C. & Immerzeel, B. 2023. Potensialet for turisme basert på store rovdyr i Norge: en kritisk gjennomgang. NINA Rapport 2167. Norsk institutt for naturforskning.

I denne rapporten undersøker vi hvordan viltturisme basert på store rovdyr kan bidra til bevaringen av disse artene i Norge. Norge har en voksende sektor for naturbasert turisme med potensial for vekst. Innenfor dette er den viltbaserte reiselivsdelen liten og lite utviklet, med unntak av safariturer for hval, sjøfugl, havørn og moskus på steder der forutsigbare observasjoner er mulige. Sektoren kjennetegnes imidlertid av små selskaper, noe som gjør den sårbar. Det er for tiden ingen viltbasert turismebedrifter som fokuserer på store rovdyr i Norge.

Dette står i kontrast til Europa, der vi har identifisert et stort antall aktører som tilbyr ulike reiselivspakker i forskjellige land. Disse reiselivspakkene tilbyr varierte opplevelser der muligheten for å se store rovdyr er ofte inkludert i en bredere pakke med utendørsaktiviteter. Pakkene som gir de beste garantier for å se og/eller fotografere store rovdyr er avhengige av å bruke fôringsstasjoner.

Den norske forvaltningen av store rovdyr er svært spesiell ved at myndighetene har innført relativt små og spesifikke bestandsmål, samt etablert svært spesifikke forvaltningssoner for alle store rovdyr. Bestandskontroll, i form av jakt eller felling brukes for å håndheve disse begrensningene for antall og utbredelse. Resultatet er at Norge har svært lave tettheter av store rovdyr som er sky og har uforutsigbar tilstedeværelse de fleste steder, noe som gjør det praktisk vanskelig å utvikle reiselivsprodukter med fokus på store rovdyr. Det er også store konflikter knyttet til rovdyrangrep på husdyr og tamrein, og store rovdyr har blitt symbolske for bredere samfunnsmessige skillelinjer. Konsekvensen er at ethvert forsøk på å utvikle turisme knyttet til store rovdyr vil risikere å være svært kontroversielt i norske distrikter.

Norsk lovgivning er generelt gunstig for naturbasert turisme grunnet allemannsretten for privatpersoner og økoturisme. Dette gjelder imidlertid kun til fots. Bruk av kjøretøy på private veier krever tillatelse fra grunneiere, og all infrastruktur krever byggetillatelse. Organisert aktivitet i verneområder kan også kreve tillatelse fra ulike offentlige myndigheter. De store områdene som de store rovdyrene beveger seg over, innebærer at det er nødvendig med tilgang til svært store områder. Det er også strenge restriksjoner på motorisert ferdsel utenfor vei, og bruk av fôring for å tiltrekke seg store rovdyr er i hovedsak forbudt.

Det er hovedsakelig tre mekanismer som potensielt knytter viltturisme til positive bevaringsresultater. Disse innebærer (1) kompensasjon for økonomiske kostnader og/eller gi muligheter for næringsutvikling, (2) økt kunnskap og (3) endrede verdier. Selv om de praktiske hindringene kan overvinnes, tilsier særtrekkene ved den norske forvaltningssituasjonen at ingen av disse mekanismene sannsynligvis vil kunne knytte viltturisme direkte til bedret bevaring innenfor en kort til middels tidshorisont. Det bør bemerkes at disse mekanistiske sammenhengene også er svært dårlig dokumentert i de fleste områder av verden. Vi spekulerer imidlertid i at det kan være en langsiktig mekanisme gjennom prosesser der bredere natur / kulturbasert turisme kan bane vei for en aksept for et større mangfold av måter å sette pris på og samhandle med natur / dyreliv. Og at dette kan bidra til bedret bevaring via bredere sosiale endringer. Dette vil operere på en lengre tidshorisont og kan godt være forbundet med konflikter på kort sikt. Vi anbefaler at slike reiselivsprodukter presenterer et bredt spekter av natur- og dyrelivskomponenter som tydelig viser de historiske og pågående sammenkoblingene (både positive og negative) mellom natur, dyreliv og folk som bor i distriktene. Store rovdyr kan være en del av en slik pakke, men ville ha en fordel av å ikke være overdrevent i fokus.

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Contents

Foreword

The return of large carnivores like bears, wolves, lynx and wolverines to multi-use landscapes in Europe represents both a conservation success and a massive challenge to manage the associated conflicts that result. As society strives to find new ways to coexist with these species it is natural to look for ways to offset some of the costs of their conservation and to try and focus on the positive aspects of their conservation and the potential opportunities that their presence may bring. Wildlife tourism is a massive, and rapidly increasing, sector that is widely claimed to both bring positive benefits to rural communities and contribute to wildlife conservation. However, in wildlife conservation local context is crucial. As a result, WWF-Norway commissioned this report to explore the potential for large carnivore-based tourism in the specific case of Norway from the perspective of providing business opportunities in rural areas and making a contribution to the improved conservation status of the species.

The lack of specific research on the topic, and the lack of ongoing tourism enterprises that focus on large carnivores in Norway made this a challenging task as we have had to transfer knowledge and experience from a wide range of disciplines, countries and fields to speculate about the potential of a future industry. It is therefore important to keep this in mind when reading the report.

We are grateful to Zanete Andersone-Lilley and Marte Conradi at WWF-Norway for their understanding about this process taking time, and to the assistance we received from Guri Dyrset at NINA in the early stages of the project. We are also grateful to the tourism researchers and operators who gave us much of their valuable time for interviews that helped us maintain a solid contact with the reality of running tourism businesses. Many European colleagues provided input and links to carnivore tourism operations in their countries.

John Linnell and Bart Immerzeel, August 2023

1 Introduction

The continent-wide recovery of large carnivores (wolves, brown bears, Eurasian lynx and wolverines) across Europe during the last three to four decades is a dramatic success story from a wildlife conservation perspective (Chapron et al. 2014). However, it has also been associated with a wide range of human-wildlife, and human-human conflicts. On one hand, their return has improved the global conservation status of these species, has reintegrated them into many parts of the European landscape to enrich species diversity and begun to restore some ecological interactions. On the other hand, large carnivores are associated with widespread depredation on livestock (Linnell & Cretois 2018, Gervasi et al. 2021), occasional attacks on pets and even people (Bombieri et al. 2019, Butler et al. 2014), and have become symbolic, and politically instrumentalised, in wider societal conflicts (Linnell 2013, Linnell & Alleau 2016, Skogen et al. 2017). Therefore, the return of large carnivores is associated with a range of complex costs and benefits and is often associated with controversy.

A common approach in modern wildlife conservation is to find ways to reduce and equitably share the costs, and to identify novel pathways to increase the flow of benefits stemming from the presence of wildlife (Dickman et al. 2011; Macdonald et al. 2017; Rode et al. 2021). Various forms of wildlife-centric tourism are often advocated as a viable approach to increase benefits and offset costs to local communities in areas where wildlife is present. Despite the inherent logic of the idea, the existence of some positive examples (Auster et al. 2020; Duffield et al. 2008), and the enthusiasm with which it is advocated by conservation NGOs (Rode et al. 2021) there are also a range of voices that question the actual contribution of tourism, or at least question its universal utility, and point out the potential undesired side-effects that can occur (Higginbottom 2004; Macdonald et al. 2017; Meyer et al. 2021; Stronza et al. 2019; Tapper 2006).

Against this background this report seeks to examine the potential for large carnivore centric tourism to make a contribution to their conservation. The objective was specifically to explore this in the context of the Norwegian situation, however, in order to inform this situation, we have explored the situation in Europe and beyond such that our findings may have a more general relevance with the caveat that local context is crucial.

2 Methodology

Key finding:

- There are very few specific studies on large-carnivore tourism, although there is a massive literature on nature-based tourism in general, and on relevant aspects of large carnivore ecology, management and policy.

This was primarily a desk-based study, supplemented with a small number of targeted interviews. Accordingly, information has been drawn from the following sources;

(1) Reviews of the scientific literature on tourism and wildlife conservation accessed through Web of Science. Because of the general lack of specific studies on the topic of large carnivore tourism our searches had to use a diversity of keywords, including the species names and terms such as “wildlife-tourism”, “wildlife-viewing”, “nature based tourism”, “eco-tourism”, “photography”, “safari”. In addition, we had to cover a broad range of associated ecological, social, legal and management centered aspects resulting in an even broader range of additional keywords such as “feeding”, “conflict”, “disturbance”. Despite this broad search much of the most relevant literature was found by snowball sampling (coming across relevant papers in the literature lists of other papers) or involved other species (such as eagles) or came from outside Europe. Similar broad searches using Google and Google Scholar identified a range of other relevant literature including book chapters, technical reports, and masters and PhD theses.

(2) We collated a range of existing literature, mainly technical reports, masters and PhD theses and other grey literature, from studies of Norwegian and Scandinavian nature-based tourism and wildlife tourism. Key sources include (Brenodden 2017; Dybsand 2021; Eskelinen 2009; Gilestad 2015; Gomes 2017; Fredman & Haukeland 2021; Fredman & Margaryan 2021; Handberg 2020; Nordmark 2008, Nygaard 2021; Stensland et al. 2018). In addition, we integrated reference to the large body of literature on Norwegian and Scandinavian large carnivore ecology, conflict and management (Linnell & Tveraa 2015).

(3) Using searches in Google and Facebook we identified a wide range of existing large carnivore tourism operations and enterprises that we explored to identify their practices and products. These searches were supplemented with those provided by personal contacts and in the appendix of Penteriani et al. (2017).

(4) Targeted gathering of relevant documents that we previously knew to exist, such as legal documents (www.lovdata.no), Norwegian policy documents (e.g. from the Norwegian Environment Agency), and from relevant research projects.

(5) Targeted interviews with a small selection of relevant tourism operators.

Overall, there is very little available literature on wildlife tourism in Norway, and almost nothing on large carnivore tourism. The situation is little better in other countries with the exception of studies from Spain (Bravo & Lama 2020; Garcia-de la Fuente et al. 2010), Italy (Tattoni et al. 2016), Sweden (Ednarsson 2005; Nordmark 2008) and Finland (Eskelinen 2009; Kojola & Heikkinen 2012; Pohja-Mykrä & Kurki 2009; Suonpää 2000). In contrast, there is a massive literature on nature-based tourism and ecotourism from Scandinavia (Fredman & Margaryan 2021) and the rest of the world (e.g. Higginbottom 2004; Stronza et al. 2019; Tapper 2006). Our review has therefore had to assemble many fragments of directly relevant information on carnivore tourism and locate this within the wider nature-based tourism literature. Our conclusions and recommendations are therefore not based on a systematic summary of directly transferable evidence. Rather they are based on a deductive process. We limited our study to non-consumptive use of wildlife, excluding hunting and fishing activities that represent very large sectors (Andersen & Dervo 2019).

3 The specific situation of large carnivores in Norway

Key finding:

- Large carnivore management policies in Norway create a system with low density populations, unpredictable distributions and shy animals making them very difficult to include into a tourism operation. They are also embroiled in diverse conflicts, which represents a major social challenge for anybody initiating a carnivore-centric tourism operation in rural areas.

Although large carnivores have recovered significantly in Norway during recent decades, their expansion has been dramatically curtailed and limited in both numbers and space by government policy. Ever since the late 1990's policy has focused on a spatial zoning system that creates a patchwork of regions where the different species are allowed, or not allowed, to occur. There is also a specific management goal for numbers of each species which serves as both a maximum and minimum (Table 1). The management goals for large carnivores are also far lower than carrying capacity which implies that there are relatively few individuals roaming the landscape in any specific region. A combination of hunter harvest (via quota-regulated hunting or licensed hunting) and lethal control by government agencies (or delegated hunting teams) is used to maintain the limits on distribution and numbers. These operations are becoming very effective and utilise a wide range of methods not normally allowed in hunting – such as helicopters. As a consequence, the broad scale distribution of species has a certain degree of predictability (e.g. bears will be on the border to Sweden and Finland, wolves will only occur in southeast Norway, none of the species will be tolerated in western Norway), but there is no predictability on the finer scale at which a tourism enterprise might operate. There are no areas, even within protected areas like national parks, that afford full protection to any large carnivores. In fact, there is very low overlap between large carnivore presence and any protected areas. This makes it very hard to invest in any tourism infrastructure or build up detailed knowledge of an area because the continuous presence of large carnivores cannot be guaranteed (Krange et al. 2016; www.rovdata.no).

Table 1. Management goals for large carnivores in the 8 management regions. Management goals are both a minimum and a maximum. Numbers are expressed in terms of number of annual reproductions. Wolves are managed in a coordinated manner between regions 4 and 5. The asterix on wolf numbers indicates an even distribution between the two regions that may vary from year to year (Krange et al. 2016; www.rovdata.no).

Region	Location	Brown bears	Wolves	Lynx	Wolverines
1	Western Norway	0	0	0	0
2	South Norway	0	0	12	0
3	Former Oppland county	0	0	5	4
4	Former counties of Akershus and Østfold	0	3*	6	0
5	Former Hedmark county	3	3*	10	5
6	Trøndelag and Møre & Romsdal counties	3	0	12	10
7	Nordland county	1	0	10	10
8	Troms and Finnmark counties	6	0	10	10

A combination of the low social pressure from conspecifics, and the naturally low prey densities at these northern latitudes, leads to very large daily movements and large home ranges / territories. Individual large carnivores, or wolf packs, typically use areas ranging from 300 to >1000

km^2 (Dahle & Swenson 2003, Linnell et al. 2001, 2021, Mattisson et al. 2013, Persson et al. 2010). Therefore, even in an area with a resident individual / pack the high degree of mobility will make it very challenging to consistently locate fresh tracks and signs and makes the probability of a direct sighting almost impossible. At the very least it will require a tourism enterprise to have motorised access to forest road networks across a very large areas of land to have a chance to provide consistent experiences. These areas of land will be on such a scale that it will require agreements from many tens, or even hundreds, of landowners with respect to access to forest road networks or the establishment of any infrastructure.

The driver of these rather carnivore-hostile management polices lies with the wide range of conflicts that the species are associated with. Ever since the recovery of these species began in the 1980's there have been multiple conflicts. The early focus was very much on the economic and material damage caused by depredation on livestock (mainly free-ranging domestic sheep in summer and semi-domestic reindeer year-round). Although systems exist to compensate livestock producers for any economic loss from depredation and subsidise the introduction of mitigation measures these losses have remained high for decades (Kaczensky 1999). Even though losses have decreased in recent years they still remain the highest relative to the number of large carnivores in Europe (Kaczensky 1999, Gervasi et al. 2021, Linnell & Cretois 2018) and still attract considerable media coverage and place in the public / political debate around large carnivore management. The tendency of wolves to occasionally attack domestic dogs (mainly hunting dogs) has added a new, and very emotional, aspect to these conflicts with domestic animals (Butler et al 2014, Odden et al. 2018).

The presence of bears and wolves is also associated with a certain degree of fear of attacks on people (Røskaft et al. 2003). Although the risks are very low there has been considerable debate as well as active information provisioning concerning the actual extent of risk and how to respond (Linnell et al. 2002, 2021, Johansson et al. 2016, 2018, 2019, Støen et al. 2022). While the topic has subjectively become less visible in the public debate there is still considerable concern when large carnivores occupy areas close to human habitation or display behaviour that is interpreted as being bold or lacking the expected level of shyness (Linnell et al. 2021, Odden et al. 2018).
However, ever since the 1990's there has been a growing awareness on the extent that the large carnivore conflict is more a social conflict (i.e. between different groups of people) than a material or economic conflict (about livestock losses). As such, the controversy centres on what the species symbolise in terms of changing social conditions (e.g. rural-urban migration, globalisation and urbanization in general) and changes to the broader human relationship with nature (e.g. a move from rural economies and values based around the extractive exploitation of nature to those that focus on recreation and biodiversity conservation). Although rural attitudes towards large carnivores are diverse, with many rural residents attaching positive values to their presence, the topic of large carnivores, and especially wolves, has become extremely polarising in many rural communities. This has progressed to such an extent that few people with neutral or positive values dare to openly express these views in public (Krange & Skogen 2011, Skogen & Krange 2003, Skogen et al. 2006, 2013). Previous research and the interviews we have conducted for this study indicate that there can be significant social barriers to anybody attempting to openly embrace large carnivores and / or economically exploit them through tourism (Brenodden 2017).

All of these challenges are intrinsic to large carnivore tourism in any location because they reflect the properties of the species. However, they are present in an extreme manifestation in Norway which makes it about the hardest location in Europe to offer large carnivore tourism activities, both in terms of the practicality of doing so and in terms of the complex social setting within which any tourism activity will occur.

The one advantage stemming from these conflicts is that they have motivated the production of a vast amount of ecological and sociological research (Linnell & Tveraa 2015) in addition to an intensive monitoring program (www.rovdata.no). Most of this information is available in primary or processed forms online in both English language scientific papers and Norwegian language

technical reports. This all represents a large amount of up-to-date knowledge and perspectives that has the potential to be used in any communication activities associated with large carnivore tourism in Norway.

4 Legal framework in Norway

Key findings:

- The legal framework in Norway is very favourable in terms of allowing access to land for guides and tourists, but basically prevents the use of food or bait to attract large carnivores to regular locations for predictable viewing.

4.1 Legal background

There are a number of legal frameworks that have direct implications for large carnivore tourism. The Outdoor Recreation Act (*Lov om friluftslivet LOV-1957-06-28-16*) guarantees the freedom to roam on all non-cultivated land. This includes the right to travel on foot (or skis / snowshoes) in all natural and semi-natural habitats, as well as the right to camp with a tent and pick berries and mushrooms. Use of horses is confined to forest roads and paths in forested areas, but is not limited over the treeline. There has been some discussion about if the rights apply to organised or commercial activities - for example guided groups of tourists – or just private activities. However, a High Court ruling from 2014 (the *Hovden* Case) made it clear that the freedom to roam applies to private, organised and commercial activities. With the freedom to roam come a set of responsibilities to not interfere with the landowner's activities or to cause damage to the environment. The implication is that it is possible for tourist guides to take paying groups anywhere in the landscape on foot, and camp, with the exception of on cultivated fields during the growing season, as long as this does not cause damage to the habitats or interfere with landowner activity. This does not extend to using any form of offroad motorised transport which is strictly regulated (*Lov om motorferdsel I utmark og vassdrag LOV-1977-06-10-82*) or the use motorised transport on forest roads that are private property and require landowner permission. It doesn't permit any construction of infrastructure (such as hides or camping facilities), or even the use of camera traps, without landowner permission.

Construction of any infrastructure, such as fixed hides, may also require planning permission from the municipality who administer the planning legislation (*Lov om planlegging og byggesaksbehandling LOV-2008-06-27-71*) in addition to landowner permission.

Until recently there were restrictions on commercial activities, including guided tourism, in some national parks, but these were removed in 2003 in a government budget revision (*Fjellteksten* in *St. prp nr 65 2003*). Since then, there have been a number of government policy documents (*2016-2017 Meld St 19 Opplev Norge – unikt og eventyrlig, 2015-2016 Meld St 18 Friluftsliv – natur som kilde til helse og livskvalitet*) and projects (*Naturarven som verdiskaper*) that have actively outlined a strategy to promote nature-based tourism and recreation in rural areas and in protected areas. Protected areas, especially nature reserves, may however have local restrictions on activities in some zones and during some seasons which may limit tourism activities or which may require a special permit. Permits should not differentiate between commercial and non-commercial activity but should only evaluate the potential for damage or disturbance to the natural qualities of the area. Permits for regulated activity are issued by the relevant authority which may vary with area but can include the delegated national park authority or the office of the county governor (*Statsforvalter*). All potential disturbance will have to be assessed against the specific objectives of each protected area outlined in the areas' regulations (available on the *Lovdata* website) as well the general principles in the national Biodiversity Law (*Lov om forvaltning av naturens mangfold LOV-2009-06-19-100*).

The potential for large carnivore tourism is not mentioned in any of the existing government white papers that govern large carnivore management policy (*2015-2016 Meld St 21 Ulv I norsk natur, 2003-2004 St Meld 15 Rovvilt I norsk natur, 1996-1997 St Mld 35 Om rovviltforvaltning, 1991-*

1992 St Meld 27 Om forvaltning av bjørn, jerv, ulv og gaupe) and no specific policies exist concerning its development or operation.

However, §26 of the Wildlife Law (*Lov om jakt og fangst av vilt LOV-1981-05-29-38*) opens for regulation of the use of bait or feeding of wildlife. A dedicated regulation (*Forskift om utlegging av åte og fôring av vilt FOR-2019-12-17-1878*) has been developed to control this activity. The regulation separates between feeding (with the intention to improve the nutritional condition for the wildlife) and bait (with the intention to attract the wildlife to a specific place for multiple purposes, including photography). Feeding of all large carnivores, and golden eagles, is prohibited under §7 of the regulation. §8 regulates the use of bait, which is totally banned for wolves, and only allowed for lynx and wolverines in connection with hunting. The use of bait to attract bears is also banned, although §9 opens for the county governors' office (*Statsforvalter*) to issue permits for bears if the activity does not have negative consequences for animals, humans or biodiversity.

4.2 Implications for large carnivore tourism.

The restrictions on the use of feeding and bait represent a major barrier to adopting the same viewing practices as used in Finland, Sweden, Estonia and many countries in southeastern Europe like Slovenia, Romania and Croatia. It is also unclear where the border between feeding and baiting occurs, because a regular use of bait in large amounts can obviously improve the condition for carnivores even if this is not the intention. Although the county authorities can issue permits for bait for bears for photography we do not know of any such permit having been issued. The freedom to roam and the opening of protected areas for commercial activities are crucial pieces of legislation to facilitate many forms of guiding and outdoor tourism in that it permits a guide to take a group of tourists anywhere in the landscape to hike, ski, snowshoe, camp, canoe or ride while looking for tracks and signs. However, it is limited to travel on foot (or canoe/horse) and does not permit motorised transport. Because of the wide-ranging movements of large carnivores, it will therefore be essential for operators to obtain permission from landowners to avail of the network of private forest roads. Landowners' permission (and possibly also from the municipality) will also be essential for any infrastructure for camping or photography or even camera trapping.

5 European large carnivore tourism products

Key findings:

- We found 100 websites offering large carnivore activities in 18 European countries.
- The packaging of the experiences was diverse, but the carnivore content was limited to 2-3 sets of activities.
- Many offered bear-viewing from hides on baited locations. Others offered outdoor activities in a landscape where a distant sighting (or hearing a wolf howl) of a carnivore was possible. A final group offered outdoor activities to study tracks and signs but with little chance of a sighting.
- Evolving best practices for large carnivore viewing also limit many possibilities in order to reduce disturbance.

5.1 Review of different products

Our brief and non-exhaustive survey of large carnivore tourism products yielded more than 100 websites offering tourism products that explicitly mentioned large carnivores across Europe (see Appendix 1). It was not possible to determine if all of these were unique enterprises as some websites offered package trips where multiple organisers may have used the same field enterprise, but they do give a good indication of the extent and forms of the activity. These included all large carnivore species; brown bear, wolf, Eurasian lynx, Iberian lynx and wolverine. We found activities in 18 European countries; Belarus, Bulgaria, Croatia, Estonia, Finland, France, Germany, Greece, Italy, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, and Sweden. In Norway, we could not find any examples offering commercial activities focused on large mammalian predators, however, we found commercial activities that focused on sea eagles and golden eagles, and non-commercial activities (both past and ongoing) offering large carnivore centric information and education activities which are relevant experience.

The enterprises offer a whole spectrum of activities ranging from large **carnivore-only** products to **multi-species** products, from pure **nature-based** products to those offering **a mix of nature and culture**. They range from **photography-specialist** products with up-close viewing options to **viewing from a distance**, or where the only contact is indirect via tracks and signs. They range from s**ingle-evening** to **week-long trips**, from those that require little activity to those that require a high level of fitness. In some cases, the carnivores are offered as **a stand-alone focus**, but in others the carnivore component is **mixed with outdoor activities** like hiking, mini-bus, canoe, dog-sled, horse-back, snowshoe, helicopter and electric bike transport, and in trips where **other more visible species**, such as birds, beavers or moose, are the main attraction. Some offer no catering, others offer basic tent accommodation, and some provide whole package deals in carefully designed lodges. Some offer **mobile activities** in changing locations while others had **base camps** and fixed centre points. Some are based in protected areas, others on private land.

But despite this wide diversity of ways in which the wider product is presented, the large carnivore component is confined to a limited set of activities that are simply packaged in different ways.

These include;

Non-physical utilisation where the name or image of a large carnivore is used as a **branding** symbol or logo for outdoor activities that occur in a region where large carnivores may occur, but where they are not actually part of the direct experience. An example is "*The path of the bear – La Senda de la Osa"* - which is a 104 km hike through bear habitat in the western Pyrenees along the border of France and Spain. In addition, several countries are developing "carnivore-friendly" brands of products such as honey as souvenirs from a region where carnivores occur.

Tattoni et al. (2016) specifically explored the positive advertising values of brown bears in the Italian Alps.

Direct viewing of large carnivores using **artificial feeding**. The main focus is on bears, but wolverine and wolves also visit the sites. This is always associated with a hide which is either a specially constructed hide for photography / viewing or a hide that is also used for bear hunting. There are many models through which this is organised, either by private tour operators, hunting clubs, state forest services or protected areas. This is the only type of product that provides consistent, up-close viewing opportunities in Europe. The examples from Finland and Sweden, as well as some of those from Slovenia, Estonia and Poland, also offer specialist carnivore photography services. Many of these offer accommodation and food, and provide packages ranging from single nights to multiple day activities. In some cases, the hide serves as the overnight accommodation to permit early morning photography and reduce disturbance. Hides tend to be rather sophisticated with a recent trend towards adopting hides that are smaller, lower, and closer to the bait allowing new photographic compositions within a field that is competitive and constantly searching for novelty. Group sizes tend to be small. Guiding services are highly specialised.

In contrast, most of the activities from Romania, and many of those in Slovenia and Croatia cater for a faster turnover and higher volume of tourists. Bears are the main species in focus. Packages tend to consist of single evening visits to a hide, normally a raised hide used for hunting, which is not primarily designed for specialist photography. These enterprises typically do not provide much catering or accommodation. Group sizes can be larger. In some cases, these activities are used as secondary content by guides and enterprises who provide more specialised extended tours that primarily focus on bird watching or other nature-based activities, or as part of more active large carnivore centric packages.

Distant and indirect encounters. Hiking and searching for **tracks and signs** of large carnivores and other wildlife with a guide in an area where large carnivores occur. The chances of seeing a large carnivore are low and will certainly be at a long distance. Multiple variations on this theme exist that include;

- Sitting and watching open areas where bears or wolves often come into the open, for example on alpine meadows or other open areas like cultivated fields. Bionoculars and telescopes are essential, and photography opportunities are limited. Examples from Spain, Slovakia, Italy, Romania, Greece, Portugal, France.

- Joining a research / conservation activity that takes tourists along to monitor large carnivores (tracks, signs, camera traps) and / or assist with conflict mitigation measures. Examples from Greece, Slovakia, Poland, Sweden, Germany, Montenegro, France. These approaches work for wolves, bears and lynx.

- Learning general outdoor, wilderness survival, and animal tracking skills in areas where large carnivores occur. Examples from Estonia, Norway, Croatia, Poland. These vary from multi-day adventures to excursions of a few hours.

- Searching for tracks and signs of wolves by day and listening for wolf howling at night, sometimes including camping out in the forest at night. Examples from Sweden.

- Snowshoe based tracking of wolves and lynx and inspection of kills. Examples from Sweden, Croatia, Italy, Poland.

The activities are also highly seasonal, although the season varies with location depending on local ecological conditions. Obviously, snow-tracking for wolves and lynx is only possible in winter, and bears hibernate during this period in most regions. Wolves and bears tend to be most visible in late summer and autumn when open areas may contain resources such as berries for

bears. Artificial feeding of bears tends to be a spring / summer activity with autumn feeding depending on the timing and extent of hunting activities in the area.

5.2 Evolving best practices for large carnivore viewing in Europe

Wildlife tourism is not without potential negative impacts on wildlife (Fennell & panah 2020; Kojola & Heikkinen 2012; Murray et al. 2016; Nygaard 2021; Orams 2002; Penteriani et al. 2021; Steyaert et al 2014; Stronza et al. 2019; von Essen et al. 2020). With a growing interest in large carnivore tourism in many parts of Europe there is a growing need to develop clear guidelines based on research and experience to establish best practices which ensure the low impact and wider sustainability of these activities.

To date these have been established for bears (Karamanlidis et al. 2016) and wolves (Kravcic et al. 2022), but the principles are of relevance for lynx and wolverines too. Rigg (2022) summarised general principles for the use of large carnivores in wildlife tourism.

For **brown bears**, Karamanlidis et al. (2016) listed the following important aspects for best practice.

- Guide training
- Bear safety briefing and precautions
- Interpretation and providing information
- Managing expectations
- Avoiding disturbance of bears, denning areas and critical habitats
    - Making human behaviour predictable
    - If needed restricting access to certain areas
- Avoiding food conditioning of bears
    - Use food / bait with caution if it is permitted
    - Design hides carefully and adopt strict procedures when using and travelling to and from.

For **wolves**, Kravcic et al. (2022) listed the following aspects of best practice.

- Guide training
    - Interpretation and providing information, on both wolves and local culture as well as conservation issues
    - Interpretation of tracks and signs
- Avoiding disturbance of wolves
    - Avoid den sites and rendezvous sites
    - Do not disturb fresh kills of prey
    - Do not simulate howling to stimulate a response unless it is part of an organised monitoring survey.
    - Remain on roads and trails as much as possible, especially during period from April to September
    - Only follow tracks backwards, not forwards, along track
    - Use camera traps to provide images of wolves when wolf sightings are impossible
- Avoid food conditioning of wolves
    - Do not feed wolves as part of viewing

Rigg (2022) provides a brief summary of the general issues and frames around wildlife tourism, including a summary of official guidelines for large carnivore watching in Spain – developed by the central environmental ministry (Anon 2017). Their ten-point set of guidelines consists of the following;

- Applicable legal regulations must be known and observed, paying special attention to permitted, forbidden or authorised uses.

- Observation must be based on due respect for animals, the whole ecosystem and all people with whom the natural environment is being shared.
- Observers must try to be unnoticed by animals and avoid altering their natural behaviour patterns. Observation points must be chosen with caution, preferably using those that have been prepared and signalled for this type of activity.
- Observers must behave gently and politely towards other people that may be in the area, setting a suitable and ethical example. All persons and groups sharing these areas must be taken into account, avoiding interference in their activities.
- Inappropriate behaviour that presents a risk to people or disturbs animals shall be notified to the competent authorities. Observations of interest shall be notified as well.
- Enjoying the activity should go beyond direct observation of these species and include information about the natural environment, ethnographic heritage, local people's way of life, etc.
- Information on precise locations of the species must not be shared, especially through social media.
- Do not deliberately disturb or attract animals, observe young cubs, burrows and hideouts and do not bring dogs along.
- Close encounters with animals should be always avoided. If they happen, behave without abruptness and let animals leave calmly.
- It is always recommended to deal with honest, reliable and responsible companies or guides.

5.3 Implications for Norway

Norway has the potential to offer world class nature-based activities with a wildlife element. However, the low densities, uncertain presence and shyness of large carnivores in Norway makes them almost impossible to show directly. The greatest overall impact of these guidelines concerns the controversy around using food to attract animals for predictable viewing. Although widespread in many areas, there is clearly a need for better studies (following on from Kojola & Heikkinen 2012; Penteriani et al. 2021; Pohja-Mykrä & Kurki 2009) and very careful evaluation of where and how it is conducted, if at all (Murray et al. 2016; Orams 2002; Steyaert et al. 2014). Norwegian legislation basically excludes it as a viable practice. As a result any products will require exceptional guides that can operate within these emerging best practices and provide a real wildlife centric experience for customers where the wildlife remains invisible.

6 Economic aspects of wildlife tourism in Norway – what is the potential?

Key findings:

- *We estimated that wildlife-based tourism in Norway services around 35.000 tourists per year.*
- *Around 18.000 of these are guided tours organized by operators, with around 17.000 birdwatching tourists organizing their own trips.*
- *We estimated that 45 operating companies are involved in the market.*
- *Wildlife operators generate a turnover of around 300 million NOK/year.*
- *Around 100 million of operator income flows to third parties, who additionally receive around 94 million NOK/year from independent birdwatchers arranging their own trips.*

6.1 Introduction to nature-based tourism in Norway

In 2020, tourists in Norway spent over 190 billion NOK[1], of which 30% was spent by foreign visitors. This was spent over more than 94 million visiting days. Wildlife-based tourism (WBT) contributes some part of this value, but exactly how much is unknown (Stensland et al. 2018). In this chapter, we provide a basic overview of the economics of the WBT sector in Norway with a special focus on the potential for predator tourism. Due to the limited nature of the study, this is not a full economic analysis, but an outline based on interviews with agents in the market and previous compilations of information on the market's extent, monetary flows within the sector and an assessment of the potential for future development. Apart from some interviews with operators most information is collated from existing reports (Brenodden 2017, Dybsand 2021, Fredman & Haukeland 2021; Handberg 2020, Stensland et al. 2018).

Norway's nascent wildlife-based tourism is centered around a few specific natural resources that cluster depending on the predictable distribution and visibility of the wildlife and on the location of the individuals motivated to lead the activities. These include;

- Muskox tourism, centered around their only location on Dovrefjell.
- Whale-watching, centered around the Lofoten/Vesterålen islands and northern Troms – although the locations of these have varied over time as whales follow unpredictable fish stocks.
- Sea eagle tourism – located in multiple locations along the coast of central and northern Norway.
- Seabird tourism – focused on the seabird colonies in central and northern Norway.
- Moose and beaver safaris – widespread throughout the inland parts of Norway.

In the following section, we outline the current structure of the market for WBT in Norway. We describe two kinds of business models (one including operators, one without), and describe for the model that includes operators the current size of the market, a conceptual value chain and an estimation of monetary flows within the sector. We then focus on a case-study of eagle tourism in Norway which also includes an outline of the part of the market not serviced by operators. In the final section, we sketch recent trends in Norwegian large predator tourism. In doing this, we also describe the challenges to further development, as well as the opportunities that can be taken to strengthen the sector.

6.2 Current market structure

The WBT market in Norway can be divided into two business models: in one model, tourists pay an operator for organizing their trip. This operator arranges the activity itself as well as accommodation and other amenities like food and transport, often through third parties. This model is most likely to be used in tourism that requires expert knowledge, for example on animal tracking or specialized infrastructure such as boat transport or photographic hides for wildlife photography. The main monetary flow moves from tourists to operators for accommodating and organizing various forms of wildlife centric activity. Third parties are those that receive money from operators for their role in providing additional services to tourists. Examples can be local stores, campsites and hotels where tourists have overnight stays as part of their visit to the area, businesses that supply operators with equipment, and landowners that allow the use of their roads, land or infrastructure for tourism, sometimes for a fee. In the second model, the tourist organizes their own trip, and pays individually for whatever amenities or services they want to include. This model is more likely to be used in WBT types that do not necessarily require expert knowledge or a network of local support, such as bird watching and landscape photography.

We base our market analysis on available published data and supplement it with a small number of interviews conducted with actors in the market. We therefore divide the analysis of the current market in two parts: firstly, we sketch an overview of the total Norwegian market running on the business model that includes operators organizing nature-based experiences for tourists. Secondly, we investigate eagle tourism in Norway more closely as a case study, which allows a broader view of the WBT-market than only the subsector serviced by operators.

6.3 Size of the operator-based wildlife tourism market

Nature-based tourism businesses in Norway are typically small and seasonally based, which often means that nature-based tourism is only one of multiple activities that companies undertake (Stensland et al. 2014). This makes it hard to identify all companies involved in WBT. Stensland et al. (2018) attempted to give an overview of the broader nature-based tourism market, using a variety of identification methods, ranging from contacting tourist offices and municipalities to web-based queries. For the year 2017 (pre-Covid-19), they identified a total number of 2,759 companies engaged in nature-based tourism. However, they also acknowledge that, due to the diffuseness of the market, their methods do not cover with certainty the entire scope of it, and every year businesses disappear and show up, so the accuracy of the number is uncertain. Based on previous literature, they assess that for 2017 there were most likely between 2,000-3,500 business actively operating in the sector in Norway.

After Stensland et al. contacted the identified businesses, over 500 of them responded to a survey. The results of this survey gave information on the market, divided by various types of nature-based activities. Wildlife-based tourism was not one of their categories, so based on this report we can only make a rough estimate of that specific part of nature-based tourism. We assume that five types of activities listed in their survey potentially include WBT and included basic statistics on the size of the market for these in Table 2. From here on, we assume these numbers cover the WBT-subsector, while acknowledging the uncertainty underlying this assumption.

Table 2 Overview of the market size forfive categories of nature-based tourism likely to have a strong wildlife-based component. Data extracted from Stensland et al. (2018).

WBT- related activity	*Number of companies*	*Number of customers in 2016*	*Average customers per company*
Nature photography	4	573	82
Birdwatching	11	691	63
Overnight stays directly related to nature experience	17	3,457	203
Safari on land	6	759	127
Nature studies	4	12,312	3,078
Total	**45**	**17,792**	**395**

There are roughly two types of businesses involved in the sector: 50% of all nature-based tourism is organized by stock-based companies, while around 45% is done so by single person companies (Stensland et al. 2018). In an interview, Nikoline Dybsand (a researcher in WBT at NMBU) stated it is likely that many companies in the tourism sector, like hotels and travel organizations (often stock-based companies), organize WBT as one of their side activities. The other 45% of the market run by single person companies are more likely to be fully dependent on WBT for their income. This division into two types of operators was also suggested by the survey results: for about 29% of the businesses that filled out the survey, income from WBT was 10% of their total income or less. For about 27%, it was 100% of their income. This covers the majority of operators in the business, with a minority of operators falling in between.

On average, nature-based tourists in Norway were reported to be 47% foreign visitors, 24% Norwegians living within 100km of the activity, and 30% Norwegians from further away. Most foreign visitors came from Germany, Sweden, the Netherlands and the UK respectively. 52% of customers were returning customers.

6.4 Market structure chart of the operator-based wildlife tourism market

Organizers of nature-based tourism activities cooperate with other businesses to organize their activities, spreading the income they receive from tourists to other sectors. 82% of all nature-based tourism businesses surveyed in (Stensland et al. 2018) reported they worked together with marketing businesses, 77% that they worked together with activity organisers, 75% with sales companies, 62% with hospitality amenities (food and overnight stays), and 63% with transport businesses.

44% of companies who organize nature-based tourism in Norway undertake their activities on their own property. 58% use other privately owned area, and 27% use state owned land. This means that other landowners separate from the company organizing the activity are often indirect partners in the business.

A basic chart of the market structure therefore looks like the one given in Figure 1.

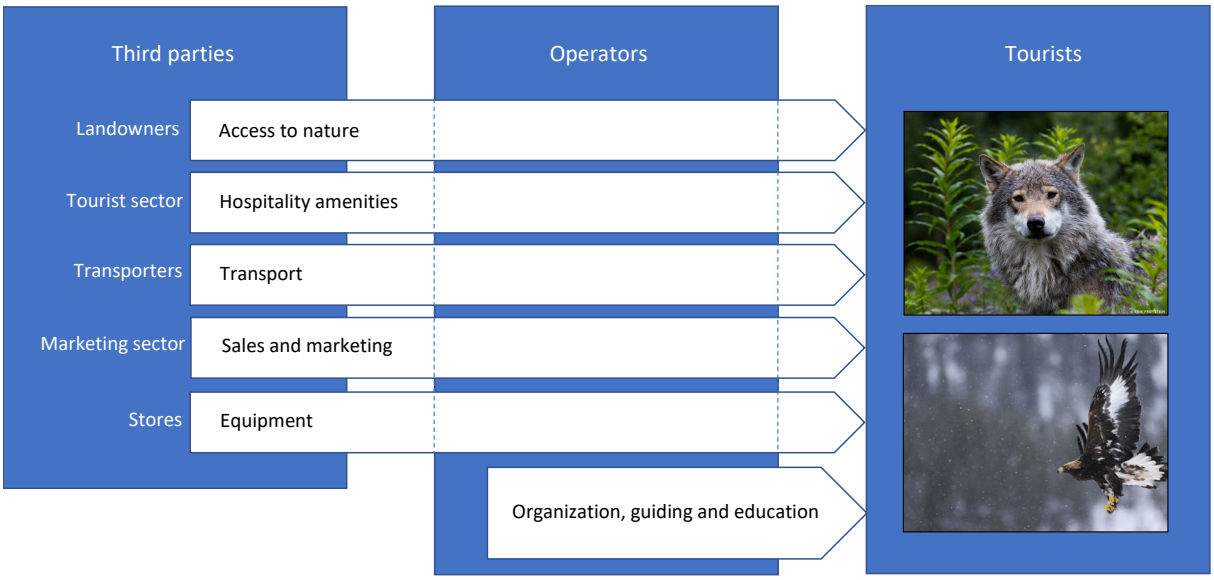

Figure 1. A chart showing the basic concept of the operator based WBT market. Tourists receive the end product of WBT by purchasing services from operators. These operators provide some of these services themselves (organization, guiding and education) and purchase others from third parties. Monetary flows move in the opposite direction from the service arrows. Photos are taken from wwf.no.

6.5 Monetary flows of the operator-based wildlife tourism market

Income from nature-based tourism in 2015 was on average 2.3 million NOK per business, with expenses paid to third parties of 0.78 million NOK, or 34% of the operator's income (Stensland et al. 2018). Considering only the five activities related to WBT tourism, we show average time spent, average hourly price, total income and average income per business in Table 3. If we assume the same ratio applies for these five categories of WBT (costs to third parties are 34% of income), that would mean operators spend about 101 million NOK (5,600 NOK per tourist) on third party goods and services to organize their activities.

Table 3. Average time spent, average hourly price, total income and average income per business for 5 categories of nature-based tourism. Data calculated from Stensland et al. (2018).

Wildlife related activity	*Hours used/activity*	*Average price/hour (NOK)*	*Total income (million NOK)*	*Average income per business (million NOK)*
Nature photography	85	115	6	1.5
Birdwatching	300	282	58	5.3
Overnight stays directly related to nature experience	97	78	26	0.8
Safari on land	33	217	5	0.9
Nature studies	65	253	202	50.6
Total	**116**	**189**	**298**	**6.6**

6.6 Case study: eagle tourism

Eagle tourism is a type of WBT that includes both the operator based WBT-model as described above, as well as individual tourists organizing their own activities. Based on a survey on 168 respondents and literature study, Handberg et al. (2020) estimates that the total number of tourists participating in eagle tourism in Norway for 2019 was 27,000, spending around 95,000 visitor days and 185 million NOK, which translates into an average per person of approximately 84 hours and 7,000 NOK, or 81 NOK/hour.

This is estimated to generate about 130 jobs and 60 million NOK of added value, for the most part going to transport, overnight stays, food and organized activities. Eagle tourists spend most of their budget for overnight stays in hotels and cabin rentals. 38% of respondents answered that they make use of an operator, using the business model described in the previous sections, while 62% organize their own trips independently.

About 60% of the respondents in this survey were Norwegians. These are likely more inclined to organize their trips independently, while international tourists are more likely to make use of the services of an operator: an operator organizing wildlife photography trips in Norway on several predator species stated in an interview undertaken for this report that about 95% of his customers are foreign tourists. At the same time, foreign tourists on average are more likely to see an eagle and are more satisfied with their trip, which might be attributable to them more often using the services of an operator for a guided tour.

6.7 Trends and necessary conditions for further economic development

As described in the previous section, we split the WBT-market into a segment where tourists engage operators to organize their trip, and a segment where tourists independently organize the transport and amenities they use on their trip. The operator based WBT-market in 2016 was estimated to service around 18.000 tourists. For eagle tourism, the operator based WBT-market covered about 38% of total eagle tourism. There is limited data on the number of tourists independently organizing trips for viewing, tracking and photographing other wildlife species, but we assume for such species the vast majority of tourists make use of operator-based guided tours. We therefore roughly estimate that the 18.000 tourists making used of operator-based tours, supplemented with around 17.000 independent birdwatchers, so in total around **35.000 annual tourists**, make up the majority of WBT in Norway.

In recent years, Norwegian tourism in general has grown quickly. In the period 2005-2017, the number of commercial visiting days has increased by 7 million, which is an increase of 27% (Stensland et al. 2018). Further growth is expected, and nature-based tourism has been the sector showing strongest growth, believed to contribute 14% of total tourism income in Norway (Handberg et al. 2020). The subsector of nature-based tourism focused on wildlife (WBT) is, based on our estimate of around 35.000 tourists per year, a relatively small subsector of this 14%, but one that has growth potential. NHO sees that birdwatching tourism in Norway is growing. Handberg et al. (2020) assess that annually around 7 million tourists travel to another country for birdwatching, so further growth for Norwegian birdwatching is not limited by the number of potential tourists coming to the country. Based on a large survey by Stensland et al. (2018), most operators in nature-based tourism also saw that in the three years previously, both income and profitability had increased, and they expected this to continue in the next three years.

Based on our literature studies we have identified both challenges and opportunities for further development of the WBT market in Norway that can hinder or support the further growth of a market based on nature-friendly wildlife-based tourism.

6.8 Economic challenges for future development

A major challenge to the market is that it is highly dynamic and dominated by small-scale businesses, or businesses that include WBT as a minor side-activity in their operations. 13% of all nature-based tourism businesses interviewed by Stensland et al. (2018) were starting up, 43% of all businesses said they are growing as a business, 39% classified themselves as stable businesses, and 5% where decreasing or shutting down. Small businesses that are in a start-up phase usually do not have strong brand recognition or access to a steady, reliable base of customers to build on. Businesses that use WBT as a side activity, for example campsites or landowners that rent out some cabins for wildlife viewing on the side, are more easily tempted to re-direct their investment into another part of their business if WBT is not generating a steady profit. For example, 9% of owners of private land that are involved in nature-based tourism say they will sell their land if it no longer gives income from nature-based tourism (Stensland et al. 2018), so by far most are not dependent on it for their livelihood. This makes the sector sensitive to changes in its context, for instance on the political atmosphere surrounding carnivores. The vulnerability of a market based on small-scale businesses is also underlined by survey results from Stensland et al. (2018), in which the most important factors that limit the development of new opportunities are stated as lack of time to work strategically with change processes, lack of economic resources and lack of other internal resources.

6.9 Opportunities for future development

Nature photography is an activity where currently around 90% of international tourists do not use a guide (Dybedal et al. 2020), while satisfaction of trips undertaken with a guide appear to yield higher trip satisfaction on average (Stensland et al. 2018). This suggests that there is a large untapped group of tourists that can be attracted to locally organized guided tours, strengthening the ties to the local economy, as well as delivering more satisfying and informative WBT trips. Currently, 52% of tourists making use of operators are returning customers (Stensland et al. 2018), so this can potentially yield a sustained growth of the market over time.

Hansen (2018) finds from surveys among operators that businesses in WBT in Norway see seven forces that can have a positive impact on economic growth:

1. Firm size
2. Quality of the product and customer service
3. Collaboration and innovation
4. Access to a growing market
5. Nature as a resource
6. Access to financing
7. Financial grants and other support schemes.

Some of these forces can supply opportunities for further development of the WBT market. Firm size is small: in the survey by Stensland et al. (2018), nature-based tourism firms in Norway on average have about 3 fulltime person-years of work per year, most of which are from the local community. The large and growing interest of both national and international tourists for nature friendly WBT suggests an opportunity for scaling up firm size, if these tourists can be attracted (point 4 on the list). Marketing specifically to nature friendly WBT with support from tourist organizations can be a key opportunity to developing this force. Scaling up firm size might require access to financing and support schemes (points 6 and 7). Collaboration with local landowners can provide an opportunity here, as the example from one of our interviews suggests: a photographer helping to promote the cabins rented out by a landowner, by using the pictures the photographer takes on the organized tours is a scheme that attracts more tourists and generates

income for both parties, while promoting nature-based tourism and the maintenance of wildlife on the landowner's property. However, in the specific case of large carnivores it is important to consider that their presence in an area is driven by policy processes at a large scale not influenced by any individual landowners' perspectives. Furthermore, it is important to ensure that such activities are conducted with a clear focus on ethical practices that do not have unwanted negative impacts on wildlife or human-wildlife interactions (Fennell & panah 2020; Nygaard 2021).

7 Pathways linking large carnivore tourism to conservation outcomes

Key findings:

- There are three well established potential pathways linking tourism to improved conservation outcomes; the economic cost, the knowledge deficit, and the value deficit models.
- Tourism activities are not likely to provide significant short-term benefits to Norwegian large carnivore conservation via these mechanisms because they are constrained by national level policies not significantly influenced by these pathways.
- We propose that a fourth mechanism, the diversity mechanism, may offer some long-term benefits at the expense of short-term conflict by opening for a greater diversity of ways of valuing and interacting with wildlife other than the present consumptive-only view.

7.1 Potential mechanisms

Wildlife based tourism in general can potentially bring benefits to the broader tourism industry, to local communities, and to wildlife (Karamanlidis et al. 2016). The potential benefits to the larger tourism industry operate through the marketing value of the wild image of wildlife and by providing added value for an area via a diversification of attractions. Benefits to local communities can flow via the direct business opportunities and indirectly through building new partnerships (e.g. between landowners, tourism operators and researchers / conservationists) and strengthening rural culture and identity. However, the interest of conservationists in large carnivore tourism is explicitly associated with the assumption that promoting this type of tourism will lead to improved conservation outcomes. The definition of ecotourism requires the activity to benefit wildlife (Stronza et al. 2018). However, these assumptions about conservation benefits stemming from tourism / recreation have rarely been critically examined such that they lack robust empirical support. Based on wider reviews of the conservation benefits from nature-based, and eco-tourism (Catlin et al. 2013; Curtin 2009; Mossaz et al. 2015, Karamanlidis et al. 2016, Kavcic et al. 2022, Higginbottom & Tribe 2004, Macdonald et al. 2017, Meyer et al. 2021; Wardle et al. 2021) we have identified the following proposed pathways by which tourism might lead to conservation outcomes. For each we briefly evaluate its relevance under Norwegian conditions.

All potential pathways identified by other authors fall under three broad categories.

The economic cost model is built on the assumption that conflicts and low tolerance are mainly driven by economic costs of large carnivores, and that any income derived from large carnivore tourism will reduce conflict and generate positive values because of the economic benefits they bring.

The **knowledge deficit model** assumes that lack of knowledge is a cause of low tolerance and that improved knowledge and experience delivered through tourism activities will improve tolerance. Another element of this operates via the circumstances where eco-tourists assist as citizen scientists, or help finance, research or monitoring activities that benefit the species through an improved knowledge basis for management planning.

The **value deficit model** assumes that experiences with large carnivores will lead to positive emotional experiences which will lead to improved attitudes and tolerance.

7.2 Relevance for the Norwegian situation

Some of these pathways may be valid in multiple situations and different regional settings (Karamanlidis et al. 2016). However, we see little support for most of the potential pathways linking

large carnivore tourism and improved conservation outcomes in the rather specific context of a Norwegian setting. The economic deficit model is firmly rejected because of the existence of government-funded compensation (payments after damage has occurred) and mitigation (funding to help prevent damage) financial instruments and the fact that the conflicts are not primarily driven by economic costs (Skogen et al. 2017). Research and monitoring are also well funded. Most of the knowledge and value deficit models are not relevant because the people taking tours (non-local residents) are not likely to be those with the negative attitudes, and international tourists have little political lobby power compared to other well established local or national lobby groups. There is little evidence that negative attitudes are linked to lack of knowledge, or that lack of knowledge is a widespread issue among the rural population. Research and monitoring activities are well funded and highly institutionalised in Norway, leaving little scope for a significant contribution from tourism operations in knowledge production, although they may be able to make some local contributions to monitoring as citizen scientists. The Norwegian situation is very special in that parliament have micro-managed large carnivore policy, so any changes need to go through ministry and parliamentary approval. It is therefore a very complicated pathway linking any changes in tolerance or attitude at a local level to an overall policy change. There is simply very little that an individual landowner, community, or even a municipality can do, even if they host a thriving ecotourism industry.

However, there is a fourth tentative pathway, which we call the **diversity mechanism**, that may offer some potential benefits. This concerns using large carnivore tourism to (1) draw attention to alternative and more diverse ways of valuing wildlife through appreciation and non-consumptive use, and (2) providing an opening for a greater diversity of voices to express a diversity of views about large carnivores (Brainerd & Bjerke 2003; Senningsen & Skogen 2003). Both of these avenues may increase conflict locally in the short term but are possible first steps in a longer-term process to bring about change in policy via broad scale changes in societal values. It should be underlined that this pathway is only tentative and lacks empirical evidence as it is based on an assumption about the mechanisms of social change and the role of wildlife tourism in these processes. There is evidence of long-term and large-scale changes in social values towards wildlife in the western world (Manfedo et al. 2020a,b), although it is nearly impossible to identify the role of any specific activities (such as wildlife-based tourism) in these changes. In fact, wildlife tourism may be as much a result of these changes as cause. It is, however, well established that some of the more extreme social conflicts associated with large carnivore conservation are a result (a form of backlash) of these broader social changes that leave rural communities with traditional landuses / values feeling isolated, threatened and disempowered (Manfredo et al. 2017; Skogen & Krange 2003) implying that this potential pathway is associated with many uncertainties and some risks.

8 Can tourism help promote large carnivore conservation in Norway?

Key findings:

- We estimate that there is limited scope for large carnivore tourism in Norway.
- It is likely to be controversial with the local population and not make direct contributions to their conservation.
- There may be scope to include large carnivores as one of many parts of a wider package of nature / wildlife/ cultural based activities with the goal of making longer term changes to wildlife / nature conservation values and diversifying the rural narrative.

8.1 Short to medium term direct outlooks

Nature-based tourism in general, including wildlife-based tourism, is a major part of the Norwegian tourism sector and is predicted to grow significantly in the years to come. There seems to be plenty of scope for nature-based tourism to make a real contribution to rural development in many areas of Norway. There is also clearly scope for an increase in the extent to which wildlife can be incorporated into this area. However, we see little scope for the promotion of dedicated large carnivore tourism as a viable economic activity (at any scale) or for this tourism to make significant positive contributions to their conservation in Norway in the short to medium term. The current status and management of large carnivores in Norway implies that the resource essential for a viable tourism package is simply not present or practically and predictably accessible. The fact that the state of the resource is directly under government control also implies that any mechanism linking tourism to improved conservation status has to operate through mechanisms that can overturn widespread cross-party consensus in parliament and change entrenched policies and procedures that have been honed over a 25-year period. The only mechanism where we see any scope for this to work is via a process where large carnivore tourism, or nature-based tourism that includes an element of large carnivores, helps contribute to long-term value changes that promotes broader tolerance and opens for a diversity of values having greater impact on policy.

In the short term, any strong focus on large carnivores as part of a tourism venture is also likely to be extremely controversial in rural communities and will require strongly motivated individuals willing to face controversy and able to navigate the complex social conflicts surrounding these species (Brenodden 2017; Ednarsson 2005; Pohja-Mykrä & Kurki 2009; Ratamäli & Peltola 2015).

8.2 Longer term indirect outlooks

In contrast, there may be scope for reaching the same longer-term objectives via indirect, and less controversial pathways. Promoting tourism activities that include elements of both nature and rural culture and that include a diversity of wildlife (especially the more visible species like moose, beavers, birds etc.) may be far more viable (the resource base needed is more geographically widespread, more visible, more predictable and represents a more resilient base because of diversity) and much less controversial in rural areas (Margaryan & Wall-Reinius 2017). In fact, rather than generating conflict this may generate support and be a vehicle for promoting pride as well as providing a small number of diversified jobs in economically struggling areas. Large carnivores can be included in the package with other species groups but should not be the main focus. It could be hoped that such activities might, over time, promote a better understanding between stakeholder groups with diverse perspectives and values concerning nature, wildlife and large carnivores as well as an acceptance for a greater diversity of perspectives and views concerning the broader human-nature and human-wildlife relatioships. Such changes are

a prerequisite for the policy changes that are needed to improve the conservation status of these controversial species.

8.3 Recommendations

It is essential that support for such enterprises be based on careful planning and critical thought if they are to be conducted in a manner that supports wildlife conservation in both the short and the long term (Meyer et al. 2020). Most of these, and others, are already embedded in the ecotourism guidelines and the research reports by Stensland et al. (2018), but we want to underline some of the issues most relevant for large carnivores in the Norwegian situation. There are clearly many different viable business models, but the small size and high turnover of existing nature-based tourism enterprises in Norway indicates that many struggle to develop viable products or viable business structures. The following elements are just some of those that need to be considered.

(1) All wildlife is influenced to some degree by human activities. Tourism activities must be conducted in a manner that **minimises disturbance** of the targeted wildlife and other biodiversity, following established best practice guidelines as a minimum. The use of artificial feeding needs to be very carefully considered for all species groups, and in general is unlikely to be an option in Norway for large terrestrial mammalian carnivores. Tourism activities must also avoid coming into conflict with local landuse activities.

(2) There is a need to develop **realistic business models** that include a portfolio of multi-season activities. It is also essential that business models ensure that revenue flows remain within the hosting rural area as much as possible, both in terms of employee taxes and service purchase. A realistic business plan that clearly identifies its customer profile (i.e. specialist niche market like photography or broad low-threshold participation), customer source (i.e. based on location) and interaction with other local attractions and businesses is essential.

(3) Adopting a **diverse product base** drawing on a diversity of natural values will both enhance the enterprises' practicality and resilience (Margaryan & Wall-Reinius 2017) and reduce the undesired social conflicts that could result from the activity. The inclusion of local cultural history and ongoing human-nature interactions (such as agriculture, forestry, hunting, recreation) is likely to be especially beneficial (Mossberg 2008). All Norwegian wildlife occurs in multi-use landscapes which is mainly private property, and realising and communicating this is essential. Wildlife conservation is intrinsically a joint process with both ecological and social components.

(4) Tourism operations should make greater efforts to **communicate the accumulated scientific knowledge** that exists about Norwegian large carnivores and wildlife in general as well as way they are viewed by rural people. There is so much information (from both natural and social science research) readily available that there is no excuse for communicating outdated ideas and data. In addition, it is also important to communicate the diverse local perspectives around the presence of wildlife in shared landscapes. Cooperation with research or educational institutions would be beneficial to maximise impacts – not just in terms of factual content, but also in terms of psychological influence.

(5) Claimed **pathways to conservation impact** should be made explicit and testable.

(6) Clear evaluations of the formal **legal and administrative / procedural aspects** of planned activities should be explored at the outset, concerning planned infrastructure, access to road networks, disturbance, use of protected areas etc. Dialogue with landowners is essential.

(7) Finally, it is important to point out that there is a general lack of in-depth studies of wildlife-based tourism activities, in terms of the customer profiling, the enterprise economic viability, the disturbance impacts on wildlife and on the potential benefits that the activity brings to

conservation (Rode et al. 2021). Our recommendations should therefore be viewed as preliminary. In order to fill these knowledge gaps, it would be highly advantageous if new enterprises were open to being studied. New data could both help the specific enterprises develop and modify their products and provide lessons for other enterprises.

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NINA Report

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ISSN: 1504-3312
ISBN: 978-82-426-4960-7

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