



University of
Stavanger

Master's Thesis

**The impact of use and non-use values on
willingness to pay for the Norwegian wolf
population**

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Abstract:

Which motivations determine people's attitude towards the Norwegian wolf population? The current management goal for the Norwegian wolf population is 3 annual breedings within a geographically specified zone. This paper assesses the attitudes of hunters and other outdoors users towards this management policy, as well as other potential scenarios. We do this using a willingness to pay survey. We argue that positive attitudes toward the wolf is mainly related to non-use values, while personal experience will change an individuals attitude towards becoming negative. We also review relevant literature and relate our findings to several other studies covering the same subject.

Table of Contents

1.0 Introduction	5
1.1 Topic of Discussion	6
2.0 The wolf	7
2.1 Historical developments in the Scandinavian population	7
2.2 Wolf population management	9
2.3 Conflicts related to the wolf reintroduction	11
3.0 Literature	14
3.1 Wildlife conservation	14
3.2 Predator attitudes and conservation	16
4.0 Theory	23
4.1 The concept of total economic value (TEV)	24
4.2 The theory of environmental evaluation	25
4.2 Empirical valuation techniques	26
4.3.1 Contingent valuation	26
4.3.2 Creating the survey instrument	27
4.3.3 Important factors in the construction of the survey	29
4.3.4 Sampling	30
4.3.5 Analyzing and aggregating the results	31
5.0 Method	32
5.1 Creating the survey instrument	32
5.1.1 Construction of the survey	32
5.1.2 Elicitation method	37
5.1.3 Sampling	37
5.2 Analyzing the results	38

6.0 Results	39
6.1 Continuing the population management policy of today	39
6.2 Eradicating the Norwegian wolf population	43
6.3 Increasing the wolf population	44
6.4 Establishing a wolf territory close to you	44
6.5 Use and non-use values	45
7.0 Discussion regarding the survey	47
7.1 Sample	47
7.2 Validity	49
7.3 Biases	50
8.0 Conclusion	52
9.0 References	53
Appendix 1	57
Regression results	
Appendix 2	65
Survey	

1.0 Introduction

Public perception of large predators is becoming increasingly important to research. The reintroduction of the wolf to Norway and Scandinavia means that many people will become affected by it in one way or another. Wolf territories have an impact on their surroundings, and it is therefore important to measure attitudes towards wolves in order to help create legitimacy for the management plans for the species.

The wolf does not completely fit the characteristics for a *public good* as described in economic literature. The reason for this is that it also acts as a *public bad*, in that it incurs costs on certain actors in the economy. Thus, we need to take this characteristic into account when constructing a study instrument for capturing the public attitudes regarding the wolf.

People who actually make use of a good oftentimes see things differently than those who do not. We are therefore interested in the attitudes of those people. Our aim with this study is to map the attitudes towards the Norwegian wolf population by hunters and other users of the outdoors. We do this using a willingness to pay (WTP) survey. The reason for using monetary valuation to measure attitudes towards an environmental commodity is twofold: First, it is a valid proxy that encompasses people's attitudes towards a commodity in a good manner. Secondly, it is helpful for policy purposes in that it provides a benefit to weigh the costs against in a cost-benefit analysis (Ericsson *et al.* 2007).

We examine the relationships between a number of different characteristics that we expect to impact the individual's attitude towards the Norwegian wolf population. Our initial hypothesis is that hunters and hikers are fundamentally different. Their attitudes towards the wolf differ, and the motivation for these attitudes differs. We show that the literature suggests that positive attitudes towards predators are connected to dominating non-use values, and that as an individual gains experience with them, the attitudes change and become more negative. We argue that the same trend is apparent in our study as well.

1.1 Topic of discussion

The impact of use and non-use values on willingness to pay for the Norwegian wolf population.

2.0 The wolf

The grey wolf (*Canis lupus*) is the largest extant member of the dog family. It occurs in most parts of the Northern Hemisphere, and once had the widest distribution range of any mammal. Although its original distribution has been reduced by about one third due to persecution and habitat loss, the wolf is still one of the world's most widely distributed mammals (Mech & Boitani 2007). In recent years the trend has changed away from a continually decreasing distribution, and many wolf populations are now expanding geographically. Many places we see wolves repopulating areas that are part of their historical distribution ranges (Mech & Boitani 2007). Sweden and Norway are examples of this, and a very recent case is the northward expansion of the German wolf population, leading to the first wolves settling in Denmark in almost 200 years (Forskning.no 2012).

Due to its wide distribution, the wolf shows significant variation throughout its range. This includes morphological features such as size and color, but also ethological differences exist. Among other factors, it adapts to different prey animals in different regions. The wolf hunts prey in all sizes, but generally prefer medium to large sized prey. The Scandinavian wolf population has specialized in hunting moose, and the moose constitutes 95% of their diet (Rovdata.no(1)). The average wolf pair or pack kills 120 (95% CI 100- 144) moose per year, regardless of pack size (Zimmermann 2014). The Scandinavian wolf averages at just above 30 kilograms for bitches and 50 kilograms for males (Rovdata.no(1)).

2.1 Historical developments in the Scandinavian population

The historical Scandinavian wolf population became extinct in the 1960s (Klima og miljødepartementet 2014). Today's wolf population stems from Finno-Russian specimens, which immigrated and settled in southern Scandinavia during the 1970s and 1980s. Throughout the 1980's, there was only one family group present in Scandinavia, and the total number of individuals never exceeded 10 (Rovdata.no(2)). In 1991, a new male from the Finno-Russian population immigrated and formed a new family group with an existing bitch. This led to a steady population growth of 25-30% throughout

the 1990's, with several new family groups being established (Rovdata.no(2)). In 1997, the first wolf breeding in Norway in recent times were documented Rovdata.no(2)). In a medium to long term perspective, the high degree of inbreeding will cause the biggest threat to the survival of the Scandinavian wolf population. Today's population stems from only 3 individuals, and researchers have stated that this issue needs to be addressed in order to secure long term survival (Liberg et.al. 2005).

After the 1990's the population growth declined somewhat. During the 16 years from 1998/1999 to 2013/2014, the Scandinavian wolf population has shown a steady growth of about 15% annually (Wabakken et al. 2014). Today the population counts 400 (estimates range from 316 to 520) individuals in Norway and Sweden combined (Wabakken & Maartmann 2014). The last population report, published in March 2015, states that 34-37 specimens are counted as Norwegian. The total population, included "border specimens" (living at both sides of the Norwegian-Swedish border) is 67-70 specimens (Wabakken & Maartmann 2015).

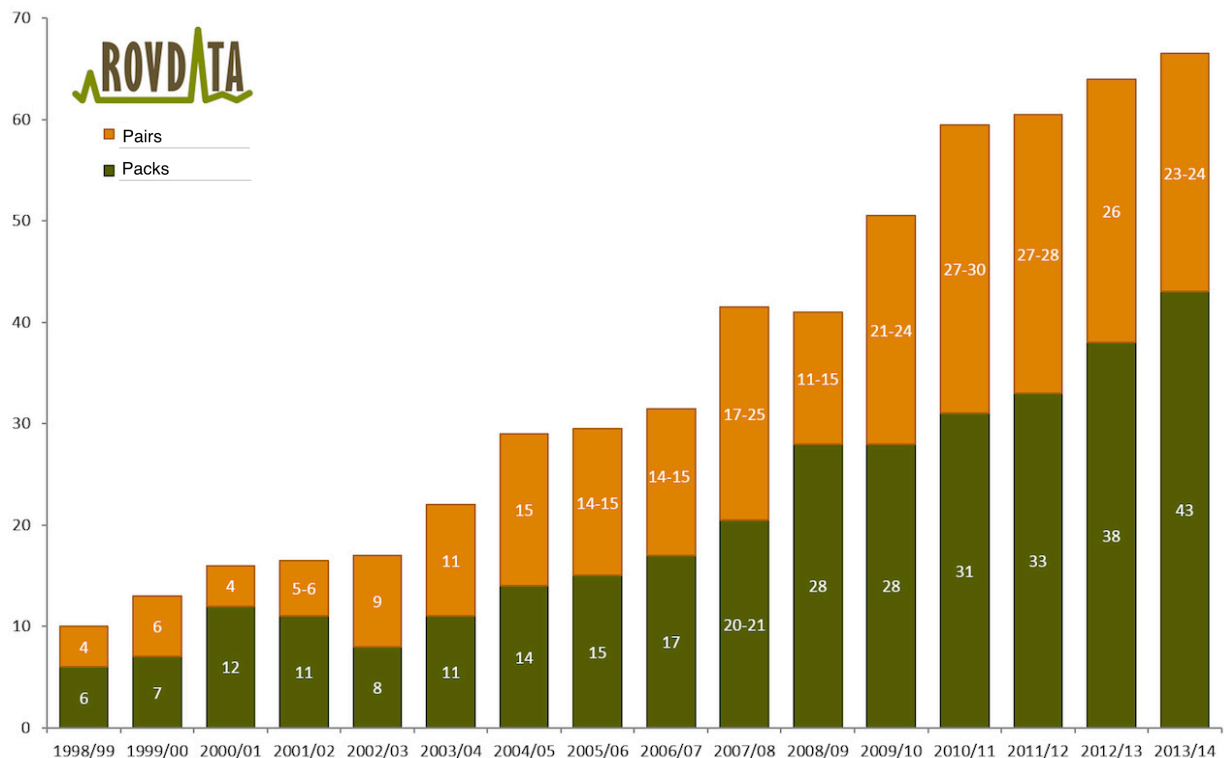


Figure 1: Growth in numbers of territorial wolf pairs and packs in Scandinavia from the winter 1998/99 to 2013/14.. Source: Rovdata

2.2 Wolf population management

Norway's commitment to wolf conservation is mainly tied to the Convention on the Conservation of European Wildlife and Natural habitats (the Bern convention) and the Nature Diversity Act (Naturmangfoldloven) (Klima- og Miljødepartementet 2014). Relevant for the conservation of the wolf is the Bern convention article 2, which states that the parties are obligated to secure the survival of not only the species as a whole, but also the populations and habitats of the species. This means that Norway is obligated through the Bern convention to secure the survival of its wolf population. The wolf is included in the Bern convention's appendix II (strictly protected fauna species), and article 6 states that species included in this appendix shall be protected from, among other factors, deliberate capture and killing, deliberate damage of breeding and resting sites, as well as deliberate disturbance, particularly in vulnerable periods (Council of Europe 1979). Article 9 allows exceptions from article 6 to protect special interests, provided that «there is no other satisfactory solution and that the exception will not be detrimental to the survival of the population concerned» (Council of Europe 1979). Article 9 thus allows putting down individuals threatening i.e. agricultural interests.

The Nature Diversity Act paragraph 5 states that the intention for management is that species and their genetic diversity is upheld in the long term, and that they exist in viable populations in their natural geographical distribution ranges (Klima- og Miljødepartementet 2009). Paragraph 18 is a significant paragraph for carnivore management. It states that regulations or individual resolutions can allow for animals to be culled i.e. in order to avert damage to livestock and reindeer husbandry (Klima- og miljødepartementet 2009).

Norway is practicing a zone management system for the wolf population. This means that wolves are allowed to settle and reproduced in a defined geographical zone. This policy originates from the Parliament notice nr. 35 (1996-1997) *on carnivore management* (Stortingsmelding nr. 35 1996-1997 *Om rovviltforvaltning*) where it was decided to establish a reproductive population of wolves in Norway. A goal set in collaboration with Sweden of at least 8-10 family groups in Southern Scandinavia was agreed upon. The area in which wolves were allowed to settle was confined in order to

avoid conflict with Sami reindeer husbandry, and no wolves were to be allowed from Finnmark to Nord- Trøndelag, and along the national border all the way to the national park of Femunden in the south (Klima- og Miljødepartementet 2014).

A process of further defining and limiting the zone in order to consider livestock grazing areas was started in 1999- 2000, resulting in the Parliament notice nr. 24 (2000-2001) *The Government's environmental conservation policy and the nation's environmental condition* (Stortingsmelding nr. 24 (2000-2001) *Regjeringens miljøvernpolitikk og rikets miljøtilstand*). Here, the management zone was defined as covering specified counties and municipalities as shown on the map below.



Figure 1: Wolf management zone 2001

Source: St. Meld nr. 15 (2003-2004)

After the treatment of Parliament notice nr. 15 (2003-2004) carnivores in Norwegian nature (Stortingsmelding nr. 15 (2003-2004) *Rovvilt i norsk natur*), the wolf management zone presently enforced was defined. This zone is based on further political considerations with respect to livestock grazing and Sami reindeer husbandry areas, and is considerably more restricted than the previous zone. A target of 3 Norwegian litters annually is defined, and these litters shall be born within the management zone (Klima- og Miljødepartementet 2014). The management zone and the present territorial wolf pairs and packs are presented on the map below. It should be

noted that territories that have up to 49% of its geographical distribution within the management zone, are counted as being inside the zone (Klima- og Miljødepartementet 2014). This effectively makes the zone larger than portrayed on the map.

While the wolf globally is listed as “least concern” the IUCN red list, the Norwegian population is listed as “critically endangered” due to the low numbers in our populations (Klima- og Miljødepartementet 2014).

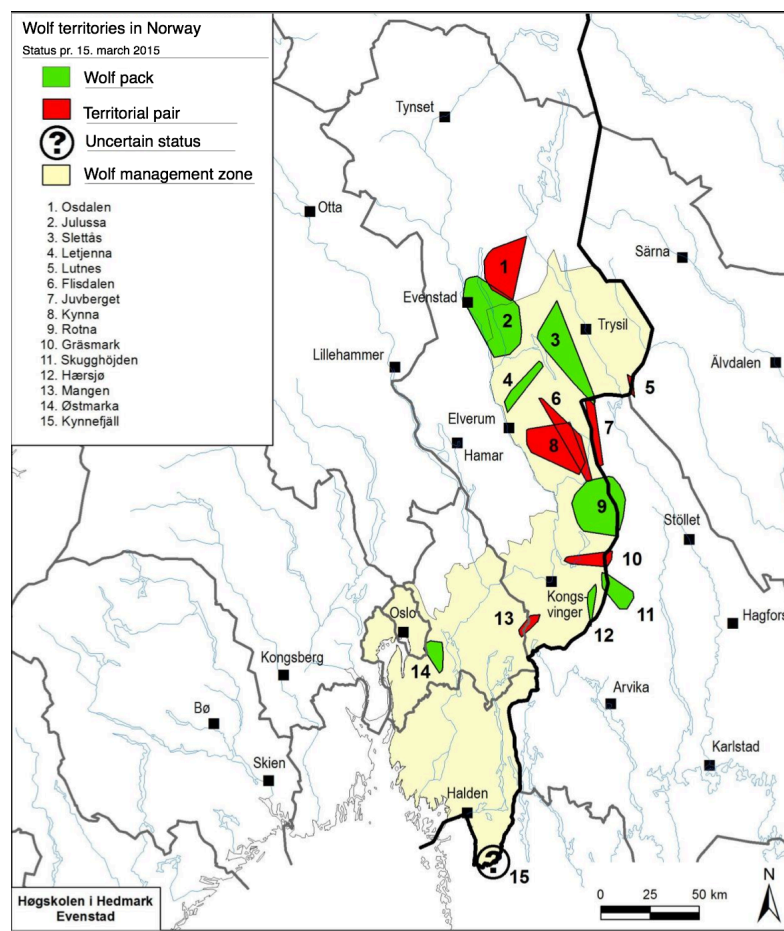
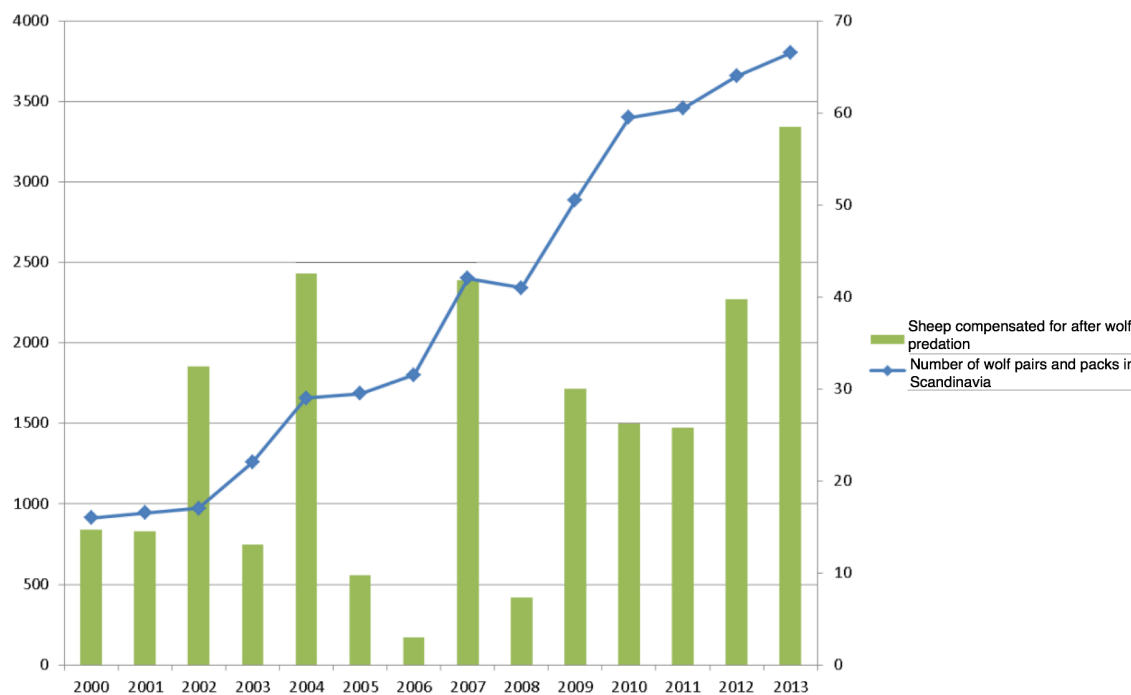


Figure 2: Present wolf management zone and territories.

2.3 Conflicts related to the wolf reintroduction

The main conflict area regarding wolf reintroduction is related to animal husbandry, specifically livestock (mainly sheep) and reindeer. In 2013, 3343 sheep were compensated for by the state after being predated by wolves (Klima- og Miljødepartementet 2014). Most killings are performed by young wolves wandering to find new territories, and the vast majority happen outside of the wolf management zone.

The diagram below shows the development in sheep lost to wolves in relation to number of wolf pairs and packs from 2000-2013:



Source: Klima- og Miljødepartementet 2014

When considering factors not related to agriculture and livestock, hunting is the main conflict area related to the wolf reintroduction. The wolf can be a large threat to dogs in areas where it occurs, and it is by far the most dangerous of our four large carnivore species. (Klima- og Miljødepartementet 2014). Most dogs that are wounded or killed by wolves are hunting dogs on duty (Klima- og Miljødepartementet 2014). Hunting with dogs is a strong tradition in Norway, and this tradition has some of its core areas in what is now the wolf management zone. Because of the risk related with hunting with dogs in areas with wolves present, this tradition is by many hunters seen as vulnerable due to the wolf (Klima- og Miljødepartementet 2014). As with sheep, many dogs are killed outside of established territories (Klima- og Miljødepartementet 2014).

Below are two diagrams showing wolf attacks on dogs in Norway and Sweden in the ten-year period from 2003-2013:

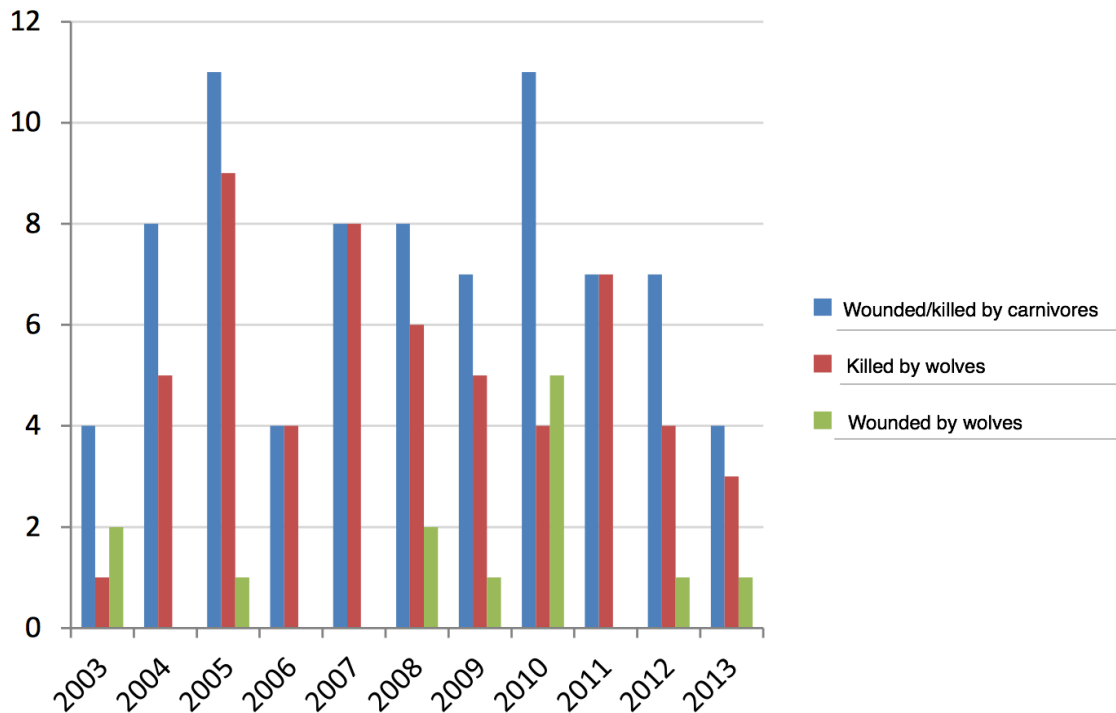


Figure 3: Dogs wounded/killed in total by carnivores in Norway.

The figure shows dogs wounded/killed in total by carnivores in Norway as well as wounded and killed by wolves. Note that in order to compare with the blue column, the red and green ones need to be combined. Klima- og Miljødepartementet 2014.

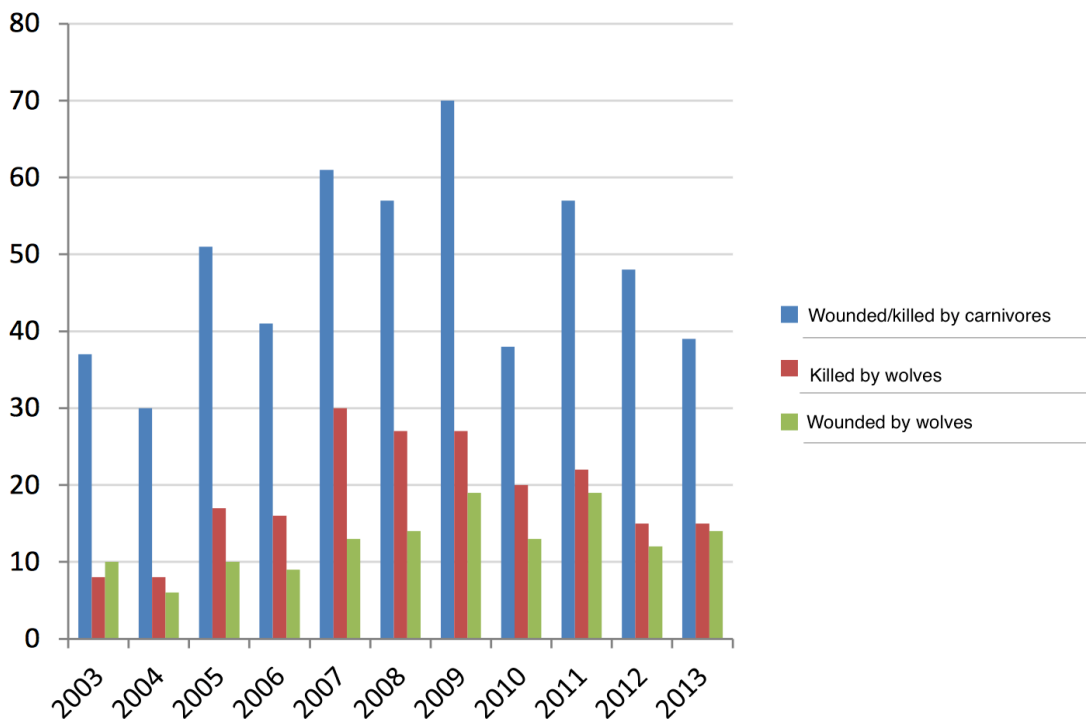


Figure 4: Dogs wounded/killed by carnivores in Sweden.

The figure shows dogs wounded/killed in total by carnivores in Sweden as well as wounded and killed by wolves. Note that in order to compare with the blue column, the red and green ones need to be combined. Klima- og Miljødepartementet 2014.

3.0 Literature

3.1 Wildlife conservation

Willingness to pay for endangered species varies due to a variety of reasons. Some of these reasons depend on characteristics of the respondents, the relation the respondent has with the species or natural area in question, and other reasons include the conservation status and other factors regarding the species itself. A study by John B. Loomis and Douglas s. White (1996) illustrates this well. Loomis and White perform a meta-analysis of 20 studies from the United States, obtained either through databases or directly from CV researchers. These studies include 18 species, both marine, mammal and avian. The authors find that the variation in WTP is explained partly by the characteristics of the species in question, the current population size and the magnitude of the proposed preservation project, as well as factors such as form of payment (one-time or annual) and whether the respondent finds use or non-use value in the species. With every 1% increase in population, WTP increases within a range of 0,769-0,803. This means that WTP increases at a decreasing rate, as is suggested by economic theory. However, Tisdell, Nantha and Wilson (2006) have raised some queries concerning these findings, particularly regarding its usefulness when population size goes in the opposite direction. It is found that when population size decrease, that is when a species become more endangered, the stated WTP for its conservation rises. This contradicts the findings in Loomis' and White's paper, and may be due to the way the studies in the meta analysis are constructed. They are mainly focusing on increases in population sizes, and were not constructed to measure WTP responses when changes happen in the opposite direction. Jacobsen, Lundhede and Thorsen (2011) also present findings that in part contradict the findings by Loomis and White. In their study concerning what happens to WTP when the scenario is no longer about a species' survival, but the increase of an animal population beyond existence level, they find that economic theory cannot predict the behaviors of all respondents. They state that respondents can be divided into three groups. The first group expresses a significant WTP for saving endangered species, but no positive WTP for higher population levels, which indicates that the dominating motivation for their valuation is existence values. The second group put equal weight on moderate and high increases in population levels, thus appearing to

be insensitive to scope. The third group prefers moderate increases over high increases in at least one of the wildlife attributes. This can be due to moral motivations or show cost concerns. Several studies have reported findings on this subject, and an overview is presented in below.

Paper ID	Species	Where	Population increase
1	20 species	USA	+
2	Elephants	Sri Lanka	-
3	Lynx	Poland	-
4	Elephants	Sri Lanka	+ and -*
5	24 species	Australia	-
6	Several species	Denmark	0**
7	Large carnivores	Sweden	-

1) Loomis & White (1996), 2) Bandara & Tisdell (2004), 3) Bartczak & Meyerehoff (2013), 4) Bandara & Tisdell (2005), 5) Tisdell *et al.* (2006), 6) Jacobsen *et al.* (2011), 7) Bostedt *et al.* (2007)

* Shows diminishing marginal utility ($0 < WTP < 1$) for use values when population increases. Non-use values predominant with population decreases, leading to increased WTP.

** One group showed positive WTP for survival, but no WTP for larger populations. Existence value

We see that most studies report of negative development in WTP as species rise above survival level. This means that decreasing marginal utility is not necessarily valid when it comes to wildlife conservation. People tend to put existence value of a species above the benefits reaped from larger populations of the same species.

Other findings by Loomis and White (2010) shows that respondents who have use values related to the species in question, also show higher WTP than those with only non-use values, in accordance with economic theory. It is found that the lowest annual WTP amounts are for species of fish (other than Pacific salmon, which is a species with great cultural impact in the United States), which ranges from \$6-8 in the studies evaluated. This suggests that inconspicuous species may incur lower WTP than better known species, a finding also contradicted by Tisdell, Nantha and Wilson (2006), whose paper is further discussed below. The highest willingness to pay has been reported for the Spotted Owl and its habitat, with an average across studies of \$70 and \$95 in the study with the highest amount. It is important to note however, that this WTP amount includes the habitat as well as the species itself. Economic theory suggests that this will result in a higher WTP than if asked for only the one species.

Tisdell, Nantha and Wilson (2006) have presented a paper contradicting certain findings from previous literature, as we have seen above. The authors look at the impact endangerment and likeability has on payments proposed of conservation. To do this, they use data from the IUCN Red List, and data on likeability and fund allocation obtained from two serial surveys from Australia. In these surveys, a sample of the general public were asked about 24 Australian wildlife species. Between the two surveys, respondents were provided with extra information on some focal species in order to test the differences in results. It was found that endangerment is the major influence when respondents propose allocation of funding for conservation. Further, the study finds that likeability does not function as a major influence, contradicting the notion in earlier literature (Loomis&White 2010). Following from this, one can assume that accurate information about conservation status is important when assessing the public's willingness to pay for conservation projects.

Several studies have suggested that environmental and ethical beliefs are related to WTP for environmental improvements (Stevens *et al.* 1991 and Spash&Hanley 1995). This suggests that non-use values play an important role in valuing wildlife and habitats. Ojea and Loureiro (2007) measure the importance of general attitudes and ethical beliefs towards preservation in willingness to pay estimates. The authors ask respondents to rate a series of statements on a Likert scale. These statements represent different value orientations, namely egoistic, altruistic and biospheric. Afterwards, these findings are compared with the stated willingness to pay values for the conservation of a critically endangered bird species. It is found that the egoistic value orientations are significant in affecting WTP. However, somewhat surprisingly, it is found that the altruistic orientation, that is the consideration of the impact on other people, is even more important when stating WTP.

3.2 Predator attitudes and conservation

When it comes to large carnivores, and the wolf in particular, it can be argued that we are no longer talking strictly about a *public good*. Bostedt (1998) calls the wolf «both a public good and a public bad», with regards to the economic losses it can inflict in the areas where it exists. While we have seen that for wildlife species in general, use- values, or a broader defined «personal experience» carries a positive sign in valuation

literature, this may not be the case with carnivores. Ericsson and Heberlein (2003) finds that there are no relationship between positive experiences with the wolf and attitudes toward it, but there is such a relationship with negative experiences. This seems to be a trend in many attitudinal and contingent valuation studies regarding carnivores. The difference in signs between use and non-use values as well as education and age are compared between wildlife in general and carnivores specifically in table 1. We see that education and age act according to economic theory in the majority of the studies, but *use value/personal experience* shifts from a positive to a negative sign in studies regarding carnivores.

Paper ID	Species	Where	Non-use values	Personal experience	Education	Respondent age
1	Entire habitat, tropical river	Australia	NA	+	NA	NA
2	Meta- 20 species	USA	+	+	NA	NA
3	Urban songbirds	USA	NA	+	+	+
3	Urban songbirds	Germany	NA	+	-	+
4	Elephants	Sri Lanka	+	-*	+	-
5	Spotted Seal	South Korea		+	+	NA
6	Bears	Croatia	+	-	NA	NA
7	Lynx	Poland, Estonia, Lithuania	NA	-	NA	NA
8	Large carnivores*	Sweden	+	(-)	+	-
9	Wolves	Sweden	+	-	+	-
10	Large carnivores	Norway	+	-*	+	-
11	Large carnivores	Sweden	+	NA	+	-
12	Wolves	Sweden	+	-*	+	-
13	Carnivores	Sweden	+	-	+	-
14	Wolves	USA	+	-	NA	NA

Table 1: Impact on WTP and acceptability by different variables concerning respondents.

1)Zander *et al.* (2010), **2)**Loomis&White (1996), **3)**Clucas *et al.* (2014), **4)**Bandara&Tisdell (2004), **5)**Kim *et al.* (2005), **6)**Majic' *et al.* (2011), **7)**Balčiauskas *et al.* (2009), **8)**Bostedt *et al.* (2007),**9)**Ericsson&Heberlein (2002), **10)**Kleiven *et al.* (2003), **11)**Karlsson&Sjöström (2008), **12)**Broberg&Brännlund (2007), **13)**Brännlund *et al.* (2010), **14)**Chambers&Whitehead (2002)

*NR 5: It is assumed that personal experience in this case is the damage caused to farmers.

*NR 8: "large carnivores" in this table refers to the four species present in Scandinavia: bear, wolf, lynx and wolverine.

*NR 10: Less acceptability among rural residents and those who expect economic loss as a result.

*NR 12: Wolf area= more negative, Hunter wolf area=more negative, hunting dog owner wolf area=more negative

A good illustration to the point made in table 1, is Ericsson and Heberlein (2003). They perform a stratified attitudinal study in order to capture difference in attitudes towards wolves in different groups in society. They perform their study on four different sample groups: non-hunters residing outside wolf distribution areas, non-hunters living in wolf areas, hunters living outside wolf areas and finally hunters living in wolf areas. The authors find that while all groups supports the wolf's right to exist, the attitudes towards it differs between the samples. Respondents in areas where the wolf has been restored are generally more negative than the general population. Hunters in wolf areas have the most accurate information about wolves, but are also the most negative. In all groups more knowledge leads to a more positive attitude, but the hunters in wolf areas are still more negative than the least informed in the general public. For the non-hunting group living outside wolf areas, it is found that the wolf is rather unimportant, and one can say that the respondents do not care about it.

Kleiven, Bjerke and Kaltenborn (2003) look further into factors affecting social acceptability of carnivores. They undertake an attitudinal survey looking at different carnivore behaviors and ask respondents to relate to the scenarios. The scenarios include carnivores living in remote wilderness, living close to people, killing livestock, killing pets and posing threats to people. As would be expected, these five scenarios represent a scale from acceptable to less acceptable. In general, bears and wolves were less acceptable than lynx and wolverine on the «proximity to people» dimension. Those who expect an economic loss related to the presence of carnivores, shows a significant negativity compared to other respondents. Acceptance of carnivores close to home was positively related to some socio-economic factors such as education, while when the scenario was carnivores living in remote wilderness with little or no contact with humans, socio-economic variables plays a smaller role.

The valuation literature shows the same trends as the attitudinal studies presented above. Bostedt, Ericsson and Kindberg (2007) performed a contingent valuation study in

which the respondents are able to express uncertainty regarding their willingness to pay. The number used is the one they answer «definitely yes» to. Uncertainty proved to be consistent with a higher WTP amount, i.e. the respondents expressing a high level of uncertainty tended to state higher WTP. The authors find that the results of the study are mostly consistent with what is found in earlier literature. WTP is positively related to education and household income, and negatively related to age. However, they find that urban respondents are willing to pay more than rural residents, and discuss briefly the nature of this. The carnivores have their habitats in the rural landscape, but respondents generally have a lower education and income levels in the rural parts of the country, which can account for part of the differences. There might be a sign here of the same effect as described above however.

Karlson and Sjöström (2008) have looked at *use* and *non-use* values and their implications for the conservation of the four large carnivore species. They allow for both support and opposing of large carnivore conservation. The most important arguments in favor of conservations were «I want them to exist in Sweden, even if I never see any of them», «Sweden should share the responsibility of conserving the large carnivores» and «we owe it [*conservation of large carnivores*] to future generations». These findings are in agreement with those suggested by Ojea and Loureiro (2007), in that non-use values can be important variables when predicting attitudes towards and subsequently WTP for conservation. The authors found only small differences between rural and urban respondents. For those who opposed conservation, these differences were slightly larger. The main arguments against conservation were «They may have serious negative impact on livestock farming», «They may have serious negative impact on reindeer husbandry» and «May inflict suffering on injured livestock». One of the two least important reasons for opposing conservation was that there are viable populations in other countries, meaning that the respondents did not see this as a reason for populations not existing in Sweden as well. There seems to be less support for use values such as hunting, ecotourism or just seeing large carnivores. The authors conclude that this speaks in favor of keeping minimum viable population sizes as long-term management goals.

Common for all the studies above is that they have not allowed for negative WTP statements. In cases where this question has been handled, the authors have stated that

no-responses have been given a WTP of zero, when it in reality might have been negative. A study acknowledging this upward-bias is Broberg and Brännlund (2007). They perform a stratified contingent valuation analysis on the large carnivores in Sweden. They find that 50% of the Swedish population is willing to contribute financially towards implementation of a *predator policy package*, including among other things that the wolf population will initially increase from 58-72 animals to 200 animals. They find that the mean willingness to pay is SEK290, but significant differences are found across samples. Respondents from Stockholm states the highest willingness to pay, while respondents from wolf territories state the lowest. The authors note that their estimates are flawed with an upward bias in that they do not allow for negative WTP. Those stating clear negative attitudes to the predator policy package simply gets a WTP of zero, while in reality it could turn out to be negative. Allowing for negative WTP has been done by Macmillan *et al.* (2001) when estimating WTP for reintroducing the wolf in two areas in Scotland. The authors in this paper finds that when allowing for negative WTP, the mean and median WTP decreases, and in some cases also turn negative.

The *urban-rural* dimension is, as argued above, in many cases a *use-nonuse* dimension as well. These two dimensions most of the times coincide when it comes to carnivore studies. However, it is not just regarding carnivores we find differences in preferences in these dimensions. Bandara and Tisdell (2004) performs a contingent valuation study on the conservation of the Asian elephant on a sample of urban residents in the capital of Sri Lanka. The Asian elephant is one of the most seriously endangered species of large mammal, and exists only in small populations in 13 Asian countries. The elephants cause damage on farmlands, and are therefore a considerable threat to farmer's livelihood. In this study, personal experience (use value) will have a negative sign, in that elephants live in the rural landscape and cause damage to farmlands. Those residing in rural areas are kept as objectives in this study, which samples only in urban areas. The authors investigate whether urban resident's willingness to pay for the conservation of elephants is high enough to compensate farmers in the relevant areas for the losses incurred by them. It is found that the annual benefit enjoyed by urban residents through the existence of elephants in Sri Lanka (Rs. 2012.43 million) is nearly twice the extent of crop and property damage caused to farmers (Rs. 1121.42 million). This means that the policy of compensating farmers in order to make them more tolerant towards elephants

might be a good solution. This study provides an interesting case towards a view that be used in further research with regards to other species acting as both *public goods* and *public bads*. It is also found that as the elephant population decreases, the stated WTP for their conservation increases.

The attitudes and valuation of the wolf and other large carnivores is relatively well researched in Sweden. We view this literature more relevant than American literature on the same subject, as the situation in Norway is arguably more comparable with Sweden than with the USA. A study confirming this suggestion is Kränge *et al.* (2012). This study compares attitudes towards large carnivores among respondents in Norway and Sweden. In general terms the attitudes are very similar. The authors state that the same tendencies are seen across the two countries. There is acceptance for large carnivores in both countries, but with a more negative attitude within the management zones than outside them. Traces of a possible *not in my backyard* effect can be seen in all samples. Population target levels of the different species enjoy general acceptance in both countries, but the Swedish respondents may be more loyal to their country's management program. There is on the other hand a sharper distinction between urban and rural samples in the Swedish surveys. The authors construct a model based on the findings which depict a person who is most likely to be positive towards carnivores: a young person with high education, who does not believe there are wolves where he/she lives, who is not afraid to meet wolves in the wild, is skeptical towards hunting and has not participated in the activity in the last 5 years, and who thinks that more nature areas should be protected, enhancing the view presented above that non-use values are dominant in positive valuation of the large carnivores.

4.0 Theory

When we exploit natural resources, there will typically be an environmental cost to this action. An example of this can be damming a river for electricity production. As an effect of the risen water levels, recreational values related to the river valley might be lost, and the river's wildlife might be negatively affected. It is shown that fish species can suffer from the low water flows beneath the dam, and the dam wall itself can block fish migration in the river. Thus, damming of rivers can cause large negative effects on fish populations (Park *et al.* 2003). Common for many kinds of environmental goods is that, because they are public goods, we are usually not able to look to the market in order to find the value that society puts on them (Perman *et al.* 2011). Unlike the electricity produced by the dam, which is sold in the market place and thus has a price attached to it, the value of a scenic river valley, or of the existence of fish in the river cannot be found directly. Even in cases where we are able to derive demand curves for an environmental good, for instance by charging admission fees to recreational sites that previously were free, we are oftentimes understating their value because we are not capturing all the ways in which people benefit from them (Perman *et al.* 2011).

The main motivation from environmental valuation is to include environmental factors in cost-benefit analyses (Perman *et al.* 2011). It could be argued that a cost-benefit analysis regarding the construction of sports fields in a popular urban hiking area without taking into account the value put of the recreational benefits would understate the economic cost of the project. Another purpose of environmental valuation is to determine appropriate levels for environmental taxes and pollution control standards (Perman *et al.* 2011). In Norway, diesel cars have received attention because they contribute to pollution on a local level (Nyeggen 2011). An environmental tax put on diesel fuel would decrease the demand for diesel and diesel cars, thus contributing to fight local pollution levels.

If we focus on consumer theory, the essence in environmental valuation is to convert environmental factors into goods and services which are used by households, and thus can be expressed in their utility functions (Perman *et al.* 2011). After this, we can apply consumer theory to assign monetary values to the goods and services that the

environment provides.

4.1 The concept of total economic value (TEV)

Environmental goods can provide value to an individual through other means than just direct consumption, challenging our traditional definition of value. A broader definition called total economic value (TEV) recognizes two primary sources of value that one can derive from the environment. These are known as «use values» and «non-use values» (Perman *et al.* 2011). Non-use values refer to benefits derived from a resource without using, or intending to use it (Perman *et al.* 2011). A good example of this is the benefit derived from the knowledge of the continued existence of an animal species, based simply on the notion that all species have a right to the earth. This is often referred to as *existence value*. Another significant category is *altruistic value*, which refers to the value an individual derives from satisfaction that other people obtain from using a resource (Perman *et al.* 2011).

Use values are further divided into consumptive and non-consumptive uses (Perman *et al.* 2011). Typical consumptive uses of Norwegian forests include harvesting of timber, picking berries, hunting and fishing. Consumptive use means that the good in question is destroyed in the act of using it, making it a so called rivalrous good (Perman *et al.* 2011). Two hunters cannot eat the same animal, and the same tree cannot be harvested twice. It is often possible to find these goods in the market place, and therefore it is often easy to put value on them.

Non-consumptive use is when the good is not destroyed in the act of using it, and might very well be non-rivalrous. Many kinds of recreational uses of nature, such as hiking, canoeing and nature photography are examples of non-consumptive uses. However, also indirect benefits such as watching documentaries and reading books about an environmental good is included in the term non-consumptive use (Perman *et al.* 2011). Since it is often impossible to prevent individuals from enjoying these benefits, we have to use non-market valuation techniques in order to attach a value to these goods.

While the different parts of TEV are not typically measured separately, there is a

distinction between use and non-use values. While so called *stated preference* approaches to non-market valuation can measure both use and non-use values, *revealed preference* methods can only measure use values since non-use value cannot be measured from observed behavior (Perman *et al.* 2011).

4.2 The theory of environmental valuation

A necessary assumption for the process of deriving monetary measures of the utility change associated with a change in quality or quantity of an environmental good is that this quality or quantity can be treated as an argument in a well-behaved utility function (Perman *et al.* 2011). If we let e represent an environmental good and y represent income (or spending on a composite good), the utility u of the individual is given by the individual utility function $u = u(y, e)$. We further assume that the individual cannot adjust his consumption level of e .

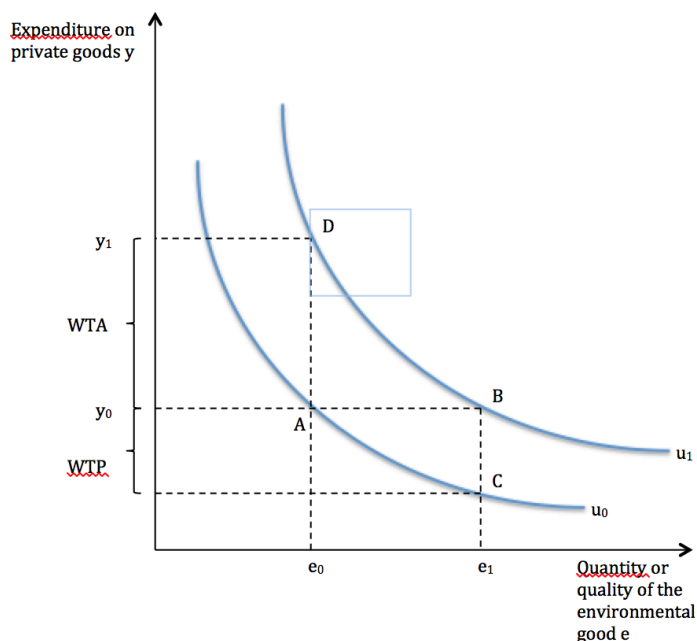


Figure 1: (Perman *et al.* 2011) represents the preferences of a given individual. The vertical axis measures the individual's income y , or equivalently the quantity of some regular composite commodity, whose price is normalized at unity, and the horizontal axis measures e . The utility u of the individual is given by the indirect utility function $u = u(y, e)$.

The two indifference curves u_0 and u_1 identify the combinations of the composite good and the environmental good between which the individual is indifferent. If we assume that

the quantity of the environmental good increases from e_0 to e_1 , what happens to the utility of the individual? If we assume that the individual was at point A initially at the indifference curve u_0 , we see that he would now be at point C on the same curve. At point C the individual can enjoy e_1 of the environmental good but his income is reduced by the amount BC to stay at the same indifference curve. From this we can conclude that his maximum willingness to pay (WTP) for the increase in the level of environmental good would be BC. This also corresponds to the concept of compensating surplus (CS) for the increase in the level of the environmental good from e_0 to e_1 (Perman *et al.* 2011). The same way of thinking can be applied in the opposite direction, measuring an individual's willingness to accept (WTA) for a lower quantity of an environmental good.

4.3 Empirical valuation techniques

4.3.1 Contingent valuation

In this study we use contingent valuation (CV), which is a survey-based valuation technique. This means that we ask a representative sample of the population questions about their willingness to pay for environmental goods (Perman *et al.* 2011). Contingent valuation is the most well-known stated preference technique, and has been conducted in many countries and in many different contexts (Perman *et al.* 2011). Examples of applications include measuring benefits of outdoor recreation opportunities and measuring the preservation benefits of wilderness areas (Perman *et al.* 2011).

Generally, the construction and conducting of a contingent valuation study follows the same fundamental process (based on Perman *et al.* 2011):

- 1) Creating a survey instrument (i.e. Questionnaire). This can itself be broken down into a number of tasks, including
 - (a) identifying possible uses of and attitudes towards the environmental good in question,
 - (b) constructing the hypothetical scenario,
 - (c) deciding whether to ask about WTP or WTA,
 - (d) determining an appropriate payment vehicle,

- (e) selecting an appropriate elicitation method, and
 - (f) collecting auxiliary information about the respondent.
- 2) Choosing an appropriate survey technique.
 - 3) Identifying the population of interest and developing a sampling strategy.
 - 4) Analyzing the responses of the survey.
 - 5) Aggregating the WTP or WTA over the population of interest.
 - 6) Evaluating *ex post* the success (or otherwise) of the CV exercise.

4.3.2 Creating the survey instrument

A contingent valuation study can be performed in many ways, and by using many different methods. In the following, we present one possible way to create and perform such a study with focus on the specific methods we employed.

The CV study can start out by mapping the respondent's attitudes towards relevant environmental goods, as well as, where applicable, their use of the environmental good in question. Further, the respondents can be asked to choose environmental problems that most concern them, and to relate to a series of statements relevant to the studies. These introductory questions are created in order to generate a series of variables towards which the WTP data obtained in the survey can be measured (Perman *et al.* 2011). In other words, we want to find out whether the respondent's stated WTP has a basis in his interests, attitudes and beliefs. For example, it would be natural to assume that a person who «strongly agrees» that carnivores are an essential part of our ecosystem would be willing to pay more for their existence than a person who disagrees.

The next part of the survey will describe the environmental problem in detail (Perman *et al.* 2011). A study aiming to value the preservation of a particular species might include a presentation of the species itself, its historical and present distribution as well as a presentation of the dangers facing it (loss of habitat, climate changes etc.). It has also been shown that a photograph of the species might help respondents relate more to the case (Perman *et al.* 2011). It is important that the information provided is tailored so that a regular respondent without any specific interests or competence of the subject is able to understand it (Perman *et al.* 2011). This includes avoiding difficult terminology,

and quite possibly angling the impacts towards consequences the respondents are able to observe and relate to.

When the environmental good has been presented, the next step is the main part of the survey. Here, a project is introduced through which benefits will increase through an improvement in either quality or quantity of the environmental good (Perman *et al.* 2011). The project must be well-defined and credible in order for the respondents to understand and accept its premise. This includes explanation of precisely how the change is engendered (Perman *et al.* 2011). Relating to the threatened species mentioned above, this might be initiating a breeding program or establishing a nature reserve. As mentioned above, it is important to make this information accessible. The survey should explain what difference the project proposed would make to the respondent (Perman *et al.* 2011). An example of this is the salmon louse (*Lepeophtheirus salmonis*), a parasitic creature living on salmon. In order to understand the dangers that this parasite represents, it might be beneficial to describe the situation in terms of the consequences for recreational fishing.

The payment vehicle in the questionnaire is how we ask the respondent about his or her willingness to pay for the project introduced. The payment is hypothetical, and a typical vehicle in many surveys involves increasing local or national taxes (Perman *et al.* 2011). The choice of payment vehicle can be difficult to present credibly for the respondent, and studies show that the choice of payment vehicle alters willingness to pay (Perman *et al.* 2011). Payment can be either a one-off payment or a recurrent charge, say annually. An important factor is that the payment vehicle chosen must be relevant for all household in the population of interest (Perman *et al.* 2011). As an example, if conducting a survey regarding the breeding project for the arctic fox (*Vulpes lagopus*) currently being undertaken in Norway, one should not use an increase in the annual hunter's fee as a payment vehicle, since non-hunters probably also hold non-use values for the continued existence of the arctic fox.

Follow-up questions following the WTP questions are used in order to find information on the underlying motives about the responses. Those who agrees to pay are asked why, and those who refuse are also asked for an explanation. «Protest bids» are a problem in

CV surveys, and these follow-up questions can be used to identify such bids (Perman *et al.* 2011). A protest bid is a bid placed (or the refusal of payment) due to some aspect not concerned by the survey (Perman *et al.* 2011). If, for instance, tax is used as a payment vehicle, a response that states that «I oppose increased taxes since they will not be used for this purpose anyway» is a protest bid and should be removed from the post- survey analysis. It is important to note however, that many respondents will state a WTP of zero for many valid reasons. Not being willing to pay is not automatically a protest vote. Follow-up questions can identify issues on the other end of the spectrum as well. Those who states a WTP without considering their budget, or who indicates that the amount they are willing to pay is for some cause irrelevant to the survey, are also problematic responses. A survey asking about willingness to pay for a specific preservation project for the arctic fox, can receive responses saying that the amount stated is for all Norwegian species preservation projects. This is no longer a value on the subject the survey was aiming at, and should therefore be removed.

After the WTP questions, the survey ends by collecting demographic and socioeconomic information about the respondents, such as age, gender, educational level, household income and composition as well as other factors that can potentially explain variation in respondent WTP such as membership of environmental organizations (Perman *et al.* 2011).

4.3.3 Important factors in the construction of the survey

Before asking respondents to state their willingness to pay, a good CV survey will remind respondents about their household income constraint and ask them to keep in mind that the amount they are willing to pay for this project will negatively affect their spending on some other areas (Perman *et al.* 2011). Further, the respondents should be reminded of the existence of substitute goods, which in this context can mean that even though river A gets dammed, other rivers nearby will still be left untouched.

The elicitation method, the way in which we obtain the WTP level from the respondents, can vary. Single-bounded dichotomous choice referendum-type question is by many viewed as the «gold standard» for contingent valuation studies according to Perman *et*

al. (2011). This method presents the respondents with a hypothetical referendum which determines whether or not an environmental project is to be carried through. If passed, the project would incur a cost per household. Instead of giving each respondent the option to choose his or her WTP, the questionnaire includes a yes or no question about one amount, and instead spread different sums across all the different respondents (*Perman et al. 2011*). This means that one group of respondents get asked whether they are willing to pay NOK100 for the project, while others get asked the same question about NOK500 and so forth. In order to find the correct level WTP level for the final survey, a pilot survey should be run prior to the main survey taking place. The main advantages of this elicitation method is that it is easy for the respondents to understand, and it is generally thought to be incentive compatible. This means that it is in the interest of the respondent to answer truthfully, and not to manipulate their response (*Perman et al. 2011*). However, due to the nature of the method, a large number of respondents is required in order to get good results, making it costly.

Payment cards is the elicitation method chosen in this survey. Payment card surveys present the respondent with different monetary amounts, and asks him or her to choose the sum he or she are willing to pay. This method is also popular due to the ease with which the respondents understand the premise. A critique is that the values stated by the researchers have an impact on the answers received (*Perman et al. 2011*).

4.3.4 Sampling

Proper sampling is essential for a good contingent valuation survey. Without good sampling, the results of the study are useless. In order to obtain a good sample, we need to identify what the population we are considering is. In this context, we are looking for the group who are likely to be affected by a change in quantity or quality of the environmental good in question (*Perman et al. 2011*). For a project where we only consider use values, as with the sports fields mentioned earlier, the population from which to draw a sample is quite easily defined. However, when it comes to the damming of rivers or preserving the arctic fox, non-use values are likely to be considerable, and would normally require researchers to sample from a much larger population.

The required sample size depends on several factors, such as the statistical precision required from the study, as well as financial considerations (Perman *et al.* 2011). Surveys can be costly, and a weigh off needs to be taken against costs and precision according to the aim of the study. Other factors that affect required sample size are samples with a high number of refusals, or when the sample is split between two target groups in order to observe different preferences (Perman *et al.* 2011).

An overshadowing factor after population is identified and scope of study is determined, is to make sure that the sample collected is actually representative of the target population. This can be achieved by comparing the characteristics of the sample with the characteristics of the population as a whole (Perman *et al.* 2011).

4.3.4 Analyzing and aggregating the results

When the results from a CV survey are collected, the next step is to analyze the data in order to determine statistics of interest (Perman *et al.* 2011). This usually starts with mean or median WTP, which for payment card surveys are straight- forward to obtain. It is important however, to take protest bids into account when finding mean WTP, as these can affect the mean considerably.

5.0 Method

5.1 Creating the survey instrument

We have created a payment card survey looking at the relationship between use of nature and attitudes towards the wolf in Norway, which a specific focus on the hunting population. The survey itself was created with the online tools provided by Surveymonkey.com.

5.1.1 Construction of the survey

The questionnaire starts out by letting the respondents choose up to 2 different political subjects which should be prioritized in governmental budgets. This is done in order to identify those with special interests towards the subjects relevant in this survey, as well as being able to check correlation between any other political views and WTP. Further, the same is done when respondents are asked to choose up to 2 resource- political focus areas that are important to them. We formulate these statements so that we are able to identify preferences on several relevant dimensions:

Preferences for large scale/global environmental action

- Reduce emissions of greenhouse gasses
- Reduce Norwegian oil and gas extraction

Preferences for local environmental action

- Reduce local air pollution
- Increase construction of renewable energy like wind power and small scale hydroelectric energy production.

Preferences for agricultural practices

- Increase Norwegian self- sufficiency of food
- Protect the country's agricultural areas

Preferences for nature concerns

- Increased funding for conservation of Norwegian natural areas
- Conservation of threatened plant- and animal species
- Avoid nature encroachment like electricity pylons ("høyspentmaster")

We want to identify these preferences in order to be able to categorize respondents into

different types, and to see whether any particular focus will have explanatory power towards attitudes and willingness to pay towards the wolf. We believe that preferences for *large scale environmental action* and *nature concerns* will have a positive sign on the WTP, and that preferences for *agricultural practices* will have a negative sign on the WTP. The results of preferences are showed in figure 5. Note that each respondent may have revealed preferences in up to two dimensions.

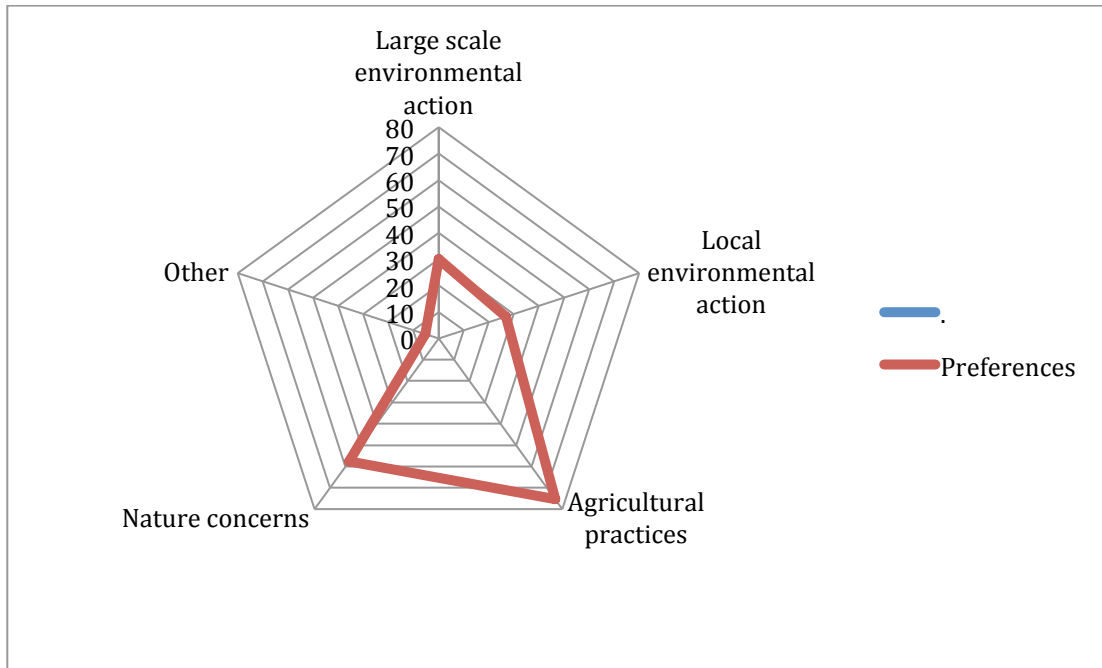


Figure 5: Preferences for resource-political focuses.

In order to map more clearly the preferences towards nature and the use of it, we asked the respondents to assess a set of 6 statements on a Likert scale (Ojea&Loureiro2007), where 1 is “strongly disagree” and 5 is “strongly agree”. This is done to more clearly be able to check for correlations between specific attitudes and WTP, specifically *use* and *non-use values*. The results are presented with weighted averages in figure 2.

	Weighted average
Norwegian nature is vulnerable, and we should increase our consciousness around its conservation	4.25
Public access to forests and mountains are important to maintain	4.75
It is more important to protect larger national parks like Jotunheimen and Rondane than the smaller areas closer to the cities.	3.18
Reforestation as a consequence of decreasing livestock grazing is worrying development	4.03
Hiking and other activities in nature should be restricted in animals birthing periods	2.87
Large carnivores are necessary for maintaining the balance in nature	2.92

Table 2: Attitudes towards nature and its use.

The use, or at least the opportunity, of nature is important. We note that statements relating to use values receive the strongest opinions in both directions. The statement that *public access to nature is important* has a weighed average of 4.75, and 95.22% of respondents “partly agree” or “strongly agree”. The statement that *hiking should be restricted* in the period of the year when wildlife is at its most vulnerable, receives the score of 2.87, and 40.44% of respondents are “partly disagree” or “strongly disagree”.

Before presenting the scenarios where we ask respondents for their willingness to pay, we describe the environmental commodity in question, the grey wolf (*Canis lupus*). Special care is put on its geographical distribution and population numbers, as well as the impact the species has on its surroundings. As the wolf can arguably be categorized as a well-known and

well-defined commodity to the general respondent, we did not find it necessary to include a picture. The presentation is translated and reproduced below:

Please read the following information before proceeding to the next questions:

The wolf is a canine predatory mammal. It usually reaches a shoulder height of 70-80cm, and the Norwegian subspecies has an average weight of 40 kilograms.

At one point, the wolf had the widest distribution area of all mammals, but from the 19th century and well into the 20th century, it has been eradicated from many areas. Today, the wolf is reintroduced into many parts of its previous distribution area. Today the global population counts 150 000 – 200 000 individuals, with the largest ones found in Canada and Russia. In Europe, the population is estimated to 55 000 – 70 000 individuals, of which the majority is found in Russia.

The wolf was practically speaking eradicated in Scandinavia in the 1960's. The population we see today is of Finno-Russian origin and established in

South- Scandinavia in the beginning of the 1980's. In the winter of 2013/2014, 66-67 wolf pairs and packs were registered in the same region, and the population counts around 400 individuals in total.

In the winter 2014/2015 is was registered 34-36 wolves living exclusively in Norway, and a total of 73-75 wolves if we count individuals who lives on both sides of the Norwegian-Swedish border. The Scandinavian population feeds primarily on moose, and one pair or pack kills 100-144 moose annually.

Today's conservation policy entails a so- called population target, which means an expressed goal from the authorities that 3 broods is to be born annually inside the *management zone for breeding wolves*, normally called the *wolf zone*.

Outside this *wolf zone*, which includes parts of Hedmark, Østfold, Oslo and Akershus counties, there shall not be reproducing wolves.

The first scenario we present is given to all respondents. This scenario is continuing the wolf management policy that is currently being run. This means a target of 3 annual litters within the management zone. It is stated that the wolf populations incur costs on society, both in form of damages to livestock, but also in research and control of the populations. The payment vehicle we choose is the creation of a wolf management fund, which will be funded through increase in taxes the next four years. This is chosen because of the political system in Norway, where parliament elections take place every four years. In addition to letting respondents choose zero WTP as well as positive WTP, we also allow for expression of negative WTP through the option *I would be willing to pay for a reduction of the Norwegian wolf population*. The answer to this initial question decides which question will be asked next. A WTP of zero ends the question sequence, and the respondent is next asked to fill out the demographic variables.

A positive WTP sends the respondent to one of two scenarios:

- The first one is a scenario where the population target is increased and changed from a *reproduction target* to a *population target*. Instead of having a target number of litters, we introduce a target number of family groups. 15-20 family groups is the target, at least 15 of which shall in its entirety be within Norway. This means a population of 150 – 200 wolves in Norway. The motivation for this scenario is a suggestion by several environmental organizations, including the World Wildlife Fund (wwf.no 2014). The payment vehicle remains the same.
- The second scenario is presented where the authorities suggest a referendum regarding establishing a wolf territory in the respondent's proximity. The scenario is presented to the respondent as "*it can be assumed that this decision will lead to a significantly increased opportunity of meeting wolves in all nature areas close to you*". Respondents are asked what their answer would be in this hypothetical referendum, and those who answer *yes* to the establishment of a wolf territory, is asked for their willingness to pay for this.

An expression of negative WTP leads the respondent to a scenario where it is suggested to eradicate the wolf from Norway. It is stated that this policy incur costs on society through increased control needs regarding new wolves coming from populations in Sweden. The

payment vehicle remains an increased tax in the next four- year period. Respondents are asked for their WTP for this scenario.

Regardless of stated WTP, respondents are asked for motivations for their choices, both in order to map attitudes, but also to identify protest bids.

Our survey ends with a series of demographic and socioeconomic questions.

5.1.2 Elicitation method

We chose payment cards as the elicitation method for our survey. We did this partly in an effort to present a simple and easy-to-comprehend format of questioning to our respondents. The other main reason was an evaluation of our expected sample size. Payment cards will work better for the smaller sample size we have in our study than will other, otherwise possibly better, elicitation methods like dichotomous choice referendums.

5.1.3. Sampling

Proper sampling is one of the essentials in a good contingent valuation survey. We encountered some difficulties in our sampling process, in that the initial planning failed somewhat. The initial plan was to sample hunters from the Stavanger branch of the Norwegian hunting and fishing organization (Norges jeger- og fiskerforbund), and to reach respondents with general outdoor interests in two different spots (Rogaland and Oslo counties) through handout invitations to the web- based survey. As we were unable to get enough respondents through these channels, we chose to place invitations to the survey on two interest groups online- one for hunters and one for general outdoor enthusiasts and thus reached our goal of 200 responses from hunters and 100 responses from non-hunters. We discuss the implications of this choice at a later point.

5.2 Analyzing the results

When analyzing the results, we have used data both directly from SurveyMonkey.com, as well as run regressions using SPSS.

Most of the data were relatively straight-forward to adapt before running the regressions. In order to be able to analyze the full spectrum of WTP in one regression, we stacked the result of WTP for maintaining current population policy and WTP for removing the wolf population into a single column. The assumption here is that the WTP to remove the wolf equals a negative WTP for keeping the wolf. These numbers were in other words stacked with the regular number, but with a negative sign.

6.0 Results

6.1 Continuing the population management policy of today

	N	Minimum	Maximum	Mean	Std. deviation
WTP total	295	-10 000	10 000	-145.4983	3057.73679
WTP hunters	295	-10 000	10 000	-496.4252	2692.10264
WTP non-hunters	295	-400	10 000	350.3355	1244.60363

Table 3: Mean WTP for hunters and non-hunters.

We stratified the willingness to pay estimates in order to get separate results for hunters and non-hunters. Since the sample sizes are different for the two groups ($n=194$ and $n=101$), the total mean is not providing any relevant information.

Hunters show a negative willingness to pay, which means that the average hunter is willing to pay NOK496 for *removing the wolves from Norway*. Non-hunters show a mean WTP of NOK350 for *continuing the current management policy*.

When we look at the dimensions discussed in part 5, we see that preferences for *large scale environmental action* is the only dimension which proves significant for the full sample, with a $p\text{-value}=0,009$ for the full sample and $p\text{-value}=0,001$ for non-hunters.

Preferences for local level environmental action does not have any explanatory power in either of the samples.

Preferences for agricultural practices is significant in both the full sample ($p\text{-value}=0,005$) and hunter sample ($p\text{-value}=0,000$). It is, however, not significant in the non-hunter sample ($p\text{-value}=0,313$)

Preferences for nature concerns were only significant in the non-hunter sample ($p\text{-value}=0,032$), and not for the full sample ($p\text{-value}=0,667$).

The results are presented in table 4.

Preferences	Full sample		Non-hunters only		Hunters only	
	Significant	Sign	Significant	Sign	Significant	Sign
Large scale environmental action	Yes	+	Yes	+	Yes	+
Local level environmental action	No		No		No	
Agricultural practices	Yes	-	No		Yes	-
Nature concerns	No		Yes	+	No	

Table 4: Impact of preference dimensions on WTP

We ran further regressions in order to identify singular variables regarding characteristics of the respondent that affect the WTP. Based on the premise introduced earlier, we expected certain signs to show for different variables, which mostly turned out to fit. The results are presented in table 5.

Variable related to respondent	Expected sign	Revealed sign
Conservation is important	+	Not significant/+*
Education is important	+	+
Increased funds to conservation of Norwegian natural areas	+	Not significant/+*
Protection of endangered plant and animal species	+	Not significant/+*
It is more important to protect national parks like Jotunheimen than the smaller, more urban natural areas.	+	+
Active hiker	+	+
Hunter	-	-
Hunting with dogs	-	-

Table 5: Expected effects on different variables regarding the respondent.

*Not significant for entire sample. Significant when only non-hunters included

19.90% ($n=41$) hunters answered that they find conservation an important political focus area. When looking at the whole sample, the percentage of respondents naming conservation important, drops about 0,5%. In other words, hunters and other nature users find conservation equally important. However, it is apparent that conservation is not interpreted the same way between the two groups. While conservation is a good predictor ($p\text{-value}=0,025$) for a positive WTP for non-hunters, it turned out not to be significant for the full sample. This is somewhat to be expected, since it is natural to assume that hunters generally care about nature. For reasons explained, they also may show negative attitudes towards wolves, thus giving this discrepancy in the significance.

Protection of endangered plant and animal species is quite interesting when compared to the above variable. While almost 20% of hunters find conservation important, only 7.35% find protecting endangered species important. 17.65% of non-hunters found this point important, so the difference between the two groups is quite marked. It might be that this statement is interpreted as a quite loaded question by hunters, as it brings connotations of the on-going debate around carnivores to mind. It turns out to be a significant predictor for a positive WTP for non-hunters, while not significant for hunters.

The view of education as an important political subject is a proxy for education level. Education level turned out not to be significant in any of the regressions. However, the view that education is an important political focus turned out to be a significant predictor ($p\text{-value}=0,032$) for a positive WTP.

Respondents that found it *more important to protect national parks like Jotunheimen and Rondane than to protect smaller, more urban natural areas* also shows a positive WTP. This can be interpreted in the direction that people who shows that nature has non-use values to them, are more positive to wolves.

Active hikers are classified as anyone who performs one of the activities mentioned in the survey, *other than* walks in parks and urban areas, once a month or more often. This is also a significant predictor ($p\text{-value}=0,000$) for a positive WTP. This is according to our hypothesis, and follows the logic that a person who does not experience a potential

threat from the wolf, will see it mostly as a *public good*, and not experiencing the ambivalence related to it that certain other groups will.

Hunter and *hunter with dog* are both significant predictors for negative WTP, as would be expected. However, different kinds of hunting did turn out to have an impact on the attitudes. An initial hypothesis was that hunters who use dogs are more negative than hunters who do not. The reason for this is that it is this group who is most threatened by the reintroduction of the wolf. However, this relationship could not be proven in our data. Hunters without dogs, i.e. the hunters performing *big game hunting without dogs* ($p\text{-value}=0,016$) and *small game hunting* ($p\text{-value}=0,002$) *without dogs* both showed significant negative WTP. On the other hand, *bird hunting with dogs* turned out not to be a significant predictor ($p\text{-value}=0,103$) for negative WTP, as the only subgroup of hunters. One reason for this might be that the traditional bird hunting with dogs is well established in parts of the country where the wolf is very unlikely to get established.

When looking at geographical differences, we note that *non-hunter from the western parts of Norway* (Rogaland, Hordaland, Sogn og Fjordane, Møre og Romsdal) is a significant predictor ($p\text{-value}=0,002$) for positive WTP. *Non-hunter from the eastern parts of Norway* (Østfold, Akershus, Østfold, Hedmark) is *not* a significant predictor ($p\text{-value}=0,075$). It is natural to assume that the last group will have a more deliberate view of the wolf, given the geographical proximity. Since we are not seeing a significant variable here, we can assume more differing views of the wolf among non-hunters in this area.

113 respondents (38%) reported a positive WTP. The two most important attitudinal motivations for the WTP was:

1. *I am concerned with nature conservation independently of my own use* ($n=60$, 53%)
2. *I want nature to be as intact as possible* ($n=47$, 42%)

Both of these motivations can be argued to be expressions of non-use value. This is in accordance with what we have suggested, that non-use values are dominating in positive WTP responses.

89 respondents (30%) reported a WTP of zero. The most important attitudinal motivations for zero WTP was:

1. *The wolf is numerous in other countries, we do not need to pay in order to keep it in Norway (n=46, 49%)*
2. *I prefer another population management policy (n=41, 44%)*
3. *The wolf is not that important to me (n=26, 28%)*

The main stated reason for not being willing to pay, that the wolf is numerous in other countries, is interesting. These findings contradict those of Karlson and Sjöström (2008), where this was one of the least used reasons for opposing the Swedish wolf population. We do not have any good explanations as to why these findings contradict each other, but it is an interesting point to note, and perhaps to research further at a later point.

6.2 Eradicating the Norwegian wolf population

81 respondents reply that they are willing to pay in order to reduce the Norwegian wolf population. The follow-up question is how much they are willing to pay in order to eradicate the wolf population completely. Mean WTP is NOK2997.

71 respondents (88%) reported a positive WTP. The most important attitudinal motivations for the WTP was:

1. *I wish to preserve other wildlife in a controlled manner, and therefor do not want any wolves (n=47, 66%)*
2. *I want to preserve Norwegian agriculture, and feel that the wolf is incompatible with this (n=45, 63%)*
3. *The wolf impacts outdoor activities negatively, and I therefore do not want wolves in Norway (n=33, 46%)*

The number of zero WTP ($n=10$) was very small, but 6 and 3 responded *the government should pay for such a policy, not the public and I do not want to contribute to removing the wolf completely*, respectively.

A majority of the ones willing to pay to remove the wolf population are hunters. Their perspective reflects their reported motivations for the stated WTP. The wolf impacts other animals on a local level, and this may be seen as a threat to many hunters. The wolves and hunters “compete” for the same prey. One further reason regarding point 1 above, is that the wolf predominantly feed on calves of larger game species, as these are the easiest and most economic to kill. This may lead to a slower growth in the big game population than what was the case with no wolves. This might lead to temporary “over hunting” due to quotas larger than they should have been, resulting in a crack in the population on a local level. Regards for agriculture is typical among hunters, making it natural to see many reporting this as an important reason. Point 3 is probably largely related to hunting as already discussed.

6.3 Increasing the wolf population

69 respondents were asked this question as a result of reporting a positive WTP on the initial conservation question. Mean WTP is NOK948.

56 respondents (81%) reported a positive WTP. The main attitudinal motivations for the WTP was exactly the same as for the initial question, strengthening the assumption that non-use values dominate.

Only a small number ($n=13$) report a WTP of zero. The motivations *the wolf population is already large enough* and *the wolf is numerous in other countries* are both reported by 6 respondents.

6.4 Establishing a wolf territory close to you.

54 respondents were asked this question as a result of reporting a positive WTP on the initial conservation question. Mean WTP is NOK722

31 respondents (55%) answered *yes* to the question whether or not they would be positive to getting a wolf territory close to where they live.

10 answered *no*

13 answered *don't know or unsure*

This is a small sample, with only 31 respondents stating a positive WTP. Their attitudinal motivations are:

1. *I want nature to be as intact as possible (n=14, 52%)*
2. *I am concerned with nature conservation independently of my own use (n=11, 41%)*
3. *I want to be able to see wolves on my hiking trips (n=9, 33%)*

Non-use values continue to dominate, but 33% of those positive of wolves in their proximity state that they want to be able to see wolves themselves. This is a very small sample, so we are careful to draw any conclusions from this. However, it is apparent that use values are of importance for some.

6.5 Use and non-use values

We see that mean WTP are higher in both *increasing population* and *establishing a wolf territory in your area* than it was in the initial question. One of the reasons for this is naturally that this question is only given to those stating a positive WTP for continuing the current management policy, meaning that they have positive attitudes towards wolves. Thus, comparing these to WTP amounts with the first one is not possible. This means that we regretfully cannot get a good picture of any effects of scope sensitivity. However, it can be interesting to note that the mean WTP is higher for a significant increase in the wolf population when this increase is not linked to a specific geographical area (NOK948), than it is for when it is clear that the wolf will get established close to the respondent (NOK722). Furthermore, 81% of the respondents stated a positive WTP for an increase in the wolf population, while only 55% did the same for the getting the wolf close to home.

Going back to the question of continuing the current population management policy, we see that the majority of those reporting a positive WTP state motivations that arguably can be viewed as non-use values. The two groups in society that gets most directly affected by the wolf, hunters and farmers, are almost exclusively linked to negative WTP.

It is no clear conclusion, but we do suggest that ours support the findings in previous studies as well: Positive attitudes towards large predators are linked to individuals predominantly motivated by non-use values, while use- values or experience probably will lead to more negative attitudes. This is presented in table 6.

Variables relating values	Expected sign	Revealed sign
Use value	-	-
Non-use value	+	+

Table 6: Suggested effects of use and non-use values on attitudes towards the wolf.

7.0 Discussion regarding the survey

7.1 Sample

Our goal was to get a good sample of the hunting population. In order to get a sufficient amount of responses, we chose to post the invitation to our survey on an interest group for hunters online. There are several possible pitfalls in doing this, and we will assess them here.

According to Perman *et al.* (2011), it is important to make sure that the sample collected is actually representative of the target population. One way of doing this is to compare the characteristics of the sample with the population as a whole. We have compared our *hunter* sample with data on hunters from Statistics Norway:

SSB.no:

	Number of persons	Percentage
Persons who paid annual hunter's fee	199 268	100.0
Male	184 118	92.4
Female	15 150	7.6

Table 7: Statistics of Norwegian hunters. Source: SSB.no

Our sample:

	Number of persons	Percentage
In total	194	100.0
Male	183	94.0
Female	11	6.0

Table 8: Data from our sample.

SSB.no:

	Number of persons	Percentage
Under 20 years old	8 399	4.23
20-29 years old	27 521	13.86
30-39 years old	35 142	17.70
40-49 years old	46 228	23.28
50-59 years old	39 932	20.10
60-69 years	29 072	14.64
70 years and older	12 320	6.20
In total	198 569	100.0

Table 9: Statistics on age distribution in Norwegian hunters. Source: SSB.no

Our sample:

	Number or persons	Percentage
Up to 21 years old	14	7.22
22-29 years old	40	20.62
30- 39 years old	59	30.41
40- 49 years old	49	25.26
50-59 years old	21	10.82
60-69 years old	10	5.15
Over 70 years old	1	0.52
In total	194	100.0

Table 10: Data on age distribution from our sample.

We would argue that our sample fits the target population relatively well. The low number of females is a problem, but it nevertheless fits quite well with the percentage of female hunters in the population as a whole. The age distribution is somewhat skewed in our sample compared to the target population. Respondents in the age group under 30 years old submit 27% of our answers, while in the target population only 18% belongs to this group. Part of the reason for this can possibly be that the survey is web-based, and a larger number of young people use the computer regularly than in other age groups.

The largest problem with our sample, is that we have a large percentage of very active hunters. 59% of our *hunter* respondents report that they hunt *several days a week*. This is not representative for the average hunter. We have not much good data on how active the average hunter is. The only number we have found is from Statistics Norway, where it is stated that the average grouse hunter hunts 5 days per season. One point to remember here is that grouse hunting is relatively unavailable, in that it usually requires extensive travel times in order to get to the hunting grounds. This will likely result in fewer hunting days for the average hunter. Further, grouse hunting is the most popular hunting form in Norway, attracting a large number of hunter annually. This will arguably lead to a larger number of hunters who only try it out once in a while, decreasing the average number of days. In our sample, we have a relatively large amount of roe deer and deer hunters. This hunting form is more readily available in that it often is performed closer to home. One will also assume a higher number of hunting days per shot in this hunting form. Both of these factors will contribute to increase number of hunting days annually for the average hunter. However, even with a doubling at 10 days per year, we are still far from the activity stated by our respondents. This is the largest

pitfall with going directly to an interest group with the survey. Those who are active in such groups, can naturally be assumed to be above-average interested in their hobby.

Our survey would also benefit from a larger sample of non-hunters. With about 100 respondents in this category, we would probably see clearer correlations between attitudes and WTP with larger samples. This is especially the case since we split the follow-up questions, leaving even smaller numbers of respondents to each question.

The reliability and validity of contingent valuation surveys defined across several dimensions:

7.2 Validity

Face validity

Face validity is a term linked to broader specters of the survey and its construction (Perman *et al.* 2011). Is there an unreasonably high number of protest bids? Are the environmental goods, suggested project or payment vehicle vaguely or poorly defined? Is the sample representative of the target population? Such questions regards the face value of the study, and are valid points to consider even though they are often subjective (Perman *et al.* 2011). Protest bids have been a problem for us in our study. We have removed those bids which are unquestionable protest bids due to comments added in the response, or due to stated motivations after giving WTP responses. However, since there are a high amount of very high bids without any other signs of being protest bids, we chose to keep these while we carried out our analysis. Perhaps is it the construction of the survey that has called for these high bids, or perhaps it is the subject that brings forth strong emotions. However, we should also keep in mind the findings of Loomis&White (2010), which points to the fact that people who have use values related to the good in question, shows higher willingness to pay. This can be part of an explanation as to why so many hunters show very high WTP to remove the wolf from Norway. In further work we would need to find a solution to this, in order to avoid bids deviating too much.

Theoretical validity

Theoretical validity can be assessed through a regression equation in order to ascertain whether various influences on respondent's WTP correspond to plausible expectations (Perman *et al.* 2011). For example should WTP decrease when distance to the good in question increases, and the WTP should be positively related to income and quantity of good provided. If the estimated parameters are consistent with economic theory and expectations, this should strengthen our confidence in its findings. However, if coefficients fail to show the expected signs, this suggests that the WTP responses are random and thus not able to give any valuable information (Perman *et al.* 2011). Our study shows that the respondent's WTP correspond to plausible expectations. We have discussed this thoroughly under each variable in the previous section.

Convergent validity

Convergent validity asks whether the results of the study coincide with those obtained by another valuation method (Perman *et al.* 2011). Naturally one cannot assume that converge with other studies automatically means that the result of a CV study is correct, but it may certainly strengthen its findings. However, it is important to keep in mind that Carson *et al.* (1996) found that CV estimates are on average lower than what is obtained by revealed preference studies. We argue that our findings converge well with other studies, both CV studies and attitude studies.

7.3 Biases

Contingent valuation is not uncontroversial. Several criticisms have been raised. Many potential biases have been described in the CV literature (Perman *et al.* 2011). One important bias is called *part-whole bias*, which means that the value put on a good is identical to the value for a more inclusive good (Perman *et al.* 2011). This problem has been mentioned indirectly several times in the theory section, and refers to the fact that respondents may include more than intended when evaluating their WTP, for example that they get asked for their willingness to pay for the preservation of the arctic fox but in reality state their willingness to pay for preservation of endangered species in

general. This bias is also known as insensitivity to scope (Perman *et al.* 2011). We removed one such response from our survey, where the respondent commented that his initial WTP amount should also include the scenario in the follow-up question. This is an example of having missed the importance of paying attention to the scenario, and in reality stating a WTP for something else or something more.

There are also several potential biases directly related to the elicitation method. Temporal embedding and starting point bias are good examples of this. Temporal embedding refers to a situation in which frequency of payment does not impact WTP. One would expect that a respondent would be willing to pay a higher one-time amount than an annual payment, but this has been found to not always be the case (Perman *et al.* 2011). Starting point bias is another bias related to the execution of the survey, and refers to the fact that the respondent may well use the amount first presented to him as an anchor when deciding his WTP (Perman *et al.* 2011). This can also be the case with payment card surveys, where the respondent is lead by the amount options given. Starting point bias is apparent in our study. Even though our payment form is closer to a one- time payment than to an annual payment in that we only ask for payment over a four-year period, we realize that the WTP amounts we have received are very high. Comparing WTP amounts across surveys are naturally not possible, but the discrepancy is so big that it is very apparent that we have offered sums that are too high. Although we maintain that the inner relationships within the WTP amounts stated by the respondents make this study useful in that it shows differences in attitudes across dimensions, *it is not a useful study for aggregation of WTP in order to find the benefit towards which to measure the costs.* We have therefore not included any aggregation of the numbers in our study. This is a reason why pilot surveys are very beneficial in contingent valuation studies. With a pilot survey we would have caught this, and presented lower payment cards in our main study.

Information bias is another important factor relating to CV studies. This is a case where the environmental good performs functions which the general respondent does not have the competence to understand properly, and where it may not be possible to explain fully in a survey situation (Perman *et al.* 2011). This means that respondents have a tendency to undervalue the environmental good since they do not appreciate the full

benefits it provides. This might also be the case in our study. The wolf's role in the eco system is not fully understood, particularly not in a scenario like the one we have in Scandinavia now, where wolves inhabit relatively fragmented wilderness areas with frequent interactions with humans.

8.0 Conclusion

We have shown that the attitude towards the wolf varies greatly among different parts of the public. Hunters, and those who value agriculture, are mostly negative in their attitudes, which is symbolized in the negative WTP displayed by these groups. General outdoor users and those who value a clean environment on a larger scale are positive, as are those non-hunters who value conservation.

We argue that our study shows, in convergence with previous studies, that positive attitudes towards the wolf and predators in general, is shown by individuals whose non-use values are dominating. When individuals gain personal experience, either through some form of direct contact or by having predators living close to one's home, the attitudes change towards becoming negative. Those who are most heavily impacted by predators show the most negative attitudes, which is why we see that hunters are predominantly willing to pay to eradicate the wolf population.

We also see that decreasing marginal utility might not seem to apply to wildlife conservation. People's willingness to pay increases when endangerment of the species in question increases. Thus, one might not see increased benefits and thus willingness to pay when letting populations grow above survival level.

This has possible implications for the future management policies. We have seen that the wolf is surrounded by controversy, due to its nature as both a *public good* and a *public bad*. Since it may appear as non-use values are the dominant benefits derived from it, it might be a possibility to keep the population at survival level in order to minimize costs incurred while still deriving the benefits from its existence.

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Figures:

Figure 1: Rovdata figures:

<http://www.rovdata.no/portals/Rovdata/LiveContent/7768/Images/ulv1314.jpg>

Collected 15.12.2014

Figure2: St. Meld nr. 15 (2003-2004)

Figure 3: Høgskolen i Hedmark 2014: *Ulv i Norge pr 15. april 2014 – foreløpige konklusjoner for vinteren 2013/2014*

Appendix

Regression results from SPSS

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	489.894	570.699		.858	1	(Constant)	.391
	enslig	-278.743	509.723	-.038	-.547		enslig	.585
	i parforhold	1247.453	661.424	.122	1.886		i parforhold	.060
	samboer	235.083	440.073	.036	.534		samboer	.594
	grunnskole	318.804	1018.099	.020	.313		grunnskole	.754
	videregående	284.482	582.007	.034	.489		videregående	.625
	fagbrev	-284.020	478.484	-.043	-.594		fagbrev	.553
	universitet 1-3 år	-74.887	507.554	-.010	-.148		universitet 1-3 år	.883
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.086	-1.385		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.167
	opptatt av landbruk	-1249.881	445.352	-.174	-2.807		opptatt av landbruk	.005

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	86.384	596.979		.145	1	(Constant)	.885
	enslig	-420.413	506.974	-.057	-.829		enslig	.408
	i parforhold	1128.077	663.797	.110	1.699		i parforhold	.090
	samboer	167.004	441.845	.025	.378		samboer	.706
	grunnskole	538.959	1024.836	.033	.526		grunnskole	.599
	videregående	344.097	591.246	.041	.582		videregående	.561
	fagbrev	-494.172	470.368	-.074	-1.051		fagbrev	.294
	universitet 1-3 år	-74.354	512.185	-.010	-.145		universitet 1-3 år	.885
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.089	-1.428		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.154
	opptatt av utdanning	888.353	413.203	.131	2.150		opptatt av utdanning	.032

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.
	B	Std. Error	Beta			
1 (Constant)	268.986	569.714		.472	1 (Constant)	.637
enslig	-210.536	535.623	-.027	-.393	enslig	.695
i parforhold	1621.517	669.592	.163	2.422	i parforhold	.016
samboer	401.295	446.719	.063	.898	samboer	.370
grunnskole	210.854	1019.283	.013	.207	grunnskole	.836
videregående	-381.767	600.129	-.044	-.636	videregående	.525
fagbrev	71.554	493.666	.011	.145	fagbrev	.885
universitet 1-3 år	100.880	512.886	.014	.197	universitet 1-3 år	.844
Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.000	.000	-.071	-1.114	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.266
løshundlandbruk	-3128.616	650.795	-.315	-4.807	løshundlandbruk	.000

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.
	B	Std. Error	Beta			
1 (Constant)	144.410	576.789		.250	1 (Constant)	.802
enslig	-231.956	509.523	-.031	-.455	enslig	.649
i parforhold	1144.107	658.002	.112	1.739	i parforhold	.083
samboer	266.907	439.335	.040	.608	samboer	.544
grunnskole	33.933	1022.222	.002	.033	grunnskole	.974
videregående	-54.168	580.777	-.006	-.093	videregående	.926
fagbrev	-598.257	463.676	-.090	-1.290	fagbrev	.198
universitet 1-3 år	-361.580	506.043	-.050	-.715	universitet 1-3 år	.476
Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.083	-1.342	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.181
vestlandikkejeger	1509.741	489.127	.187	3.087	vestlandikkejeger	.002

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.
	B	Std. Error	Beta			
1 (Constant)	179.906	593.438		.303	1 (Constant)	.762
enslig	-532.392	504.631	-.072	-1.055	enslig	.292
i parforhold	1239.835	668.769	.121	1.854	i parforhold	.065
samboer	144.520	443.050	.022	.326	samboer	.745
grunnskole	603.963	1031.038	.037	.586	grunnskole	.559
videregående	210.975	586.063	.025	.360	videregående	.719
fagbrev	-432.838	478.211	-.065	-.905	fagbrev	.366
universitet 1-3 år	-103.497	513.077	-.014	-.202	universitet 1-3 år	.840
Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.075	-1.190	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.235
østlandikkejeger	1255.932	701.861	.109	1.789	østlandikkejeger	.075

Coefficients^{**}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-144.207	582.278		-.248	1	(Constant)	.805
	enslig	-529.575	517.538	-.072	-1.023		enslig	.307
	i parforhold	1140.258	674.056	.111	1.692		i parforhold	.092
	samboer	170.133	447.946	.026	.380		samboer	.704
	grunnskole	1020.146	1030.035	.063	.990		grunnskole	.323
	videregående	731.950	585.711	.086	1.250		videregående	.212
	universitet 1-3 år	382.971	512.981	.053	.747		universitet 1-3 år	.456
	universitet over 3 år	599.990	471.708	.091	1.272		universitet over 3 år	.204
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.084	-1.342		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.181
	øktbevaring	-90.370	388.631	-.014	-.233		øktbevaring	.816

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	267.065	580.447		.460	1	(Constant)	.646
	enslig	-619.147	504.609	-.084	-1.227		enslig	.221
	i parforhold	1170.701	664.732	.114	1.761		i parforhold	.079
	samboer	96.018	443.251	.015	.217		samboer	.829
	grunnskole	521.522	1025.334	.032	.509		grunnskole	.611
	videregående	163.167	583.487	.019	.280		videregående	.780
	fagbrev	-451.123	473.754	-.068	-.952		fagbrev	.342
	universitet 1-3 år	-125.932	510.295	-.018	-.247		universitet 1-3 år	.805
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.085	-1.364		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.174
	øktbevaringikkejegeger	1225.399	598.137	.123	2.049		øktbevaringikkejegeger	.041

Coefficients^{**}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-120.007	610.044		-.197	1	(Constant)	.844
	enslig	-517.277	501.323	-.070	-1.032		enslig	.303
	i parforhold	1221.703	662.169	.119	1.845		i parforhold	.066
	samboer	136.433	440.109	.021	.310		samboer	.757
	grunnskole	690.175	1024.299	.042	.674		grunnskole	.501
	videregående	378.631	588.094	.045	.644		videregående	.520
	fagbrev	-267.283	482.806	-.040	-.554		fagbrev	.580
	universitet 1-3 år	-29.718	510.831	-.004	-.058		universitet 1-3 år	.954
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.076	-1.223		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.222
	redusereklimagasser	1073.777	409.028	.161	2.625		redusereklimagasser	.009

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-26.705	584.879		-.046	1	(Constant)	.964
	enslig	-496.803	497.898	-.067	-.998		enslig	.319
	i parforhold	1151.836	656.478	.112	1.755		i parforhold	.080
	samboer	104.622	437.236	.016	.239		samboer	.811
	grunnskole	765.678	1017.377	.047	.753		grunnskole	.452
	videregående	313.058	579.006	.037	.541		videregående	.589
	fagbrev	-334.738	469.544	-.050	-.713		fagbrev	.477
	universitet 1-3 år	-135.928	503.057	-.019	-.270		universitet 1-3 år	.787
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.000	.000	-.070	-1.128		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.260
	redklimikkejeger	1705.694	517.802	.197	3.294		redklimikkejeger	.001

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	429.229	579.067		.741	1	(Constant)	.459
	enslig	-599.110	518.315	-.081	-1.156		enslig	.249
	i parforhold	1048.370	690.515	.102	1.518		i parforhold	.130
	samboer	149.055	446.068	.023	.334		samboer	.739
	grunnskole	389.145	1034.709	.024	.376		grunnskole	.707
	videregående	101.144	591.413	.012	.171		videregående	.864
	fagbrev	-589.032	472.284	-.088	-1.247		fagbrev	.213
	universitet 1-3 år	-216.740	512.439	-.030	-.423		universitet 1-3 år	.673
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.087	-1.383		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.168
	opptatt av naturvern	205.762	477.126	.027	.431		opptatt av naturvern	.667

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-230.126	717.752		-.321	1	(Constant)	.749
	enslig	-633.787	626.980	-.086	-1.011		enslig	.313
	i parforhold	822.211	822.311	.077	1.000		i parforhold	.319
	gift	58.883	568.695	.009	.104		gift	.918
	grunnskole	1152.305	1286.362	.066	.896		grunnskole	.371
	videregående	407.120	721.135	.046	.565		videregående	.573
	universitet 1-3 år	71.820	621.647	.010	.116		universitet 1-3 år	.908
	universitet over 3 år	-206.686	583.230	-.029	-.354		universitet over 3 år	.723
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.001	-.102	-1.404		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.162
	naturvernikkejeger	1864.543	827.957	.162	2.252		naturvernikkejeger	.025

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	440.890	578.766		.762	1	(Constant)	.447
	enslig	-554.069	508.892	-.075	-1.089		enslig	.277
	i parforhold	1121.282	669.851	.109	1.674		i parforhold	.095
	samboer	158.732	446.517	.024	.355		samboer	.722
	grunnskole	423.149	1032.186	.026	.410		grunnskole	.682
	videregående	131.926	593.312	.016	.222		videregående	.824
	fagbrev	-600.011	471.758	-.090	-1.272		fagbrev	.205
	universitet 1-3 år	-211.708	512.551	-.030	-.413		universitet 1-3 år	.680
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.086	-1.364		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.174
	ikkefriluft	-16.324	766.422	-.001	-.021		ikkefriluft	.983

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-417.953	728.127		-.574	1	(Constant)	.567
	enslig	-745.425	633.293	-.101	-1.177		enslig	.241
	i parforhold	732.434	821.042	.070	.892		i parforhold	.373
	samboer	-160.813	584.410	-.023	-.275		samboer	.783
	grunnskole	1452.559	1331.124	.085	1.091		grunnskole	.277
	videregående	984.604	787.462	.111	1.250		videregående	.213
	fagbrev	275.830	596.614	.042	.462		fagbrev	.644
	universitet 1-3 år	248.411	695.429	.032	.357		universitet 1-3 år	.721
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.001	-.100	-1.346		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.180
	landbrukikkejeger	1075.630	1063.885	.074	1.011		landbrukikkejeger	.313

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	573.005	575.094		.996	1	(Constant)	.320
	enslig	-429.351	504.659	-.058	-.851		enslig	.396
	i parforhold	1133.619	662.312	.111	1.712		i parforhold	.088
	samboer	209.757	441.325	.032	.475		samboer	.635
	grunnskole	439.251	1021.128	.027	.430		grunnskole	.667
	videregående	241.747	583.322	.029	.414		videregående	.679
	fagbrev	-515.301	468.038	-.077	-1.101		fagbrev	.272
	universitet 1-3 år	-124.365	508.315	-.017	-.245		universitet 1-3 år	.807
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.077	-1.243		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.215
	stoviltjakt uten hund	-953.421	393.558	-.145	-2.423		stoviltjakt uten hund	.016

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	634.697	566.937		1.120	1	(Constant)	.264
	enslig	-549.255	495.066	-.075	-1.109		enslig	.268
	i parforhold	1138.952	653.083	.111	1.744		i parforhold	.082
	samboer	163.787	434.694	.025	.377		samboer	.707
	grunnskole	381.362	1006.941	.023	.379		grunnskole	.705
	videregående	283.246	574.883	.033	.493		videregående	.623
	fagbrev	-69.304	481.971	-.010	-.144		fagbrev	.886
	universitet 1-3 år	-141.778	500.323	-.020	-.283		universitet 1-3 år	.777
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.000	.000	-.065	-1.050		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.295
	hjord/rådyrjakt med hund	-1447.757	390.451	-.229	-3.708		hjord/rådyrjakt med hund	.000

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-72.864	578.263		-.126	1	(Constant)	.900
	enslig	-472.964	507.371	-.064	-.932		enslig	.352
	i parforhold	1145.324	666.309	.112	1.719		i parforhold	.087
	samboer	174.375	443.499	.026	.393		samboer	.694
	grunnskole	849.748	1030.496	.052	.825		grunnskole	.410
	videregående	701.392	583.127	.083	1.203		videregående	.230
	universitet 1-3 år	361.581	510.298	.050	.709		universitet 1-3 år	.479
	universitet over 3 år	598.686	469.449	.090	1.275		universitet over 3 år	.203
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	-.001	.000	-.080	-1.280		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.202
	fuglejaktmedhund	-821.021	502.449	-.098	-1.634		fuglejaktmedhund	.103

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.	
		B	Std. Error	Beta				
1	(Constant)	-132.307	608.464		-.217	1	(Constant)	.828
	enslig	-591.409	497.093	-.080	-1.190		enslig	.235
	i parforhold	1112.186	640.428	.109	1.737		i parforhold	.084
	gift	-173.978	422.586	-.028	-.412		gift	.681
	grunnskole	794.302	983.401	.049	.808		grunnskole	.420
	videregående	368.058	559.401	.043	.658		videregående	.511
	fagbrev	169.855	474.482	.025	.358		fagbrev	.721
	universitet 1-3 år	-66.044	486.829	-.009	-.136		universitet 1-3 år	.892
	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.000	.000	-.055	-.918		Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.359
	rådyrhypighet	-176.723	90.497	-.132	-1.953		rådyrhypighet	.052
	aktivikkejeger	113.671	29.467	.251	3.858		aktivikkejeger	.000

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Model	Unstandardized Coefficients		Standardized Coefficients	t	Model	Sig.
	B	Std. Error	Beta			
1 (Constant)	1104.575	563.774		1.959	1 (Constant)	.051
enslig	-256.875	485.543	-.035	-.529	enslig	.597
i parforhold	1287.852	637.112	.126	2.021	i parforhold	.044
samboer	261.740	424.002	.040	.617	samboer	.538
grunnskole	691.771	982.399	.042	.704	grunnskole	.482
videregående	336.216	560.046	.040	.600	videregående	.549
fagbrev	196.838	472.323	.030	.417	fagbrev	.677
universitet 1-3 år	106.456	490.764	.015	.217	universitet 1-3 år	.828
Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.000	.000	-.056	-.940	Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.	.348
jakthypighet	-454.224	84.503	-.324	-5.375	jakthypighet	.000

Ulv i Norge: din mening

Om denne undersøkelsen

Din mening er viktig!

Takk for at du hjelper oss med denne undersøkelsen som er en del av ressurs-økonomisk forskning på Handelshøgskolen ved Universitetet i Stavanger. Undersøkelsen omfatter temaet forvaltningspolitikk for den norske ulvestammen, et tema som har blitt stadig viktigere i den offentlige debatten.

Svarene du gir oss på denne undersøkelsen kan hjelpe myndigheter og offentlige forvaltningsorganer til å få økt forståelse for den norske befolkningens holdninger og preferanser, og dermed bidra til utformingen av en best mulig forvaltningspolitikk.

Vi er kun interessert i dine meninger. Det er viktig at alle som får invitasjon til å delta, både de som er interessert og de som ikke er interessert i temaet, svarer så ærlig og fullstendig på undersøkelsen som mulig.

Det finnes ingen riktige eller gale svar.

Svarene du gir vil være konfidensielle og som deltaker er du helt anonym. Vi er hovedsakelig interessert i sammenfatning av svarene over alle deltakerne. Det vil ta cirka 10 minutter å gjennomføre hele undersøkelsen.

Blant alle som deltar, trekkes to vinnere av VISA- gavekort à kr 500.

Takk for din deltakelse!

Innledende spørsmål

1. Hvilke politiske saker er det viktigst at blir prioritert i offentlige, nasjonale budsjetter?

[Velg opptil 2 alternativer som er viktige for deg og din husholdning]

- | | |
|---|--|
| <input type="checkbox"/> Naturvern | <input type="checkbox"/> Utdanning |
| <input type="checkbox"/> Klima | <input type="checkbox"/> Sysselsetting |
| <input type="checkbox"/> Eldreomsorg | <input type="checkbox"/> Likestilling |
| <input type="checkbox"/> Kollektivtransport | <input type="checkbox"/> Bistand |
| <input type="checkbox"/> Fattigdom | <input type="checkbox"/> Helse |
| <input type="checkbox"/> Landbruk | <input type="checkbox"/> Kriminalitet |
| <input type="checkbox"/> Forsvaret | <input type="checkbox"/> Forskning |
| <input type="checkbox"/> Innvandring | <input type="checkbox"/> Idrett |
| <input type="checkbox"/> Kultur | <input type="checkbox"/> Integrering |
| <input type="checkbox"/> Veinett | |
| <input type="checkbox"/> Annet (vennligst spesifiser) | |

Innledende spørsmål (fortsetter)

2. Hva er de viktigste miljø- og ressurspolitiske satsingsområdene slik du ser det? [Velg opptil 2 alternativer]

- | | |
|---|---|
| <input type="checkbox"/> Økte midler til bevaring av norske naturområder | <input type="checkbox"/> Øke Norges selvforsyning av mat |
| <input type="checkbox"/> Redusere utslipp av klimagasser | <input type="checkbox"/> Unngå naturinngrep som for eksempel høyspentmaster |
| <input type="checkbox"/> Redusere lokal luftforurensing | <input type="checkbox"/> Verne landets jordbruksarealer |
| <input type="checkbox"/> Økt utbygging av fornybar energi som vindkraft og småskala vannkraft | <input type="checkbox"/> Beskytte truede plante- og dyrearter |
| <input type="checkbox"/> Bevare kulturminner | <input type="checkbox"/> Utfase hvalfangst som en del av norsk havbruk |
| <input type="checkbox"/> Redusere norsk utvinning av olje og gass | |
| <input type="checkbox"/> Annet (vennligst spesifiser) | |

Innledende spørsmål (fortsetter)

*3. I hvilken grad er du enig eller uenig i følgende påstander natur og naturbruk?

	Helt uenig	Delvis uenig	Nøytral	Delvis enig	Helt enig
Norsk natur er sårbar, og vi bør øke vår bevissthet rundt dens bevaring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allmenn tilgang til skog og fjell er viktig å ivareta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Det er viktigere å bevare de store naturområdene som Jotunheimen og Rondane enn de mindre, bynære områdene	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gjengroing som følge av mindre utbredt beitebruk er en bekymringsverdig utvikling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turgåing og andre aktiviteter i naturen burde begrenses i dyrenes yngleperiode	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Store rovdyr er nødvendige for å opprettholde balansen i naturen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Innledende spørsmål (fortsetter)

***5. Er jakt en del av ditt friluftsliv? Hvor ofte jakter du i løpet av sesongen?**

- Jeg jakter ikke
- 1-2 ganger i løpet av sesongen
- 1 gang i måneden
- 1 gang i uken
- Flere ganger i uken

Innledende spørsmål (fortsetter)

*6. Hvilke jaktformer praktiserer du hovedsaklig?

Sturviltjakt uten hund

Elgjakt med bandhund

Småviltjakt uten hund

Harejakt med hund

Hjort- eller rådyrjakt med hund

Fuglejakt med hund

Elgjakt med løshund

Annen småviltjakt med hund

Annet (vennligst spesifiser)

Innledende spørsmål (fortsetter)

*7. Er du medlem i noen interesseorganisasjoner for jakt og jegere?

Jeg er ikke medlem i noen interesseorganisasjon for jegere

Norges jeger- og fiskerforbund (NJFF)

Jegernes interessorganisasjon (JI)

Annet (vennligst spesifiser)

Ulv i Norge: din mening

Om ulv og ulvens historie i Norge

Vennligst les gjennom følgende informasjon før du går videre til de neste spørsmålene:

Ulven er et hundelignende rovpattedyr. Den oppnår vanligvis en skulderhøyde på 70-80cm, og den norske underarten har en gjennomsnittsvekt på cirka 40kg.

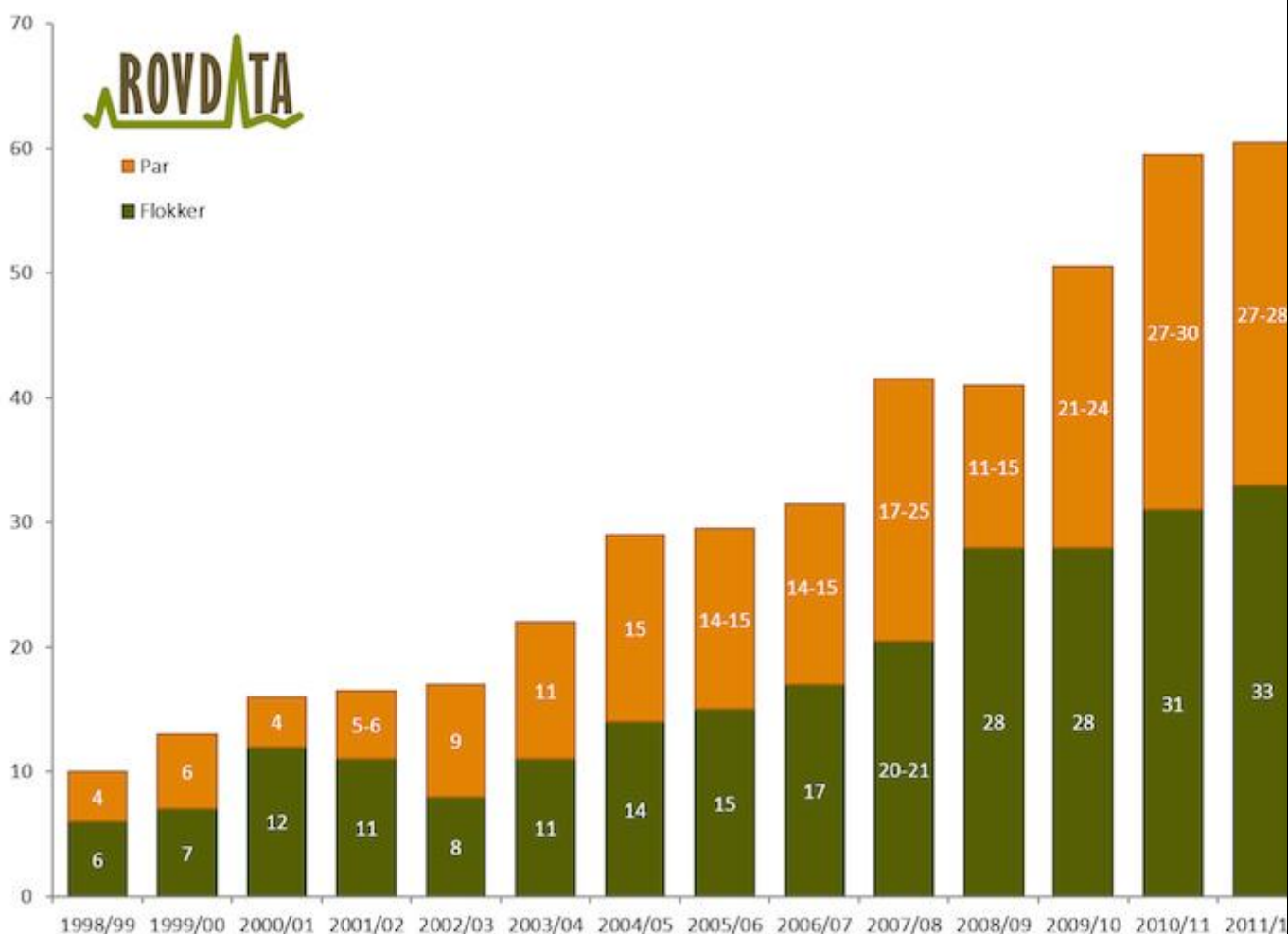
Ulven hadde tidligere det største utbredelsesområdet av alle pattedyr, men fra 1800- tallet og fremover til langt ut på 1900- tallet har den blitt utryddet fra en rekke områder. I dag er ulven reintrodusert i mange av dens tidligere utbredelsesområder. Bestanden teller 150 000- 200 000 individer på verdensbasis, med de største bestandene i Canada og Russland. I Europa er bestanden antatt å være mellom 55 000 og 70 000 individer, med majoriteten i Russland.

Ulven var praktisk talt utryddet i Skandinavia på 1960- tallet. Dagens bestand i Norge er av finsk-russisk opprinnelse og etablerte seg i Sør-Skandinavia på begynnelsen av 1980- tallet. Vinteren 1998/1999 ble det registrert 10 ulvepar og flokker i Skandinavia. Vinteren 2013-2014 er det registrert 66-67 ulvepar og flokker i samme region, og stammen teller totalt rundt 400 individer.

Vinteren 2014/2015 er det registrert 34-36 helnorske ulver, og til sammen 73-75 ulver dersom man inkluderer dyr som befinner seg på begge sider av grensen mellom Norge og Sverige. Den skandinaviske stammen livnærer seg hovedsaklig på elg, og et par eller flokk tar 100-144 elg i året.

Dagens forvaltningspolitikk innebærer et såkalt bestandsmål som betyr et uttalt mål fra myndighetenes side om 3 årlige ynglinger innenfor forvaltningsområdet for ynglende ulv, populært kalt ulvesonen. Utenfor ulvesonen, som innbefatter deler av Hedmark, Østfold, Oslo og Akershus fylker, skal det ikke forekomme ynglende ulv.

Bestandsutvikling i Skandinavia. Kilde: Rovdata.no



Ulv i Norge: din mening

Om dine preferanser for forvaltningspolitikken

Videreføring av dagens forvaltningspolitikk

Dagens bestandsmål for ulv er 3 årlige kull innenfor ulvesonen. **Det er blitt foreslått at dette bestandsmålet skal beholdes i den videre forvaltningen.** Opprettholdelse av dagens norske ulvebestand medfører betydelige kostnader. Disse kostnadene går både til forskning og tiltak for å føre kontroll med ulvene i områdene de oppholder seg, samt erstatning til bønder for tap av buskap.

For å dekke kostnadene forbundet med den norske ulvebestanden vurderer myndighetene å opprette et eget fond øremerket til dette formålet. Se for deg at dette forvaltningsfondet for ulv i en fireårig prøveperiode vil finansieres gjennom en årlig skatt pålagt alle husstander.

Under har vi listet opp en rekke kronebeløp. Hvilket av disse beløpene ligger nærmest det din **husholdning maksimalt er villig til å betale i form av skatt, per år i de neste fire årene** for å finansiere opprettholdelse av ulvebestanden på dagens nivå gjennom ulvefondet?

Før du svarer: Tenk nøye gjennom følgende:

- **Din husholdnings budsjett:** Dersom din husholdning betaler mer i skatt, blir det mindre penger igjen til andre poster som mat, klær, transport, strøm og andre husholdningsutgifter.
- **Offentlige budsjetter:** Kanskje finnes det andre offentlige goder som din husstand mener det er viktigere å finansiere gjennom økt skatt, eksempelvis utdanning, helse, eldreomsorg og lignende.

*8. Min husholdnings maksimale betalingsvillighet per år de neste fire årene er:

- | | |
|---|---|
| <input type="radio"/> Jeg ville vært villig til å betale for å redusere ulvebestanden | <input type="radio"/> Kr 3250 |
| <input type="radio"/> Kr 0 | <input type="radio"/> Kr 3500 |
| <input type="radio"/> Kr 200 | <input type="radio"/> Kr 3750 |
| <input type="radio"/> Kr 400 | <input type="radio"/> Kr 4000 |
| <input type="radio"/> Kr 600 | <input type="radio"/> Kr 4500 |
| <input type="radio"/> Kr 800 | <input type="radio"/> Kr 5000 |
| <input type="radio"/> Kr 1000 | <input type="radio"/> Kr 5500 |
| <input type="radio"/> Kr 1200 | <input type="radio"/> Kr 6000 |
| <input type="radio"/> Kr 1400 | <input type="radio"/> Kr 6500 |
| <input type="radio"/> Kr 1600 | <input type="radio"/> Kr 7000 |
| <input type="radio"/> Kr 1800 | <input type="radio"/> Kr 7500 |
| <input type="radio"/> Kr 2000 | <input type="radio"/> Kr 8000 |
| <input type="radio"/> Kr 2250 | <input type="radio"/> Kr 9000 |
| <input type="radio"/> Kr 2500 | <input type="radio"/> Kr 10 000 |
| <input type="radio"/> Kr 2750 | <input type="radio"/> Mer enn kr 10 000 |
| <input type="radio"/> Kr 3000 | |

Om dine preferanser for forvaltningspolitikken (fortsetter)

9. Hva er de viktigste årsakene til at din husstand er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg føler det er forventet av meg slik denne undersøkelsen er konstruert
- For min husstand er det verdt å betale dette beløpet for å bidra til å bevare ulvebestanden i Norge
- Jeg er villig til å betale dette beløpet fordi jeg ikke tror at denne skatten blir innkrevd uansett
- Jeg er opptatt av å bevare naturen uavhengig av min egen bruk
- Jeg er opptatt av at naturen jeg bruker skal være mest mulig intakt
- Jeg føler en forpliktelse til å betale siden alle andre husstander også skal bidra
- Jeg krysset av på et tilfeldig beløp uten noen spesiell grunn
- Jeg er villig til å betale dette beløpet fordi det er på nivå med beløpet min husstand pleier å gi til veldedige formål
- For meg og min husholdning er bevaring av ulven i Norge verdt det beløpet jeg valgte

Annet (vennligst spesifiser)

Om dine preferanser for forvaltningspolitikken (fortsetter)

10. Hva er de viktigste årsakene til at din husstand ikke er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Ulven er ikke så viktig for meg
- Skattnivået er allerede høyt nok
- Min husstand har ikke råd til å betale for dette
- Tiltakene vil ikke ha noen betydning for bevaringen av ulvebestanden
- Ulven er tallrik i andre land, vi trenger ikke å betale for å ha den i Norge
- Jeg stoler ikke på at pengene vil bli brukt til det riktige formålet
- Myndighetene bør betale for en slik politikk, ikke forbrukerne
- Jeg foretrekker en annen forvaltningspolitikk

Annet (vennligst spesifiser)

Ulv i Norge: din mening

Om dine preferanser for forvaltningspolitikken (fortsetter)

Forvaltningspolitikk: Øke ulvebestanden

Et alternativt forslag som er blitt fremmet, er å øke ulvebestanden utover dagens nivå. **Det har vært fremmet forslag fra miljøorganisasjoner om at Norge kan huse 15-20 familiegrupper av ulv, hvorav minst 15 revir (området hvor ulven oppholder seg) i sin helhet skal ligge i Norge. Dette vil innebære mellom 150-200 ulv i norsk natur.**

Dette vil bety at også ulvens geografiske utbredelse utvides betydelig. Kostnader rundt både forvaltning og erstatning til landbruk vil dermed også øke. **For å dekke disse kostnadene vurderer myndighetene å opprette et eget fond øremerket til dette formålet.** Se for deg at dette forvaltningsfondet for ulv i en fireårig prøveperiode vil finansieres gjennom en årlig skatt pålagt alle husstander.

Under har vi listet opp en rekke kronebeløp. Hvilket av disse beløpene ligger nærmest det din **husholdning maksimalt er villig til å betale i form av skatt, per år i de neste fire årene** for å finansiere en økning av ulvebestanden til 150-200 individer gjennom ulvefondet?

Før du svarer: Tenk nøye gjennom følgende:

- **Din husholdnings budsjett:** Dersom din husholdning betaler mer i skatt, blir det mindre penger igjen til andre poster som mat, klær, transport, strøm og andre husholdningsutgifter.
- **Offentlige budsjetter:** Kanskje finnes det andre offentlige goder som din husstand mener det er viktigere å finansiere gjennom økt skatt, eksempelvis utdanning, helse, eldreomsorg og lignende.

*11. Min husholdnings maksimale betalingsvillighet per år de neste fire årene er:

Kr 0

Kr 200

Kr 400

Kr 600

Kr 800

Kr 1000

Kr 1200

Kr 1400

Kr 1600

Kr 1800

Kr 2000

Kr 2250

Kr 2500

Kr 2750

Kr 3000

Kr 3250

Kr 3500

Kr 3750

Kr 4000

Kr 4500

Kr 5000

Kr 5500

Kr 6000

Kr 6500

Kr 7000

Kr 7500

Kr 8000

Kr 9000

Kr 10 000

Mer enn kr 10 000

Om dine preferanser for forvaltningspolitikken (fortsetter)

12. Hva er de viktigste årsakene til at din husstand er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg føler det er forventet av meg slik denne undersøkelsen er konstruert
- For min husstand er det verdt å betale dette beløpet for å bidra til å bevare ulvebestanden i Norge
- Jeg er villig til å betale dette beløpet fordi jeg ikke tror at denne skatten blir innkrevd uansett
- Jeg er opptatt av å bevare naturen uavhengig av min egen bruk
- Jeg er opptatt av at naturen jeg bruker skal være mest mulig intakt
- Jeg føler en forpliktelse til å betale siden alle andre husstander også skal bidra
- Jeg krysset av på et tilfeldig beløp uten noen spesiell grunn
- Jeg er villig til å betale dette beløpet fordi det er på nivå med beløpet min husstand pleier å gi til veldedige formål
- For meg og min husholdning er bevaring av ulven i Norge verdt det beløpet jeg valgte

Annet (vennligst spesifiser)

Om dine preferanser for forvaltningspolitikken (fortsetter)

13. Hva er de viktigste årsakene til at din husstand ikke er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Ulvebestanden er allerede på et tilfredsstillende nivå
- Skattnivået er allerede høyt nok
- Min husstand har ikke råd til å betale for dette
- Tiltakene vil ikke ha noen betydning for forvaltningen av ulvebestanden
- Ulven er tallrik i andre land, jeg ønsker ikke å måtte betale for å øke bestanden i Norge
- Jeg stoler ikke på at pengene vil bli brukt til det riktige formålet
- Myndighetene bør betale for en slik politikk, ikke forbrukerne
- Jeg foretrekker en annen forvaltningspolitikk

Annet (vennligst spesifiser)

Ulv i Norge: din mening

Om dine preferanser for forvaltningspolitikken (fortsetter)

Forvaltningspolitikk: Fjerne den norske ulvebestanden

Det er blir fremlagt et forslag om å endre forvaltningspolitikken for store rovdyr i Norge. **Dette innebærer at man vil fjerne de norske ulvevirene (ulveflokker eller par med fast tilhold i et område), og i fremtiden kun akseptere sporadisk vandrende ulv i Norge.** Dette av hensyn til norske interesser.

Denne forvaltningsendringen krever midler, blant annet til økt tilsyn i grenseområdene for å hindre at ulver danner revir (slår seg ned fast i et område). **Det blir foreslått at dette finansieres gjennom et eget fond som er øremerket til formålet.** Se for deg at dette forvaltningsfondet for ulv i en fireårig prøveperiode vil finansieres gjennom en årlig skatt pålagt alle husstander.

Under har vi listet opp en rekke kronebeløp. Hvilket av disse beløpene ligger nærmest det din **husholdning maksimalt er villig til å betale i form av skatt, per år i de neste fire årene** for å finansiere en forvaltningsendring som betyr at ingen ulv skal ha fast tilhold i Norge?

Før du svarer: Tenk nøye gjennom følgende:

- **Din husholdnings budsjett:** Dersom din husholdning betaler mer i skatt, blir det mindre penger igjen til andre poster som mat, klær, transport, strøm og andre husholdningsutgifter.
- **Offentlige budsjetter:** Kanskje finnes det andre offentlige goder som din husstand mener det er viktigere å finansiere gjennom økt skatt, eksempelvis utdanning, helse, eldreomsorg og lignende.

*14. Min husholdnings maksimale betalingsvillighet per år de neste fire årene er:

- | | |
|-------------------------------|---|
| <input type="radio"/> Kr 0 | <input type="radio"/> Kr 3250 |
| <input type="radio"/> Kr 200 | <input type="radio"/> Kr 3500 |
| <input type="radio"/> Kr 400 | <input type="radio"/> Kr 3750 |
| <input type="radio"/> Kr 600 | <input type="radio"/> Kr 4000 |
| <input type="radio"/> Kr 800 | <input type="radio"/> Kr 4500 |
| <input type="radio"/> Kr 1000 | <input type="radio"/> Kr 5000 |
| <input type="radio"/> Kr 1200 | <input type="radio"/> Kr 5500 |
| <input type="radio"/> Kr 1400 | <input type="radio"/> Kr 6000 |
| <input type="radio"/> Kr 1600 | <input type="radio"/> Kr 6500 |
| <input type="radio"/> Kr 1800 | <input type="radio"/> Kr 7000 |
| <input type="radio"/> Kr 2000 | <input type="radio"/> Kr 7500 |
| <input type="radio"/> Kr 2250 | <input type="radio"/> Kr 8000 |
| <input type="radio"/> Kr 2500 | <input type="radio"/> Kr 9000 |
| <input type="radio"/> Kr 2750 | <input type="radio"/> Kr 10 000 |
| <input type="radio"/> Kr 3000 | <input type="radio"/> Mer enn kr 10 000 |

Om dine preferanser for forvaltningspolitikken (fortsetter)

15. Hva er de viktigste årsakene til at din husstand er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg føler det er forventet av meg slik denne undersøkelsen er konstruert
- For min husstand er det verdt å betale dette beløpet for å bidra til å fjerne ulvebestanden i Norge
- Jeg er villig til å betale dette beløpet fordi jeg ikke tror at denne skatten blir innkrevd uansett
- Jeg er opptatt av å bevare norsk landbruk, og mener at ulv er uforenlig med dette
- Jeg ønsker å bevare annet vilt på en kontrollert måte, og ønsker dermed ikke ulv
- Jeg føler en forpliktelse til å betale siden alle andre husstander også skal bidra
- Jeg krysset av på et tilfeldig beløp uten noen spesiell grunn
- Jeg tror ulven påvirker friluftslivet til folk negativt, og ønsker dermed ikke ulv i Norge
- Jeg er villig til å betale dette beløpet fordi det er på nivå med beløpet min husstand pleier å gi til veldedige formål
- For meg og min husholdning er fjerning av ulven i Norge verdt det beløpet jeg valgte

Annet (vennligst spesifiser)

Om dine preferanser for forvaltningspolitikken (fortsetter)

16. Hva er de viktigste årsakene til at din husstand ikke er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg ønsker ikke å bidra til å fjerne den norske ulvebestanden fullstendig
- Skattenivået er allerede høyt nok
- Min husstand har ikke råd til å betale for dette
- Tiltakene vil ikke ha noen betydning for forvaltningen av ulvebestanden
- Jeg stoler ikke på at pengene vil bli brukt til det riktige formålet
- Myndighetene bør betale for en slik politikk, ikke forbrukerne
- Jeg foretrekker en annen forvaltningspolitikk

Annet (vennligst spesifiser)

Om dine preferanser for forvaltningspolitikken (fortsetter)

Forvaltningspolitikk: Etablere revir i ditt nærområde

Se for deg at det er blitt fremmet forslag fra forvaltningsorganene om å la det etableres ulverevir (ulv med fast tilhold) i ditt nærområde.

Gjennom en helhetsvurdering er det konkludert med at dette området er egnet til å huse en ulvefamilie. Siden et ulverevir utgjør et stort geografisk område, **kan det antas at vedtaket innebærer en markant økt mulighet for å møte på ulv i alle naturområder i din nærhet.**

Siden vedtaket kan ha store effekter lokalt, vil det foretas en folkeavstemning i de berørte kommunene om hvorvidt dette kan gjennomføres.

***17. Dersom denne avstemningen ble gjennomført, ville du da stemt for eller i mot?**

- Jeg ville stemt for
- Jeg ville stemt i mot
- Jeg vet ikke/usikker

Om dine preferanser for forvaltningspolitikken (fortsetter)

Forvaltningspolitikk: Etablere revir i ditt nærområde

For å dekke kostnadene forbundet med den norske ulvbestanden vurderer myndighetene å opprette et fond øremerket til dette formålet. Se for deg at dette forvaltningsfondet for ulv i en fireårig prøveperiode vil finansieres gjennom en årlig skatt pålagt alle husstander.

Under har vi listet opp en rekke kronebeløp. Hvilket av disse beløpene ligger nærmest det din **husholdning maksimalt er villig til å betale i form av skatt, per år i de neste fire årene** for å finansiere en etablering av ulv i ditt nærområde?

Før du svarer: Tenk nøye gjennom følgende:

- **Din husholdnings budsjett:** Dersom din husholdning betaler mer i skatt, blir det mindre penger igjen til andre poster som mat, klær, transport, strøm og andre husholdningsutgifter.
- **Offentlige budsjetter:** Kanskje finnes det andre offentlige goder som din husstand mener det er viktigere å finansiere gjennom økt skatt, eksempelvis utdanning, helse, eldreomsorg og lignende.

*18. Min husholdnings maksimale betalingsvillighet per år de neste fire årene er:

- | | |
|-------------------------------|---|
| <input type="radio"/> Kr 0 | <input type="radio"/> Kr 3250 |
| <input type="radio"/> Kr 200 | <input type="radio"/> Kr 3500 |
| <input type="radio"/> Kr 400 | <input type="radio"/> Kr 3750 |
| <input type="radio"/> Kr 600 | <input type="radio"/> Kr 4000 |
| <input type="radio"/> Kr 800 | <input type="radio"/> Kr 4500 |
| <input type="radio"/> Kr 1000 | <input type="radio"/> Kr 5000 |
| <input type="radio"/> Kr 1200 | <input type="radio"/> Kr 5500 |
| <input type="radio"/> Kr 1400 | <input type="radio"/> Kr 6000 |
| <input type="radio"/> Kr 1600 | <input type="radio"/> Kr 6500 |
| <input type="radio"/> Kr 1800 | <input type="radio"/> Kr 7000 |
| <input type="radio"/> Kr 2000 | <input type="radio"/> Kr 7500 |
| <input type="radio"/> Kr 2250 | <input type="radio"/> Kr 8000 |
| <input type="radio"/> Kr 2500 | <input type="radio"/> Kr 9000 |
| <input type="radio"/> Kr 2750 | <input type="radio"/> Kr 10 000 |
| <input type="radio"/> Kr 3000 | <input type="radio"/> Mer enn kr 10 000 |

Om dine preferanser for forvaltningspolitikken (fortsetter)

19. Hva er de viktigste årsakene til at din husstand er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg føler det er forventet av meg slik denne undersøkelsen er konstruert
- For min husstand er det verdt å betale dette beløpet for å bidra til å la ulven etablere seg i mitt nærområde
- Jeg er villig til å betale dette beløpet fordi jeg ikke tror at denne skatten blir innkrevd uansett
- Jeg er opptatt av at naturen skal være mest mulig intakt
- Jeg ønsker å ha muligheten til å møte på ulv på turer i skog og mark
- Jeg føler en forpliktelse til å betale siden alle andre husstander også skal bidra
- Jeg krysset av på et tilfeldig beløp uten noen spesiell grunn
- Jeg er opptatt av å bevare naturen uavhengig av min eget bruk
- Jeg er villig til å betale dette beløpet fordi det er på nivå med beløpet min husstand pleier å gi til veldedige formål
- For meg og min husholdning er bevaring av ulven verdt det beløpet jeg valgte

Annet (vennligst spesifiser)

Om dine preferanser for forvaltningspolitikken (fortsetter)

20. Hva er de viktigste årsakene til at din husstand ikke er villig til å betale skatt til et slikt ulvefond?

[Velg opptil 3 alternativer]

- Jeg ønsker ikke å betale skatt for denne saken
- Skattnivået er allerede høyt nok
- Min husstand har ikke råd til å betale for dette
- Tiltaket vil ikke ha noen betydning for forvaltningen av ulvebestanden
- Jeg ønsker ikke ulv i mitt nærområde
- Jeg stoler ikke på at pengene vil bli brukt til det riktige formålet
- Myndighetene bør betale for en slik politikk, ikke forbrukerne
- Jeg foretrekker en annen forvaltningspolitikk

Annet (vennligst spesifiser)

Ulv i Norge: din mening

Demografiske spørsmål

I den siste delen av undersøkelsen ønsker vi å vite mer om deg og din husstand.

Årsaken til dette er å klassifisere svarene, samt å sikre at utvalget i spørreundersøkelsen er representativt for den norske befolkning.

Vi minner om at du som deltaker i denne undersøkelsen er helt anonym og at alle dine svar er konfidensielle

Demografiske spørsmål (fortsetter)

***21. Er du mann eller kvinne?**

Mann

Kvinne

Demografiske spørsmål (fortsetter)

*22. Hva er din alder?

- Under 18 år
- 19-21 år
- 22-25 år
- 26-29 år
- 30-39 år
- 40-49 år
- 50-59 år
- 60-69 år
- 70-79 år
- Over 80 år

Demografiske spørsmål (fortsetter)

*23. Hva er din sivilstatus?

- Enslig
- I parforhold
- Samboer
- Gift
- Enke/Enkemann

Demografiske spørsmål (fortsetter)

***24. Hvor mange personer er det i ditt hushold inkludert deg selv?**

- 1
- 2
- 3
- 4
- 5
- 6
- Flere enn 6

Demografiske spørsmål (fortsetter)

*** 25. I hvilket fylke bor du?**

Fylke

*** 26. Hva er ditt Postnummer?**

Demografiske spørsmål (fortsetter)

*27. Hva er ditt høyeste fullførte utdanningsnivå?

- Grunnskolenivå
- Videregående nivå
- Fagbrev/Fagskole
- Universitets- og høghskolenivå, 1-3 år
- Universitets- og høghskolenivå, 3-5 år
- Universitets- og høghskolenivå, mer enn 5 år

Demografiske spørsmål (fortsetter)

***28. Hvilken av de følgende kategoriene beskriver best fagfeltet du er utdannet eller opplært i?**

- Restaurant- og matfag
- Jordbruk
- Økonomi, administrasjon og ledelse
- Historie, religion og kultur
- Estetiske fag (kunst- og musikkfag)
- Håndverker (snekker, rørlegger, elektriker, murer osv.)
- Språk og litteratur
- Mediefag og kommunikasjon
- Medisin, helse- og sosialfag
- Samfunnsfag og psykologi
- Idrettsfag
- Realfag, ingeniør, arkitekt
- Juridiske fag
- Hotell og reiseliv
- Lærer, lektor og pedagogikk
- Fiskeri og oppdrett
- Annet (vennligst spesifiser)

Demografiske spørsmål (fortsetter)

***29. Hvilke alternativer passer best din nåværende arbeidssituasjon? [Velg de som passer]**

- Arbeider fulltid
- Arbeider deltid
- Ikke-lønnet/frivillig arbeid
- Ikke i arbeid på nåværende tidspunkt
- Student
- Pensjonert
- Hjemmeværende
- Svangerskapspermisjon (midlertidig permisjon)
- Annet (vennligst spesifiser)

Demografiske spørsmål (fortsetter)

*** 30. Hvilken av følgende kategorier beskriver best næringen eller sektoren du arbeider i?**

- Butikk, salg og servicenæring
- Olje og gass
- Fornybar energi
- Fiske, havbruk og skogbruk
- Utdanning og forskning
- Offentlig forvaltning
- Helse og omsorg
- Annen industri
- Bank og finans
- Bygg og anlegg
- Jordbruk
- IT, kommunikasjon og telekommunikasjon
- Annet (vennligst spesifiser)

*** 31. Er du medlem i en miljøorganisasjon?**

- Ja
- Nei

32. Hvis ja, hvilken?

Demografiske spørsmål (fortsetter)

***33. Vennligst oppgi omtrentlig årlig brutto inntekt i din husstand. Det vil si all samlet inntekt i husstanden før skatt er trukket fra.**

- | | |
|--|--|
| <input type="radio"/> Mindre enn 100 000 kroner | <input type="radio"/> 1 100 001 - 1 200 000 kroner |
| <input type="radio"/> 100 001 - 200 000 kroner | <input type="radio"/> 1 200 001 - 1 300 000 kroner |
| <input type="radio"/> 200 001 - 300 000 kroner | <input type="radio"/> 1 300 001 - 1 400 000 kroner |
| <input type="radio"/> 300 001 - 400 000 kroner | <input type="radio"/> 1 400 001 - 1 500 000 kroner |
| <input type="radio"/> 400 001 - 500 000 kroner | <input type="radio"/> 1 500 001 - 1 600 000 kroner |
| <input type="radio"/> 500 001 - 600 000 kroner | <input type="radio"/> 1 600 001 - 1 700 000 kroner |
| <input type="radio"/> 600 001 - 700 000 kroner | <input type="radio"/> 1 700 001 - 1 800 000 kroner |
| <input type="radio"/> 700 001 - 800 000 kroner | <input type="radio"/> 1 800 001 - 1 900 000 kroner |
| <input type="radio"/> 800 001 - 900 000 kroner | <input type="radio"/> 1 900 001 - 2 000 000 kroner |
| <input type="radio"/> 900 001 - 1 000 000 kroner | <input type="radio"/> Mer enn 2 000 000 kroner |
| <input type="radio"/> 1 000 001 - 1 100 000 kroner | |

Demografiske spørsmål (fortsetter)

* 34. Hvilket politisk parti ville du stemt på dersom du måtte stemme i dag?

- | | |
|--|---|
| <input type="radio"/> Arbeiderpartiet (Ap) | <input type="radio"/> Piratpartiet |
| <input type="radio"/> De kristne | <input type="radio"/> Rødt |
| <input type="radio"/> Demokratene i Norge | <input type="radio"/> Samefolkets parti (Sámeálbmot Bellodat) |
| <input type="radio"/> Det Liberale Folkepartiet | <input type="radio"/> Samfunnspartiet |
| <input type="radio"/> Fremskrittspartiet (Frp) | <input type="radio"/> Senterpartiet (SP) |
| <input type="radio"/> Høyre (H) | <input type="radio"/> Sosialistisk Venstreparti (SV) |
| <input type="radio"/> Kristelig Folkeparti (KrF) | <input type="radio"/> Tverrpolitisk Folkevalgte |
| <input type="radio"/> Kristent Samlingsparti (KSP) | <input type="radio"/> Venstre |
| <input type="radio"/> Kystpartiet (KP) | <input type="radio"/> Vet ikke/ikke politisk interessert |
| <input type="radio"/> Miljøpartiet De Grønne | <input type="radio"/> Ønsker ikke å svare |
| <input type="radio"/> Norges Kommunistiske Parti (NKP) | <input type="radio"/> Annet |
| <input type="radio"/> Pensjonistpartiet (PP) | |

Takk for at du deltok i undersøkelsen!

35. Dersom du har kommentarer til denne spørreundersøkelsen er du velkommen til å benytte kommentarboksen under.

36. For å bli med i trekningen av to VISA- gavekort à 500 kroner, skriv inn din epostadresse nedenfor: