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ORIGINAL PAPER

The good bad wolf—wolf evaluation reveals the roots of the Finnish wolf conflict

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Abstract This article focuses on the roots of the Finnish wolf conflict by using stakeholder evaluations of the wolf as a tool. The recent growth of the wolf population has highlighted stakeholders' contradictory objectives and revealed a conflict between the two main stakeholders, conservationists and hunters, in wolf management. The question of hunting emerges as the core of the conflict. The negative evaluation of the wolf by hunters reflects a competitive situation, which is typical of the historical development of wolf management in Finland. In areas with the most abundant wolf populations, hunters view the wolf most negatively. This study clearly demonstrates that the Finnish wolf conflict is rooted in the values of modern society and carries a long historical, practical and ecological background in which humans and wolves compete over resources, mainly the moose. The conflict between hunters and conservationists in wolf management is connected to the appreciation of moose as game and stems from competition between humans and wolves over their prey and the historical presence or absence of the wolf.

Keywords Conflict · Competition · Conservationists · Evaluation · Hunters · Wolf management history

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Introduction

Since 1990, the wolf population in Finland has recovered significantly (Kojola et al. 2004a, 2006a, b), increasing from four family packs in 1996 to 25 packs in 2007 (Kojola 2007). Consequently, the expansion and the growth of the population have raised new challenges to wolf management objectives (Bisi et al. 2007; Bisi and Kurki 2008). The wolf population has grown the most in the eastern regions of Finland. Simultaneously, some areas have no or relatively few wolves. This situation has placed people and their environments into unequal relationships vis-à-vis the wolf. In some areas, the wolf is a part of everyday life, whereas in other areas, it exists only in discussions. The return of the wolf has resulted in a complex multilevel management conflict, extending ultimately to a conflict between Finland and the European Union (EU; Bisi et al. 2007).

The painful interaction between people and wolves is not only a Finnish phenomenon. Similar situations can be found elsewhere in Scandinavia as well as in several other countries and cultures around the world. The background of these conflicts is often the return of the wolf to areas where it has been absent for years, decades or even longer. These conflicts share certain characteristics, usually with the return and growth of the wolf population eliciting demands to reduce the population and its growth. Such a discussion has been common in Finland and Scandinavia, the United

States and several European countries (Fritts et al. 2003; Skogen and Krange 2003; Skogen et al. 2008; Ericsson et al. 2004; Bisi et al. 2007). Demands to slow the growth of the wolf population have led to a discussion over acceptable methods to achieve this purpose. For instance, in addition to hunting, both translocation and sterilisation have been used (Ericsson et al. 2004). In general, at the core of the discussion lies the traditional way to delimit the population (i.e., hunting). In Finland, it is mainly hunters and local people who demand wolf hunting. At the same time, conservationists accept only the elimination of damage-causing individuals and only by authorities (Bisi and Kurki 2008). In Finland, the wolf has been protected since the mid-1990s, and only in the reindeer herding areas in northern Finland has wolf hunting with hunting licences been permitted (Bisi et al. 2007). Outside the reindeer herding areas, a limited number of damage-causing animals have been culled. Such cullings are strictly regulated by legislation (MAF 2005; Bisi et al. 2007).

Demands to permit wolf hunting are also common outside of Finland. In Scandinavia, in both Norway and Sweden, where wolves have returned concomitantly to Finland, hunters have been willing to engage in wolf hunting (Skogen and Krange 2003; Ericsson et al. 2004). This demand is connected to problems associated with hunting with dogs in wolf-occupied areas. Wolves have killed hunting dogs both in Finland and elsewhere in Scandinavia (Ericsson and Heberlein 2003; Kojola et al. 2004b). The number of dogs killed in Finland varied from 20 to 31 during 2000–2003 (MAF 2005). However, wolf hunting to protect hunting dogs has been seen somewhat ambiguously supported in wolf areas in, for instance, Sweden (Ericsson et al. 2004).

Several factors may explain the background of demands connected to the reintroduction of wolf hunting, of which the most important are the strong interests of the hunters. However, this entirety includes viewpoints that have not been thoroughly examined and discussed. Some historical events or facts in the management of the Finnish wolf population still affect the present situation. According to the statistical yearbook, 5,598 wolves were killed between 1866 and 1890, whereas only 105 were killed between 1881 and 1898 (Mykrä and Pohja-Mykrä 2005). Since then, the wolf population has recovered significantly, even into the 1990s. We may rightly assume that an ecologically competitive situation has existed between humans and wolves in the past and that the reactions of present-day hunters have raised an analogous scenario. In areas to which the wolf has returned, discussion has even included such concepts as the quality of life (Bisi and Kurki 2008; Skogen et al. 2008). This point of view is connected to both locally developed and tradition-experienced ways of using nature, and the wolf is considered a threat to them.

This article aims to deepen our knowledge of the Finnish conflict in wolf management. This conflict has been discussed earlier from the point of view of its present situation and the possibilities to manage it (Bisi et al. 2007). Only fear for the wolf has been discussed from a historical viewpoint. In a previous study, we showed that Finnish conservationists and hunters were especially active participants in the societal debate and that hunting was a central factor in that conflict. This article focuses on hunting and on the role of hunters as participants in the wolf conflict. Why is the wolf such a difficult issue in hunting and for hunters? For this discussion, we searched for details in those positive and negative characteristics attributed to the wolf and discuss these results in a historical context. We argue that the history of the interaction between man and wolf also explains features of the present wolf conflict.

Material and methods

The data of this study were collected during the preparation of the Finnish wolf management plan in 2004 (MAF 2005). A semi-structured questionnaire was addressed to regional organisations that were recognised as representing important stakeholders in wolf management policy. The composition of stakeholders varied to some extent between game management districts (e.g., reindeer herders exist only in reindeer herding areas; Fig. 1). Involved stakeholders represented hunting and kennel associations, legal hunting organisations, conservationists, environmental authorities, and nongovernmental organisations, top organisations for primary producers, law enforcement agencies (police and border guards), municipalities and their federations and other regional stakeholders such as Metsähallitus (the administrator of state-owned forests). Altogether, 211 regional organisations responded to the questionnaires. Most of the questionnaires (60%) were completed as teamwork (2–10 individuals), and altogether, about 1,000 people were involved.

For this study, respondents were divided into four main categories: hunters, conservationists, primary producers and others. The hunters group included game management districts and associations and voluntary hunting and kennel associations. The conservationists group included Districts of the Finnish Association for Nature Conservation, nature tourism business and environmental authorities. The group of primary producers included regional actors of the Central Union of Agricultural Producers and Forest Owners, reindeer herders and others, and lastly, the others group included law enforcement agencies (police and border guards) and municipalities and their federations.

The data were divided into three main regions according to wolf population density (Kojola et al. 2006b, Fig. 1): regions of stable wolf population, regions of growing wolf

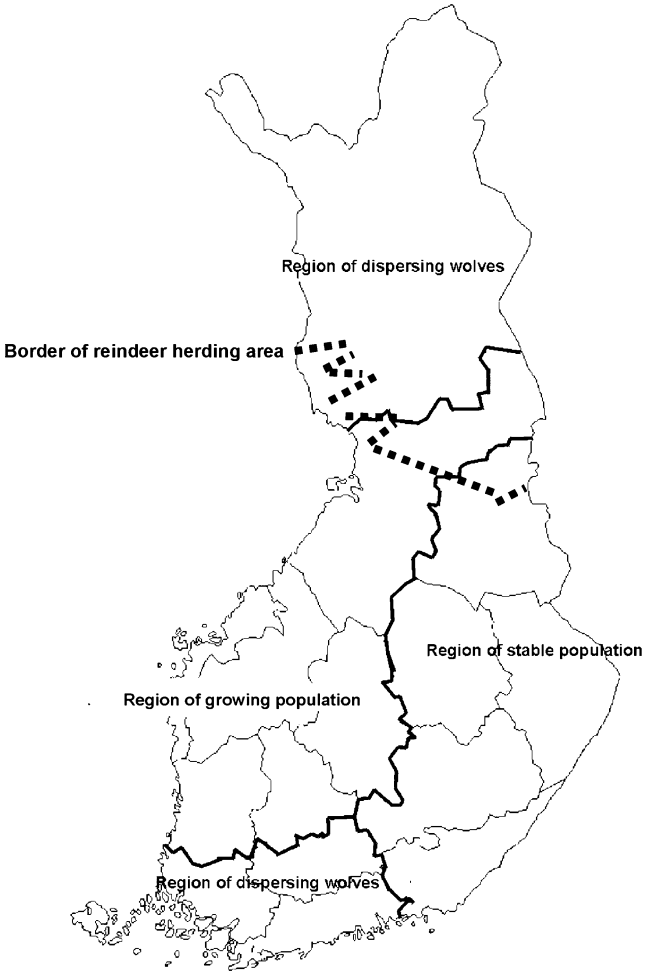

Fig. 1 Wolf (*Canis lupus*) abundance regions in Finland

population and regions of dispersing wolves. Regions of stable population in eastern Finland harbour most of the Finnish wolf population. In regions of growing population in central and western Finland, some family packs have been sighted, and the population is growing. In areas of dispersing wolves, some single-wandering individuals are occasionally sighted. The sparsely inhabited reindeer herding areas in northern Finland and the densely inhabited southern Finland are included in the same category, although the legislative status of the wolf and the structure of human activities in these areas differ significantly. In the reindeer herding areas, the sparse population of wolves is attributed to the protection of reindeer husbandry, whereas in southern Finland, the population has been unable to expand, and dense human settlement may hinder the expansion of the species into this area.

Statistical analysis

In the questionnaire, the respondents were asked to define the three most important positive and negative characteristics of the wolf (with no alternatives provided) and to evaluate the importance of each characteristic: (1) almost insignificant, (2) slightly significant, (3) fairly significant, (4) significant and (5) very significant. Thus, for each respondent, the overall importance of both positive (Importance +) and negative (Importance −) characteristics could vary between 1 (1 + 0 + 0) and 15 (5 + 5 + 5), respectively.

Furthermore, by using the evaluations of importance, we were able to calculate the relative importance of each positive and negative characteristic (sum of Importance of one characteristic/sum of Importance of all characteristics) for each stakeholder group (Tables 1 and 2). Thus, the percentage values show the relative importance of each positive and negative characteristics found within stakeholder groups.

The mean importance of positive and negative characteristics in the eyes of different stakeholder groups and regions appear in Table 3. Comparisons of the sums of importance of positive and negative characteristics were conducted using the multivariate analysis of variance and post hoc pairwise comparisons between stakeholders, regions and both stakeholders and regions with Fisher's LSD test (Table 4).

Results

Positive evaluations and their weight values

In the questionnaire, stakeholders were asked to identify three positive characteristics, but in many cases, they provided only one or two. Positive characteristics were reclassified into six main categories according to their content. Two positive characteristics dominated among all stakeholders (Table 1). "The wolf is an essential component of biodiversity" was defined by terms such as "it has an absolute value", "it belongs to Finnish nature" and "it is part of Finnish fauna." In addition, "the wolf is part of the ecological whole" was defined by "it is a part of the food web", "it is a top predator" and "it controls ungulate populations."

Some interesting differences between stakeholders also emerged. The positive characteristics defined by hunters and representatives of primary production showed less diversity than did those defined by conservationists. Positive characteristics—other than the two most important ones—were clearly less important among hunters and primary producers. Their definitions, categorised as "Other arguments", were not actually positive but contained many ironic comments, such as "wolves make life exciting", "they call for greater hunting skills", "they offer more hunting opportunities" and "they compel authorities to act", among others.

Table 1 Positive evaluations of wolf *(Canis lupus)* and their relative per cent weight values given by different stakeholders

Positive characteristics	Conservationists, %	Hunters, %	Primary producers, %	Others, %
Component of biodiversity	37.0	55.2	38.3	45.2
Part of the ecological whole	23.9	20.8	36.1	24.2
Component of regional image	6.9	2.2	2.3	11.3
Target of nature tourism and wildlife photography	14.9	3.6	6.8	4.9
Impact on the development of man's relationship with the nature	9.8	3.2	3.0	5.4
Other positive evaluations	7.5	15.0	13.5	9.0
Total	100	100	100	100

Stakeholders representing hunting and primary producers offered positive arguments less often than did conservationists or "others". Conservationists, on the other hand, defined the wolf more positively than did all the other respondents. Conservationists saw the wolf as a potential objective for nature tourism and wildlife photography. They, together with "other" respondents, also defined wolf as an important component of regional image. Such arguments were very rare among hunters or primary producers.

Negative evaluations and the weight values

Stakeholders offered more negative than positive characteristics of the wolf. We reclassified the negative evaluations into nine different categories. Two negative evaluations predominated: "Wolves cause damage to human livelihoods (by killing cattle, reindeer, etc.)", and "wolves instil fear and pose a threat to safety". "Damage to human livelihoods" was brought up mostly by primary producers (45.9%). Another important negative evaluation, "wolves restrict hunting with dogs", was common among hunters and rare among conservationists. Hunters considered it even more important (26.4%) than fear (22.9%). This negative evaluation was also interesting in that among conservationists, the category of "other negative aspects" included tens of aspects that concerned not the wolf itself, but the present wolf situation, attitudes towards the species or the inadequate legislative situation (Table 2).

The sum of positive and negative weight values

Examination of the percentages in Tables 1 and 2, which indicate the importance of different characteristics, may create the illusion that there were no significant differences between stakeholders. Percentage values show the general importance of these positive and negative definitions among respondents but failed to identify how stakeholders differ in their use of weight values 1–5. To clarify these differences, we summarised all the positive and negative weight values of all characteristics and compared them to the distributions of different respondents in different wolf regions.

When we compared the sum of negative and positive weight values, we discovered that respondents generally defined the wolf more negatively than positively (positive total sum, 5.0; negative total sum, 9.3). The respondent categories differed significantly from each other in the positive (df=3, F=17.1, p<0.001, Table 3) and negative weight values (df=3, F=8.4, p<0.001, Table 3). The positive characteristics found by conservationists were, on average, high (more 5 values), whereas hunters gave, on average, higher values for negative characteristics. For the

Table 2 Negative evaluations of wolf (*Canis lupus*) and their relative per cent weight values given by different stakeholders

Negative characteristics	Conservationists, %	Hunters, %	Primary producers, %	Others, %
Cause damage to human livelihoods	25.9	28.5	45.9	32.6
Cause fear and is a threat to safety	32.5	22.9	31.9	31.6
Cause damage to hunting dogs and restrict traditional hunting with dogs	8.8	26.4	13.2	13.0
Restrict the recreational use of nature	2.2	7.0	3.6	7.6
Threaten other wildlife species	0.9	4.8	1.8	4.2
Cause conflicts and contradictions	6.6	1.0	0	4.9
Transmission of diseases to humans	0	1.6	1.5	0.9
Cause hatred for carnivores and disregard for the law	8.7	2.3	0	2.4
Other negative evaluations	14.4	5.5	2.1	2.8
Total	100	100	100	100

Table 3 Mean ± SD sums of positive and negative evaluations on wolf by different stakeholders in different regions

Dependent variable	Stakeholders	Region	Mean ± SD	*N*
Sum of positive evaluations	Hunters	Stable population	4.0±32	21
		Growing population	3.2±2.9	31
		Dispersing wolves	4.1±3.5	15
		Total	3.7±3.1	67
	Primary producers	Stable population	4.4±4.4	10
		Growing population	3.7±3.2	19
		Dispersing wolves	1.0±1.2	5
		Total	3.5±3.5	34
	Conservationists	Stable population	11.5±4.1	13
		Growing population	7.9±4.8	11
		Dispersing wolves	8.3±2.5	4
		Total	9.6±4.4	28
	Others	Stable population	4.1±3.7	29
		Growing population	5.3±3.0	39
		Dispersing wolves	7.1±3.3	14
		Total	5.2±3.4	82
	Total	Stable population	5.4±4.6	73
		Growing population	4.7±3.5	100
		Dispersing wolves	5.2±3.8	38
		Total	5.0±4.0	211
Sum of negative evaluations	Hunters	Stable population	12.5±5.2	21
		Growing population	10.9±4.5	31
		Dispersing wolves	10.5±5.4	15
		Total	11.3±4.9	67
	Primary producers	Stable population	10.3±4.6	10
		Growing population	8.6±3.9	19
		Dispersing wolves	5.8±0.8	5
		Total	8.7±4.0	34
	Conservationists	Stable population	8.2±4.2	13
		Growing population	5.0±2.9	11
		Dispersing wolves	5.5±0.6	4
		Total	6.6±3.7	28
	Others	Stable population	9.4±5.9	29
		Growing population	9.4±3.6	39
		Dispersing wolves	6.8±3.5	14
		Total	9.0±4.6	82
	Total	Stable population	10.2±5.4	73
		Growing population	9.2±4.2	100
		Dispersing wolves	8.0±4.5	38
		Total	9.3±4.7	211

conservationists, the sum of the total positive weight values was clearly higher (9.6) than the sum for negative values (6.6).

Comparison of the differences between stakeholders (Table 4) showed that for positive characteristics, the conservationists differ significantly from all other respondents ($P<0.001$ in all cases). Similarly, hunters differ from all other respondents in comparisons of the sums of negative values ($P=0.001$–0.007).

Regional differences in wolf evaluation

Wolf abundance affected whether various stakeholders evaluated the species positively or negatively. The sums of values for positive characteristics showed no difference between regions ($df=2$, $F=1.5$, $P=0.225$), but the difference between regions was significant for negative characteristics ($df=2$, $F=4.7$, $P=0.010$). In general, negative weight values

Table 4 Multiple comparisons of mean differences ± SE of sums of positive and negative evaluations between stakeholders

Dependent variable	Stakeholder (*i*)	Stakeholder (*j*)	Mean difference (*i* − *j*) ± SE	Significance
Sum of positive evaluations	Hunters	Conservationists	−5.9±0.8	0.000***
		Primary producers	0.2±0.7	0.827 NS
		Others	−1.6±0.6	0.006***
	Primary producers	Conservationists	−6.1±0.9	0.000***
		Others	−1.7±0.7	0.014**
	Conservationists	Others	4.4±0.7	0.000***
Sum of negative evaluations	Hunters	Conservationists	4.7±1.0	0.000***
		Primary producers	2.6±0.9	0.007***
		Others	2.3±0.7	0.002***
	Primary producers	Conservationist	2.1±1.1	0.063 NS
		Others	−0.3±0.9	0.767 NS
	Conservationists	Others	−2.4±1.0	0.015**

* $P<0.05$

** $P<0.01$

*** $P<0.001$

NS not significant ($P>0.05$)

were the highest in the regions in eastern Finland with established wolf populations, and the sums decreased with the population of wolves (sum for established populations, 10.2; for growing populations, 9.2; for dispersing wolves, 8.0). The tests of between-subject effect showed (Table 4) that stakeholders from various regions reacted differently, especially with regard to positive definitions ($df=6$, $F=2.988$, $p=0.008$). Where the wolf population is densest, conservationists define the wolf clearly more positively than in other regions. For all other groups of stakeholders, wolf abundance did not affect the values of positive definitions, or negative values became more important.

Discussion

This study shows that historically, the competitive interaction between humans and wolves in Finland is reflected in stakeholder evaluations even today. In agreement with Bisi et al. (2007), the data in our study indicate that attitudes towards wolves are generally negative and problem based. Negative definitions clearly dominated over positive definitions, with the addition of strong importance value. Differences, especially between hunters and conservationists, were significant. Although hunters recognised the absolute value of the wolf and its ecological role on the whole, they differed from other stakeholders in two important ways. Hunters strongly expressed the wolf's role as a severe threat to hunting and hunting dogs, whereas other stakeholders considered this threat marginal. Hunters assigned higher importance values to negative characteristics of the wolf. This clearly revealed the negativity with which they view the species. Particularly in eastern Finland, in regions with stable wolf populations and where interactions between people and wolves are a part of everyday life, the expression of these negative characteristics was most common.

To better understand the complex relationship and conflict between humans and wolves and, in this case, the conflict between hunters and wolves, a historical perspective is needed. As in North America (Emel 1998) and other Western countries (Fritts et al. 2003), in the past, Finnish decision makers encouraged people to exterminate the whole wolf population. Management of the wolf population, according to historical documents and past written legislation, can be divided into three main eras. The first of these eras lasted from the 1300s to the early 1900s, when wolf killing and hunting was completely unregulated (Pohja-Mykrä et al. 2005; Mykrä et al. 2005). During this period, the legislation underwent several adjustments in order to intensify wolf killing. Under Swedish rule (which lasted until 1809), the Hunting Law of 1347 listed the wolf as harmful, and 1,647 hunting bounties were offered to eradicate wolves (Pohja-Mykrä et al. 2005). At the same time, the moose (*Alces alces*) was considered a beneficial (edible) species. The goal was to increase the moose bag and to reduce the number of wolves. Under Russian rule (1809–1917), the elimination of wolves achieved continuous support through the issuance of hunting bounties (Pohja-Mykrä et al. 2005). In the last decades of the 1800s, wolves were heavily hunted as a result of several child-killing events (Teperi 1977). The wolf was considered a major pest and threat to people and livestock. During this period, the killing of wolves achieved its most extreme rate (Pulliainen 1974). Wolves were fiercely

hunted to the brink of extinction. From the end of 1800s to the 1990s, the Finnish wolf population survived due solely to the dispersion of wolves from Russia (Pulliainen 1965; Kojola et al. 2006a).

The legislative status of the wolf as an ultimate outlaw continued until the 1970s. Until then, the wolf had always been categorised as harmful, and the killing of wolves was permitted for anyone, anywhere and anytime. In the late 1960s, conservationists as well as some decision makers grew concerned about the fate of the species. In 1969, for example, the wolf population dropped to only ten individuals; as a result, 14 members of the Finnish parliament proposed total protection for the wolf (Nienstedt 1997). This period may be defined not only as a period of systematic wolf killing but also as a period of societal pro-wolf discussion. In 1973, the wolf received full protection outside the reindeer herding area. In the following decades, several specific regulations governing wolf hunting were established, and the situation slowly began to change. Even though wolf bounties were still allowed by law since 1976, the state in practise stopped paying wolf bounties because no funds were earmarked for that purpose in the fiscal budget in the forthcoming years (Pohja-Mykrä et al. 2005). A significant change in the management of the wolf population occurred in the 1990s, when the species became protected under the Hunting Law of 1993. The reform of hunting legislation in 1993 reflected Finland's forthcoming membership in the EU and its efforts to harmonise Finnish legislation with that of the EU. Finland became a member of the EU in 1995. The content of Article 16 in the Habitats Directive elicited amendments and totally changed the wolf's legislative status in Finland (Bisi et al. 2007). At present, the wolf is a protected game species (Hunting Law of 1993), a status that can be considered the culmination point in Finnish wolf management. During this past decade and as a result of new legislation, the wolf population in Finland has begun to recover. This period has lasted for about 14 years, whereas the period of uncontrolled killing lasted for nearly 600 years. The period of low population, when the readiness for wolf protection emerged, lasted for about 100 years.

The previous historical context has shown that the role of competition between wolves and humans has been a major driving force in the struggle against the wolf. The wolf has threatened human livelihoods by killing beneficial game species, domestic animals, and even humans—the very same negative characteristics of the wolf that emerged in these data. The species that was nearly eliminated through hunting has become strictly protected by law. The question of hunting remains at the core of the modern wolf conflict not only in Finland but also in Scandinavia (Bisi et al. 2007; Skogen et al. 2008). In modern Finnish hunting culture, the use of dogs is an essential component, and the presence of wolves either threatens or prevents the use of dogs. Conservationists, however, considered this aspect unimportant. Interestingly, hunters consider the wolf a serious threat, although reported and statistically compiled dog killings amount only to some tens annually (MAF 2005). These events are significantly visible in media, however, which to a great extent, explains hunters' attitudes.

"Wolf-free" eras explain the development of Finnish hunting culture

To understand and discuss why the wolf is especially problematic for Finnish hunting traditions and use of hunting dogs, we need to focus on the development of the hunting culture in Finland. The long "wolf-free" period has encouraged the use of dogs in moose hunting traditions in both Scandinavia (Sand et al. 2006a) and Finland. This form of hunting is particularly vulnerable to the presence of wolves, a perception that is reflected in the results of this study and, in large part, explains hunters' negative evaluation of the wolf. The ecological competition between wolves and humans nevertheless persists and arises mostly over the moose as game and over moose hunting and its traditions that employ hunting dogs. This conclusion was supported by the observation that hunters evaluate the species most negatively wherever the wolf population is strongest. In some municipalities in these areas, nearly 50% of the male population engage in hunting—especially moose hunting—as a hobby, which not only highlights its importance as a local use of nature but also accentuates its societal meaning. The moose is the most important prey of wolves in Scandinavia (Wikenros 2001; Müller 2006). In contrast, moose hunting with dogs is forbidden in North America, which explains why, among all stakeholders, hunters are not the most eager objectors to the wolf (Fritts et al. 2003). In the state of Wisconsin, however, wolves have killed dogs used in bear hunting (Treves et al. 2002).

The absence of wolves has made it possible for ungulate populations to increase. During the 1970s, the populations of not only the moose but also the white-tailed deer (*Odocoileus virginianus*), wild forest reindeer (*Rangifer tarandus fennicus*) and roe deer (*Capreolus capreolus*) began to significantly increase in Finland (Tiainen 1998; Lavsund et al. 2003; MAF 2007). Most probably, the increase resulted from changes in forestry practises that provided the ungulates with additional rich food resources. Moose hunting was also better regulated, and the importance of calf hunting was better understood (Lavsund et al. 2003). Because large carnivores were few, hunting played a key role in controlling ungulate populations. As a consequence of the wolf's long absence, the moose is poorly adapted to predation by wolves and is relatively easy prey for them (Sand et al. 2006b).

During the best moose hunting seasons, over 100,000 moose have been killed annually. At the same time, the number of moose hunters has increased in recent years to an average of about 100,000 (Aarnio et al. 2008). Controlling the moose population has provided not only game for hunters but also a service to society. The popularity of moose hunting has strongly promoted the development of hunting dog activities. In addition, the importance of moose hunting in Finnish hunting culture has made the consequences of wolf attacks on dogs exceptionally serious, although wolves may attack other dog breeds as well (Kojola and Kuittinen 2002; Kojola et al. 2004b, c). In regions of scattered settlement, hunting is a way of life, and the wolf is considered a threat to this traditional way of life as well as to the quality of life. Similar sentiments have also been reported in Norway (Skogen and Krange 2003), and in Sweden, wolves have hindered hunting with dogs (Ericsson and Heberlein 2003). From a historical point of view, this traditional way of life and hunting was introduced as late as the end of the 1800s, during a period when the wolf was virtually eliminated from forests.

Regional differences—effects of the presence of wolf

Our study suggests that in areas with stable wolf populations, hunters evaluated wolves more negatively than did other stakeholders. This is connected to the threat the wolf poses to hunting with dogs and to competition over prey. According to Bjerke and Kaltenborn (2000) and Ericsson and Heberlein (2003), those who live with wolves and whose well-being may be directly affected by them harbour more negative attitudes towards wolves than do those with less experience of the species. In some wolf territories in eastern Finland, the moose population has collapsed—a situation that hunters blame on wolves (Bisi and Kurki 2008). Inside some wolf territories, the threat of losing a dog is real, but in areas where wolves disperse only occasionally, the threat is more theoretical.

Areas of reindeer husbandry may present the greatest potential for wolf conflict due to its ecological and economic structure and because of attitudes towards the society and decision making in such areas. Modern legislation allows wolf hunting in reindeer herding areas, however, and the Management Plan for the Wolf Population in Finland states that the wolf population should not increase in this area (MAF 2005).

Conclusions

In the light of history, the wolf as a species challenges humankind over and over again. Ecological competition emerges and evolves as a consequence of man-made environmental changes and the ability of the wolf to adapt to these changes. Also, one can also argue that humans challenge the wolf and that in this struggle, the wolf is always the loser. Although the wolf nowadays enjoys protection as a game species under Finnish legislation, the wolf population decreased by about 20% in 2007 (http://www.rktl.fi/riista/riistavarat/suurpedot_2007/susi.html). This surprising decline in the wolf population cannot be attributed solely by the removal of damage-causing individuals.

The wolf conflict is commonly viewed as a social phenomenon, and its appearance and increase in importance may be connected to the social structures of society. Although it appears to be a value-based struggle between different stakeholders—especially between hunters and conservationists, we argue that the conflict has both a biological and a social explanation. The wolf is a carnivore, which makes it an ecological competitor for humans though, nowadays, mainly for hunters. This competitive situation between wolves and humans has existed throughout history and remains even today. This conflict appears to society as a social conflict, where various stakeholders make different demands on wolf management policy. A significant change in the moose population in Finland and a decline in its importance for hunting would alter the ecological background, and consequently, the societal nature of the conflict would change. Such a change would not necessarily eliminate or reduce negative attitudes towards the wolf, but the role of the hunter in this situation could change. In the future, hunting methods will adapt to the existence of wolves, which will entail greater caution and a decrease in the use of dogs. The presence of wolves will also likely result in smaller moose populations. Critical will be how large a wolf population society—including hunters—will tolerate. If the wolf were suddenly to have economic value as game, such as with the moose or bear, how would this change affect the attitudes of hunters towards the species?

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