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IS THE FEAR OF WOLVES JUSTIFIED? A FENNOSCANDIAN PERSPECTIVE

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Abstract. Following the recolonisation of southern Scandinavia by wolves, the public has expressed high levels of fear of wolves. In response, we have reviewed the existing data on wolf attacks on humans from Fennoscandia during the last 300 years. We were able to find records of people being killed by wolves from all three countries: one from Norway, 16 from Sweden, and 77 from Finland. All cases were prior to 1882. The vast majority of victims were children under the age of 12. All the attacks were predatory in nature, as opposed to those done by rabid wolves. The incidents tended to cluster in space and time indicating that only certain wolves developed the habit of killing people. Implications for the present day management are discussed.

Key words: wolf, *Canis lupus*, man-eating, fear

Introduction

After centuries of intense persecution, wolves (*Canis lupus*) were regarded as being functionally extinct in Scandinavia by the 1960s (Persson & Sand 1998; Elgmork 2000). However, following suspected immigration from the Finnish-Russian population in the 1970s, the population has grown in south-central Scandinavia and now more than 100 wolves are found in Norway and Sweden (Wabakken *et al.* 2001a, b). After this recovery of wolves, the recovery of wolverines (*Gulo gulo*), brown bears (*Ursus arctos*) and Eurasian lynx (*Lynx lynx*) followed during the 1980s and 1990s (Liberg 1997; Landa *et al.* 2000; Swenson *et al.* 1994, 1995, 1998). As with these other three species, there have been a large number of conflicts associated with depredation on livestock (Kaczensky 1996; Landa *et al.* 2000; Odden *et al.* 2002; Sagør *et al.* 1997). However, in contrast to the other three large carnivores, there has been intense media focus on the fact that people are afraid of wolves.

The media has presented many interviews of people that are frightened to walk in the forest and no longer allow their children to walk to school. This focus on fear has prompted a series of intra-disciplinary studies on the human-dimension of fear and a review of cases of wolf attacks on people from the region (Linnell & Bjerke 2002). The aim of these studies has been to survey the

extent of fear of wolves among the public and determine if this fear is in fact grounded in any real risk. While the fact that some large carnivores like bears, tigers (*Panthera tigris*), leopards (*P. pardus*), African and Asiatic lions (*P. leo*) and mountain lions (*Puma concolor*) attack and kill people is undisputed (Beier 1991; Goyal 2001; Rajpurohit & Krausman 2000; Swenson *et al.* 1996; Yamazaki & Bwalya 1999), the danger posed by wolves is often hotly debated among scientists and environmentalists (Mech 1970).

Human attitudes towards large carnivores are complex in Norway, and depend on many factors such as age, sex, education, occupation, hobbies etc. (e.g. Bjerke & Kaltenborn 1998; Bjerke *et al.* 2000; Kaltenborn *et al.* 1998, 1999; Skogen & Haaland 2001; Vittersø *et al.* 1999). While there is a clear majority of people in Norway that appear to favour the idea that wolves should be allowed to exist in Norway (Bjerke *et al.* 2000, 2001), many people indicate that they are afraid of wolves. A telephone survey of 1,200 people living in south-eastern Norway, in an area recolonised by wolves (albeit at very low density), indicated that 48% would have at least some concern for the safety of themselves or their families, 61% would change their behaviour if wolves occurred, and 54% expressed at least some fear of wolves (Bjerke *et al.* 2001). A total of 3,139 people responded to a mailed questionnaire survey. A total of 48% of respondents indicated that they were 'very much

afraid' of wolves and an additional 40% reported that they were 'slightly afraid' of wolves (Bjerke *et al.* 2002; Røskoft *et al.* in press). Clearly, there is widespread fear among members of the public, however is this fear justified?

MATERIAL AND METHODS

In order to address the issue of whether wolves actually pose a risk to human safety we have attempted to uncover documented cases of wolf attacks on people from Fennoscandia during the last 300 years. Clearly such an undertaking cannot be based on original fieldwork, and neither were we qualified to undertake original searches of historical archives. Instead we have attempted to compile published accounts of wolf attacks from the literature (ecological, historical, medical) that have been identified by other authors. Because this literature is poorly indexed in databases, we have gone to great lengths to ensure that our search has been exhaustive. This has included writing to regional historical associations, taking personal contacts with wolf experts, searching through 20 years of newspaper reports and 'letters to the editor' from regional newspapers within the wolf range and the reading of many books and articles concerning wolves in Scandinavia. These searches were undertaken in an attempt to uncover references to incidents that were not covered in the reports that we had gathered. Therefore, this must be regarded as a review of those cases that have been found, rather than as a total summary of all cases. Searches of historical documents have not been systematic, and it is possible that other cases exist. We have only included cases for which there is contemporary written documentation. From the information available and the fact that rabies has been virtually absent from Fennoscandia it is apparent that none of these cases were due to rabid wolves. Therefore, they represent predatory attacks where humans have been regarded as prey.

RESULTS

Norway. The oral tradition in Norway contains many stories of people being attacked and killed by wolves (Snerte 2000; Linnell *et al.* 2002). One of the most widespread and famous stories concerning a soldier being killed by wolves was regarded as being true by early zoologists (Johnsen 1957). However, the facts that there is no documentation of the event and that almost identical events are reported from several regions of Fennoscandia renders the tale's authenticity doubtful

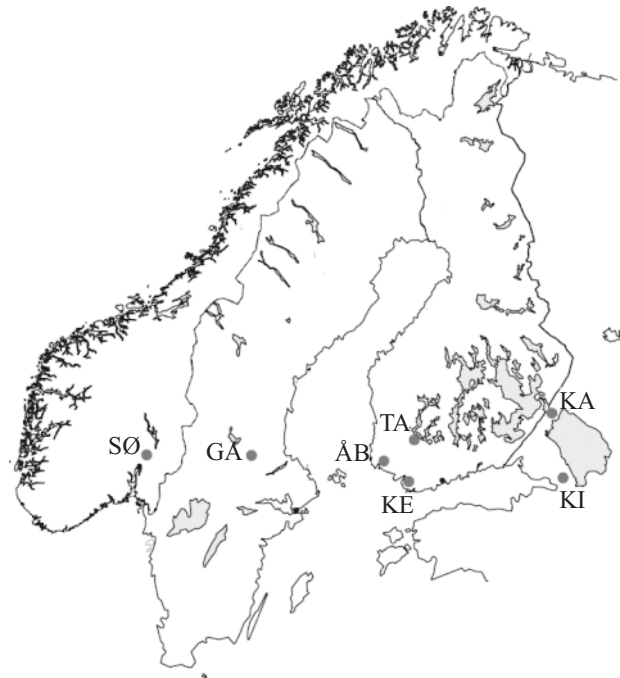


Figure 1. Map of Fennoscandia showing locations mentioned in the text. Norway: SØ – Sørumsund, Akershus; Sweden: GA – Gastrickland; Finland: ÅB – Åbo, TA – Tammerfors, KE – Kemiö, KA – Kaukola, KI – Kivennapa.

(Melin 1992; Snerte 2000). Another common myth concerns a family tossing a baby to the wolves that were pursuing their horse-drawn sleigh (Melin 1992). In fact the images of the soldier or postman, and the family on the sleigh being attacked by wolves are very common devices used in wolf-tales from throughout Europe.

There is only one case that has contemporary documentation (Fig. 1). This concerns a 6–8-year old girl who was killed in Sørumsund, Akershus County (southern Norway) on 28 December 1800. Records exist from local and national newspapers and from the parish register (Unsgård & Vigerstøl 1998).

Sweden. As for Norway, there are many folk tales of wolves killing people in Sweden (Melin 1992), but only few have any form of documentation. A historian has searched for support for a number of these in central Sweden and found support for four cases of people killed by wolves in the parish registers (Eles 1986). These cases were:

Case 1. Boda parish, Värmland County, 17 December 1727, a 4.5-year-old boy, Jon Svensson – 'mauled by a wolf and mostly consumed'.

Case 2. Boda parish, Värmland County, 6 January 1728, a 9-year-old boy, Jon Ersson – 'mauled by a wolf'.

Case 3. Steneby parish Dalsland County, 3rd August 1731, a 12-year-old girl, Borta Johansdotter was killed by a wolf.

Case 4. Hova parish, Västergötland County, January

1763, an 8-year-old boy, Nils Nilsson – ‘bitten to death by a wolf’.

Basing on the proximity in space and time, it is likely that cases 1 and 2 belong to one and the same wolf.

Another incident in which several children were reported as being killed by a wolf near Gysinge in Gastrickland (Fig. 1) in central Sweden is widely known (Persson & Sand 1998). A historian has examined contemporary newspapers, parish records, private journals/letters and administrative records to construct a full picture of the episode (Pousette 2000). In a series of attacks between 30 December 1820 and 27 March 1821, a total of 31 people were attacked, resulting in 12 deaths and 15 injuries. With the exception of a 19-year-old woman, all the fatal attacks were on children between 3.5 and 15 years of age. All the attacks occurred within a very localised area on the border between Dalarna and Gastrickland, and they stopped when a wolf was shot. Basing on historical accounts, Pousette (2000) indicates that all the attacks were performed by a single wolf that had been captured as a pup and raised in captivity for 3–4 years before escaping prior to the attacks.

Finland. A larger number of wolf attacks on people are known from the 19th century Finland (which included parts of present day Russian Karelia). Although they have not been so thoroughly investigated by historians, there are a number of contemporary accounts from newspapers and administrative documents (Mäensyrjä 1974; Pousette 2000; Pulliainen 1975). According to their location and time, these attacks can be grouped into five episodes.

Episode 1. Kaukola (present day Russian Karelia). From January 1831 to summer 1832 a total of eight children and one adult woman were killed by what was assumed to be a single wolf (Fig. 1).

Episode 2. Kemiö (southwest Finland). In 1836, three children were killed by wolves (Fig. 1).

Episode 3. Kivennapa (present day Russian Karelia). Between 1839 and 1850 a total of 20 children and one adult were killed by what was assumed to be the same wolf or wolf pack. Not many details of the victims are known, but four victims whose age was known were between six and eight years of age (Fig. 1).

Episode 4. Tammerfors (southwest Finland). In 1877, 10 children were attacked by wolves, nine of these died from their wounds (Fig. 1).

Episode 5. Åbo (southwest Finland). During the period 1879–1882, a pair of wolves killed a large number of children within a limited area covering 11 parishes (Fig. 1). Early accounts indicated that 22 children were killed (Godenhjelm 1891; Mäensyrjä 1974), however further examination of records (Pousette 2000) has indicated that as many as 35 may have been killed. Not all of

these attacks were equally well documented, and some were only based on rumours, while others were well documented. All victims were apparently children. As the attacks progressed, an increasing effort was expended in trying to kill the wolves, involving hunters from Russia and Lithuania and the Finnish army. Finally in January 1882 a female wolf was shot and 12 days later a male wolf was poisoned, bringing the attacks to an end.

In addition, there are newspaper reports on three other attacks (two fatal, one injured). A 12-year-old girl was killed in Eurajoki, south-western Finland in 1859, an 8-year-old boy was killed in Uusikrikko, Karelia in 1880, and a boy was attacked in Sortavala, Karelia in 1882. The accuracy of these reports is unknown.

Although there is no direct evidence that these wolves were tame (as in the case of the Gysinge wolf from Sweden), Pousette (2000) indicates that the possibility cannot be ruled out. Apparently during this period the bounty paid for wolf pups during summer was only half that of the bounty paid during winter. Accordingly, many hunters would capture wolf pups in summer at den-sites and keep them caged until mid-winter. At this time they got the full-bounty and a valuable fur. In this type of situation it is quite possible that a wolf could have escaped, after having lost its fear of people.

DISCUSSION

Until the recent documentation of predatory attacks by wolves on children in India (Jhala & Sharma 1997; Rajpurohit 1999) the scientific community has often doubted that non-rabid wolves pose any threat to human safety (Mech 1970). The results presented here, and those from other studies based on searches of historical archives (e.g. de Beaufort 1988; Comincini *et al.* 1996; Rootsi 2001) indicate that wolf predation on humans was an occasional, but widespread, feature of life in Europe until the 20th century. As many of the historical accounts describe finding the bodies in a fully or semi-consumed state, there is little doubt that these attacks reflected, at least partly, predatory behaviour on the part of the wolves.

A number of common patterns emerge from these Fennoscandian cases. Firstly, victims were almost entirely children under the age of 12 indicating that wolves were avoiding adults (Fig. 2). In 85% of cases no adult was present, and the children were generally alone (Table 1). In those few cases where an adult was killed it was almost always a woman. It should be remembered that during this period children were commonly employed as farm-workers and shepherds, which routinely

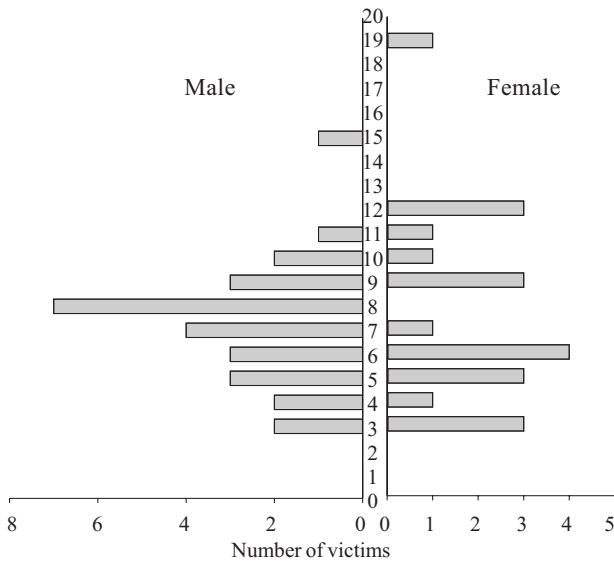


Figure 2. Age structure of humans killed by wolves in Fennoscandia, 1700–1900. In addition there are two adults of unknown age.

brought them into wolf habitats and into contact with wolves. Secondly, there was no clear seasonal pattern of predation (Fig. 3). Thirdly, the attacks tended to be clustered in space and time. This indicates that human-killing was not a normal behaviour for the average wolf, but was rather a specialised behaviour that single wolves or packs developed and maintained until they were killed. Fourthly, in all cases only a single victim was injured in each attack, although the victim was with 2–3 other people in a few cases. This contrasts dramatically with the pattern seen in attacks by rabid wolves, where up to 40 people could be bitten in the same attack (Linnell *et al.* 2002).

Finally, all these attacks from the 18th and 19th century Fennoscandia, like those from the 20th century India, stem from situations where poverty is widespread in the human population and wild prey are rare. This situation is likely to make wolves dependent on livestock or garbage that will bring them into close contact with people on a regular basis. This contact is likely to reduce the level of fear that wolves have for humans. In fact both the modern Indian and the pre-20th century Fennoscandian cases contain examples of wolves lifting small chil-

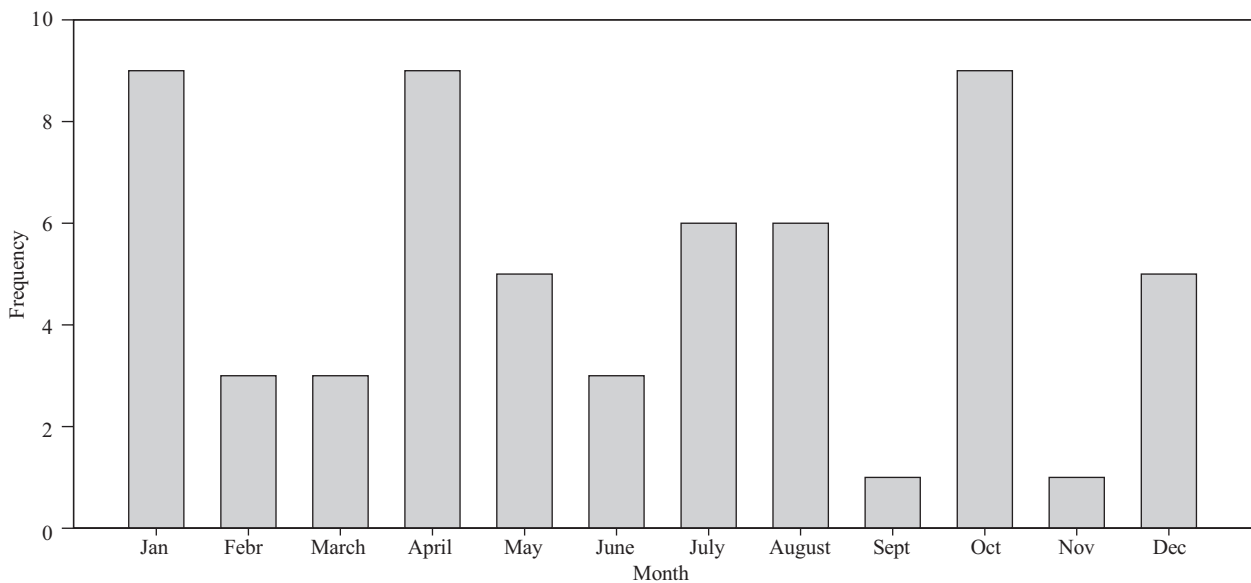


Figure 3. Seasonal distribution of humans attacked by wolves in Fennoscandia, 1700–1900.

Table 1. Locations and circumstances, group sizes and presence of adults for wolf attacks on humans in Fennoscandia in the 19th century.

Incident	No.	Circumstances					Group characteristics		
		Herding livestock	Near house/farmyard	In forest/lake	Outlying barns/fields	On road	Median group size	Range	% groups with adults
Gysinge, Sweden	21	5	57	14	5	19	1	1–4	17
Åbo, Finland	24	21	63	4	4	8	1	1–3	8

dren from the immediate proximity of houses and farms indicating that wolves were unafraid to approach buildings during day time. The historical data from Fennoscandia also show that the majority of attacks occurred in the immediate vicinity of houses and farmyards, rather than in the forest. Given the present situation of Fennoscandia, where prey are abundant, fearless wolves are likely to be rapidly shot, and the socio-economic situation has changed dramatically, it is very unlikely that wolf-attacks on humans will occur.

The patterns associated with wolf attacks on people differ strikingly from those associated with brown bears from the region. In a review of bear attacks in Norway and Sweden from 1750–1962, Swenson *et al.* (1996) found that the majority of victims were adult men, a category that was absent in the wolf attack data. Furthermore, most of the bear attacks appeared to be defensive in nature rather than predatory (Swenson *et al.* 1999), and the cases are more evenly distributed in space and time, indicating that very different ecological processes lie behind human-killing in these two species.

Large carnivore depredation on people has been a feature of human existence throughout our evolutionary past and recent history (Lee-Thorp *et al.* 2000; Treves & Naughton-Treves 1999). It is therefore not surprising that people maintain an instinctive fear of large carnivores including wolves (Røskaft *et al.* in press). The incidents that we review here were widely referred to in 'letters to the editor' sections of local newspapers indicating that the public has been aware of these historical events when forming their present attitudes. However, the levels of fear of wolves expressed by the modern Norwegian public seem to be out of proportion to the actual risk posed by wolves. Results from a survey of European human-dimension studies indicate that fear levels should decrease as people become used to the presence of wolves (Zimmermann *et al.* 2001). However, this does not imply that fear should be ignored in present conservation/management programs. Prior to this review there was a general feeling among the public that scientists/conservationists would not admit that wolves had ever killed people. This created a strong perception of a data-conflict, which decreases trust and hinders effective communication between central and local actors in the wolf debate (Skogen & Haaland 2001). The publication of the review of wolf attacks (Linnell & Bjerke 2002; Linnell *et al.* 2002) has hopefully helped to reduce this conflict.

Based on reviews of the ecology and human dimensions of the fear of wolves Linnell and Bjerke (2002) recommended a set of measures that should help minimise fear. These included (1) keeping wolves wild through regulated harvest; (2) maintaining dialogue between rural

residents and managers; (3) maintaining a healthy prey-base; (4) developing clear reaction plans in case of an aggressive wolf encounter; (5) allowing time for people to redevelop personal experience with wolves. This study demonstrates the importance of combining ecological and human-dimension studies in the management of large carnivores. Perhaps most importantly, this review of historical events has indicated that it is vital to take the beliefs and fears of people seriously when developing conservation information strategies.

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AR PATEISINAMA VILKŲ BAIMĖ? FENOSKANDIJOS PAVYZDYS

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SANTRAUKA

Visuomenė smarkiai sunerimo dėl grėsmės žmonėms, kurią kelia atsistatanti vilkų populiacija pietinėje Skandinavijoje. Šiame straipsnyje apžvelgiami vilkų užpuolimo atvejai, užregistruoti Fenoskandijoje per paskutinius 300 metų. Archyvuose pavyko rasti užregistruotus atvejus, kai žuvo vilkų užpulti žmonės visose 3 Skandinavijos šalyse: 1 Norvegijoje, 16 Švedijoje ir 77 Suomijoje. Visi šie antpuoliai atsitiko iki 1882 metų. Dažniausiai vilkų aukomis tapdavo vaikai iki 12 metų amžiaus. Visas vilkų atakas galima traktuoti ne kaip pasiutusio žvėries užpuolimus, o kaip plėšrūno medžioklės atvejus, kuomet aukomis pasirenkami žmonės. Visi vilkų antpuoliai aiškiai padažnėdavo tam tikru laikotarpiu ir tam tikroje vietoje. Tai reiškia, kad polinkį medžioti žmonės turėjo tik tam tikri individai. Straipsnyje aptariami galimi nūdienos vilkų populiacijos valdymo aspektai, susiję su šių žvėrių pavojingumu žmonėms.

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