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Public attitudes and the future of wolves *Canis lupus* in Sweden

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Wolves *Canis lupus* are coming back to Sweden. In 1998, at least 50 animals were estimated to be in Sweden, and the latest estimate is 128 wolves (Aronsson & Svensson 2007). The attitudes of the public have life and death consequences for wolves and may be part of the reason why the wolf population is not growing as fast as expected (Wabakken et al. 2001). Our goal in this article is to outline some factors that point to potential negative swings of opinion in Sweden and to discuss some proposed remedies based on our surveys. In 2005, a wolf immigrating into Sweden acted as if it had not read our research reports. The 'Ringvattnet' wolf attacked livestock and repeatedly visited a village in spite of attempts to scare it off. Our surveys show that the general public opinion supports hunting and killing wolves if 1) wolves do damage to live-stock or private animals, and if 2) a wolf loses its fear of humans

(Ericsson et al. 2004). The 'Ringvattnet' wolf had done both and was predictably shot by the authorities.

General positive attitudes towards wolves

Our meta-analysis of 38 attitude studies from around the world published between 1972 and 2000 shows majority support for wolves and restoration across studies (Williams et al. 2002). This support has been constant across wolf attitude studies for nearly 30 years. We believe that the major shift from negative to positive attitudes came as American and western European societies continued to urbanise and industrialise between the 1930s and the 1960s. Our recent surveys in Sweden show that support for the existence of wolves in Sweden

is strong and widespread among the general public (Ericsson et al. 2006). Even a majority of hunters who live in the wolf areas support the right of wolves to exist (Ericsson & Heberlein 2003). Attitudes of the general public in Sweden towards wolves have been stable or have become even more positive between 1976 and 2001 (Ericsson & Heberlein 2003).

The potential for a negative swing in opinion

Experience

Though attitudes are usually stable, they are not immovable. Attitudes towards wolves may become more negative now that the wolves are back. It is easy to support hypothetical wolves, but real wolves, such as the 'Ringvattnet wolf' which may kill hunting dogs and livestock and threaten the public's sense of security. Both our research and the research of others show that people who live in wolf areas are less positive towards wolves than people who live in areas where wolves do not occur (Ericsson & Heberlein 2003, Ericsson et al. 2006, Karlsson & Sjöström 2007). Increasing wolf numbers can lead to more negative experiences which can lead to more negative attitudes.

Furthermore, lack of experience may be even more important for changing attitudes than experience itself. The results of our meta-analysis showed that in most studies >30% of the respondents reported no strong attitudes towards wolves (Williams et al. 2002). We also found this level of disinterest in our 2001 Swedish survey. But a single negative event could make this group change from neutral to negative. For example, Duda et al. (1998) found that the support for a proposed wolf restoration in the Adirondack Mountains region in the state of New York, USA, dropped from 76 to 46% in a single year following a proposal to reintroduce wolves. Subsequent studies performed by researchers at Cornell University showed that these attitudes remained negative two years later (Enck & Brown 2002).

Change in hunter attitudes

The most dramatic change in Sweden has been a decline in hunter support for wolves. In 1976, 3/4 of the hunters and the public agreed that it was important to do something for wolves, and 60% of both of these groups supported artificial reintroduction of wolves (Andersson et al. 1977). At that time,

the hunters were more positive than the general public in their support for a free-ranging wolf population (63 vs 51%), and in their support for an unrestricted population of wolves (59 vs 51%). Today, when real wolves have returned to Sweden, we found that only 40% of the hunters said they liked wolves compared to 61% of the general public (Ericsson & Heberlein 2003). So, today, hunters are much less likely than the general public (40 vs 71%) to say that the wolf population should increase. We believe that these changes occurred because 30 years ago hunters anticipated that wolves would show up in the mountains and in the reindeer *Rangifer tarandus* areas in the north rather than in the southern forests and in the moose *Alces alces* hunting areas where the restoration actually happened. While hunters in Sweden compose about 3% of the total population and hunters in the wolf area compose 0.1% of the population between 16-65 years old, they represent an important interest group when it comes to wolves as they are directly affected. Hunters' annual licensing fee also helps fund wildlife research. Hunting is symbolically important in Sweden and hunters have nationwide political influence. Though small in numbers, this is not a group that can be easily ignored.

Residence

Attitude studies usually show that urban residents are more favourable in their attitudes towards wolves than are rural residents (Williams et al. 2002). This is not the case in Sweden where we found no statistically significant difference between rural and urban residents in their support for wolves (Ericsson & Heberlein 2003). In 2005, we (Heberlein & Ericsson 2005) took a closer look at urban residents. We asked if respondents living in cities were multigenerational urban residents. It turned out that those who were sons and daughters of parents who themselves had been born and were raised in cities had the most negative attitudes towards wolves (Heberlein & Ericsson 2005). Those urbanites that had the fewest contacts with the countryside (through recreation or visits to second homes) also had most negative attitudes towards wolves. It is possible that if urbanisation continues and more of the cities' citizens become multigenerational urbanites, support for wolves will decrease. Thus it is not clear whether future urbanisation will lead to more positive attitudes towards wolves as would be expected by the simple rural-urban comparison in studies done outside Sweden.

Counteracting a potential decline in support

Educating the public

Educating the public is a widely proposed solution to cope with all sorts of social problems. It turns out that the basic assumption that underlies this approach is not met in the wolf attitude research. Our data as well as those of other studies (e.g. Kellert & HBRS 1990) showed no positive correlation between knowledge and positive attitudes towards wolves (Ericsson & Heberlein 2003). Actually, in Sweden, the groups who knew the least about wolves liked wolves most. This association would imply that learning more about wolves would make people less positive about wolves. This paradox is more apparent than real when we look at the specific groups. Hunters living in areas with wolves had the most accurate objective knowledge about wolves but consistently the most negative attitudes. Simply 'educating the hunters' about wolves would not make them as positive as the general public. It is their experience with predation and their role as hunters that affect their attitude more than their general knowledge. We did find that within each of the groups, hunters, the general public and the public living in the wolf areas, those who had more knowledge were more in favour of wolves (Ericsson & Heberlein 2003). A major barrier to a successful education programme is that attitudes towards wolves among the general public are not very strong so therefore people are not likely to look for information. People who either love or hate wolves will be most likely to look for any information about wolves, but will be the least likely to change their minds. Those who are changeable, i.e. those with neutral attitudes, do not care enough about wolves to read pamphlets or take notice of information campaigns. So, trying to increase the knowledge of and information to the public in the long run may be helpful, but it should not be regarded as a silver bullet for making attitudes towards wolves more positive.

Cohort effects

What appears to be an age cohort effect in the Swedish and international data will lead to a decline in negative attitudes over time. Our studies and the meta-analysis consistently show that the elderly have the most negative attitudes towards wolves. We believe that this is because they learned these attitudes during an earlier time and have carried them

on through life. As the human population ages, these elderly people who learned their more negative attitudes at a previous period in time will make up a smaller and smaller proportion of the whole population. This should lead to an increase in the more positive attitudes in the human population. We do not expect the young people of today who have positive attitudes towards the wolf population to become less in favour as they grow older. However, this topic deserves future research using the same people in panel studies.

In contact with the countryside

The discovery that contact of urban people with the countryside (either growing up in the countryside or making visits for recreation) is associated with more favourable attitudes towards wolves (as well as to hunting and wildlife; Ericsson & Heberlein 2005) presents some possibilities to increase support for wolves. Based on this, we would argue that programmes that support rural development and which get urban people out into the countryside will be likely to lead to more positive attitudes towards wolves, hunting and nature in general.

Making wolves valuable to hunters

The most important problem right now is that wolves affect hunters negatively in as far as they kill their dogs, compete for the same prey, and provide few recreational benefits. Serious thought needs to be given to ways in which wolves can provide recreational or other benefits. The obvious possibility would be to allow sport hunting of a limited number of wolves every year when the wolf population level allows it. Hunters have a long tradition of becoming protectors of species that they are allowed to hunt.

Reducing powerlessness of rural residents

In North America and Scandinavia, wolves become symbols of urban dominance in rural areas where wolves are restored. The major reason for the shift in attitudes from positive to negative in the state of New York was that local politicians reframed the issue from 'wolf restoration' to 'outsiders telling us what to do'. The powerlessness and hopelessness that many people living in rural areas feel leads to an antipathy for symbols of urban dominance and the wolf has become one such symbol whether it be in Wyoming, Wisconsin or Dalarna in Sweden (Sharpe et al. 2001, Ericsson et al. 2008). But change is possible. Wolves in Yellowstone National Park

have had demonstrable positive tourism effects (Bioeconomics 2005). Rather than being a threat, wolves have become interesting to some ranchers (Bass 1992). Making wolves a game species even in a limited number might make wolves part of the utilitarian culture of wildlife and provide rural residents with a greater sense of control. Recent changes in Sweden that allow land owners to shoot wolves even outside fences should help reduce human senses of powerlessness.

Conclusion

In Sweden today, attitudes towards wolves among the general public are positive and stable. This fits well with international data. The arrival of real wolves that do wolf-like things is likely to lead to more negative attitudes towards wolves, particularly in areas where the wolves return. The weak attitudes among the general public mean that large swings, likely negative, are possible. 'Educating the public' is not likely to offset such negative tendencies. Also the increase in the multigenerational urban population suggests the possibility of a more negative attitude in the future. The aging of the human population should lead to a more positive attitude over time. Programmes which increase the rural contacts of urban human populations might help maintain the current positive attitudes towards wolves in Sweden. Efforts should be put into making wolves valuable to hunters and reduce their symbolic status.

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