

An Evaluation of Measures to Reduce Personal Fear of Wolves

Maria Johansson¹ & Jens Frank²

¹Environmental Psychology, Dept of Architecture and Built Environment, Lund University

²Wildlife Damage Centre, Dept of Ecology, Swedish University of Agricultural Sciences

Final report Formas dnr 250-2008-402

2015-03-31

Introduction

Large carnivore populations, such as wolf (*Canis lupus*) and brown bear (*Ursus arctos*), have during the last decades increased in Scandinavia. This has led to an intensified debate about the presence of large carnivores as well as about large carnivore policy and management. To some people large carnivores are associated with positive feelings such as interest and joy. To others the presence of large carnivores is stressful, and a concern for the perceived safety. This fear may negatively influence everyday life, especially among people in the countryside, and to people who fear large carnivores, the presence of these animals in their vicinity constitutes an environmental stressor that may affect well-being and health.

Information is commonly introduced in response to public fear of large carnivores. The rare evaluations of informational and educational programmes in this context show however mixed results with regard to fear-related variables. In situations with large carnivores close to human settlements, additional management interventions may also be introduced. So called primary repellents use disruptive stimuli, which are stimuli that disrupt predatory behaviors by causing a “fright” or “startle” response. Sonic deterrents have the advantage of being cheap, easy to carry and not restricted by any current legislation. Furthermore they have no proven potential to harm the user or the carnivore involved.

The present project aimed to i) advance the psychological theory of human fear of large carnivores and ii) evaluate if two different measures, factual information and an ultra-sonic scaring device would influence antecedents of wolf fear as well as the self-reported feeling of fear.

Method and results

The research project was built around three empirical studies. Study I aimed to test our previously developed FearSEM model of fear of large carnivores in a larger sample (Johansson et al., 2012). Psychological antecedents of wolf fear was analysed by survey data

from a proportional sample of the Swedish population, national sample (n = 545) and from a sample of people in five counties with presence of wolves, regional sample (n = 1,892).

Structural equation modelling confirmed the dual pathway to self-reported fear of wolves (national sample $R^2 = 0.31$; regional Sample $R^2 = 0.38$). One path encompassed the appraisal of the environmental context operationalized as a potential wolf encounter in terms of perceived danger, unpredictability of the animal behaviour and the uncontrollability of the personal reaction. The second path concerned the appraisal of the social context assessed as social trust in managing authorities

The relative importance of the paths differs between the national and the regional sample, and between people in the regional administrative centers and the regional periphery. In the regional but not in the national sample the appraisal of wolves was negatively associated with social trust.

In Study II a quasi-experimental research design was set up with the aim to i) understand how public information meetings about wolves and brown bears organized by the County Administrative Boards were perceived by the participants, and ii) to test if these meetings would have an effect on the participants' feeling of fear of these animals.

In total, 198 persons who lived in areas with presence of wolves and/or brown bears participated in the study. 135 persons participated in Wolf information meetings (40% women and 60% men, (M = 56 yrs, SD = 14 yrs) and 63 persons participated in the Brown Bear information meetings (39% women and 61% men, (M 63 yrs, SD = 11 yrs). In addition 202 persons were recruited via Nordstat webb-panel as a wolf reference sample, consisting of 45% women and 55% men (M = 57 yrs SD = 14 yrs).

A majority of the participants thought that the information was interesting and that they learnt something new. Significant changes were identified in the participants' self-reported antecedents of fear (appraisal of wolf encounter $p < .001$, $\eta_p^2 = .34$; social trust $p < .001$, $\eta_p^2 = .15$) and their subjective assessments of fear after the information meetings $p < .001$, $\eta_p^2 = .12$. The results suggested that information meetings have the potential to reduce self-reported fear of wolves and brown bears. The corresponding assessments were rather stable over time in the reference sample of people living in large carnivore areas. The perceived credibility of the information was however an important moderating factor. Little change in the investigated concepts was identified among participants who did not find the (wolf) information presented credible.

Study III aimed to evaluate the effect of six months free access to an ultra-sonic device in a quasi-experimental study. In total 27 people who previously attended the information meetings, 13 females and 14 males (M = 55 yrs, SD = 14) participated in the study.

Only 12 % of the information meeting attendants agreed to evaluate the device. They were sent the device by post together with written instructions and an advice to follow general recommendations on how to behave when encountering wolves (www.viltskadecenter.se). In the post-test questionnaire 70 % of the participants reported that they had carried the device at some point during the test period and 15% had triggered it in situations when they believed

there was a wolf near them. Participants who were relatively more fearful of wolves used the device more frequently ($p = 0.02$, $\eta_p^2 = 0.22$), and they found the device useful in particular when walking in the forest. Access to the device did however not have any significant effects on the appraisal of a wolf encounter, social trust or self-reported fear.

In in-depth interviews with 9 persons (2 females and 7 males) four overarching reasons for declining to test the ultra sonic device could were identified: The device was considered an irrelevant solution to the human-large carnivore conflict, there was a lack of trust in the technology, the device would not be useful under the one's present living conditions, or one did not express fear of encountering wolves.

All the research procedures were submitted to the regional ethical review board at Lund University who declared that the study were of no need for further ethical review (dnr 2012/9).

Discussion and conclusion

The public's fear of wolves should, in parallel, be addressed at an individual level, focusing on situations with potential encounters, and at a collective level by strengthening the trust between the public and authorities: Moreover regional variation should be accounted for.

The potential in using a sonic scaring device in order to decrease fear of wolves in acute situations seems very limited. The interviews revealed that rather this type of top-down initiatives may in some groups have negative effects on social trust. The outcomes of our study show the importance of evaluating any wildlife management interventions that involves humans before it is introduced. This may seem obvious, but is in practice is often not the case.

Information meetings were positively evaluated and seem to have a potential to short-term decrease fear of wolves and brown bears among people who find the information credible. The presence of a group of participants who did not believe the wolf information was credible reflects the current debate on large carnivores and points to the importance of considering the match between sender, content, medium and audience. There was however no indication that the meetings would increase feelings of fear among those who did not find the information credible. This implies that the introduction of information meetings would at least not make the social conflict worse.

Our results have been presented at international conferences and in scientific papers. The latest updates are found at

<http://mpe.arkitektur.lth.se/forskargrupp/maria-johansson/fear-of-wolves/>