



The missing lynx — understanding hunters' opposition to large carnivores

Authors: Lüchtrath, Angela, and Schraml, Ulrich

Source: Wildlife Biology, 21(2) : 110-119

Published By: Nordic Board for Wildlife Research

URL: <https://doi.org/10.2981/wlb.00068>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

The missing lynx – understanding hunters' opposition to large carnivores

Angela Lühtrath and Ulrich Schraml

A. Lühtrath (angela.luechtrath@ifp.uni-freiburg.de) and U. Schraml, Chair of Forest and Environmental Policy, Albert-Ludwigs-Univ. Freiburg, Tennenbacherstr. 4, DE-79106 Freiburg, Germany

Local opposition to large carnivores is a frequent source of conflict and a major obstacle for large carnivore conservation worldwide. The aim of our study is to understand hunters' reasons for opposing large carnivores, paying particular attention to the social dimension of the conflict. In an area where a vigorous conflict about lynx (*Lynx lynx*) exists without there actually being individuals of this species resident, we conducted group discussions with hunters, a group that includes many lynx opponents. Results were interpreted using the theories of social identity and psychological reactance. We found that, despite the absence of large carnivores, hunters' perceptions and reasoning resembled those present in areas with resident large carnivores. This underlines the significance of the social dimension. Results show that the hunters' position in the lynx conflict is shaped by past experiences with pro-lynx groups (forestry and nature conservation). In this interaction, hunters see their social identity as being threatened which in turn leads to group discrimination and reactance processes – the latter possibly resulting in illegal shootings of lynx. Thus, hunters' opposition is not solely about the impacts of the lynx, but also about defending their social identity and withstanding impairment of their perceived freedoms by other interest groups. We argue that actively dealing with such group dynamics could serve as a missing link between large carnivore protection and conflict management. Future large carnivore management should focus more on shaping the quality of the interaction between the managers, advocates and opponents of large carnivores in order to overcome group-conflict and reactance processes.

Large carnivores are legally protected in Europe (Berne Convention (Council of Europe 1979), Habitats Directive (Council Directive 92/43/EEC)), but local opposition to large carnivores often challenges the success of conservation efforts (Kaltenborn and Bjerke 2002, Molinari-Jobin et al. 2010, Majic et al. 2011). This leads to conflicts about the carnivores and their management. A common view amongst researchers as well as practitioners in this field is that understanding the source of the opposition will help manage the conflicts and thereby promote large carnivore conservation (Ericsson and Heberlein 2003, Kleiven et al. 2004, Majic et al. 2011, Glikman et al. 2012). Given that in many European regions illegal shootings threaten the survival of large carnivore populations (Andrén et al. 2006, Červený et al. 2002, von Arx et al. 2004, Breitenmoser and Breitenmoser-Würsten 2008), understanding hunters' perceptions of large carnivores seems especially relevant. Current research on what forms attitudes towards large carnivores includes many quantitative studies that focus on demographic factors, normative beliefs or value orientations (Bath 1989, Bjerke et al. 1998, Hunziker et al. 2001, Williams et al. 2002, Naughton-Treves et al. 2003, Kleiven et al. 2004, Glikman et al. 2010, 2012, Teel and Manfredo 2010, Majic et al. 2011, Herrmann et al. 2013). With regard to hunters' attitudes these studies arrive at different conclusions. Many

studies have identified an association between hunting and negative attitudes towards large carnivores (Zeiler et al. 1999, Naughton-Treves et al. 2003, Ericsson et al. 2004, Karlsson and Sjöström 2007, Bisi et al. 2010). Yet other research has shown that hunters do not generally hold negative attitudes towards large carnivores and can even be more supportive than non-hunters (Bjerke et al. 1998, Williams et al. 2002, Ericsson and Heberlein 2003, Kaczensky et al. 2004, Bath et al. 2008). Glikman et al. (2010) on the other hand find that hunting experience is only minimally related to attitudes towards large carnivores and is outweighed by normative beliefs about protection.

Given that conflicts are a social phenomenon that can strongly affect perceptions and attitudes (Glasl 2004), it is important to take into account the influence of the social and political environment on people's perceptions of large carnivores. Several qualitative studies with this focus find that conflicts about large carnivores are a symptom of greater social conflicts, e.g. about different ideas on land use (Wilson 1997, Nie 2001), between different classes of society (Skogen 2001, 2003), urban–rural tensions and different forms of knowledge (Skogen and Kränge 2003, Sjölander-Lindqvist 2008) or opposition to nature conservation associations and policies (Skogen et al. 2008, Liukkonen et al. 2009).

In southwest Germany there are no large carnivore populations at present. However, there has been a conflict about lynx for several decades, with hunters being one of the groups most strongly opposed to the lynx. The conflict has long since reached an impasse. Considering the importance of the hunters' role for the success of large carnivore conservation, the aim of our case study was to understand the reasons for hunters' opposition towards the lynx, in the social context of this specific conflict.

Methodology

Empirical background

In southwest Germany there are at present no large carnivores. Over recent decades single lynx have appeared only sporadically in the area. They most likely migrate from the neighbouring countries Switzerland and France but do not settle (Kaphegyi et al. 2006). The lynx became the subject of a conflict in the 1980s when a nature conservation group pursued its active reintroduction. This led to strong protests from farmers and hunters, eventually resulting in a court case (Lüchtrath et al. 2012). The reintroduction was not permitted by the courts and until today no lynx population exists in this region. Despite the missing lynx, the topic has remained conflict-laden. The parties expressed their positions and demands via pamphlets, articles, and also information events which escalated. The arguments put forward included accusations from lynx opponents that the lynx individuals which have appeared sporadically in the region were illegally released by lynx advocates. In contrast, the latter claim that the very few cases of lynx individuals in the region and the fact that they keep disappearing again is evidence of illegal shootings by the lynx opponents. Although neither of these rumours has been substantiated, they "turned the debates into emotional quarrels in which ecologically based arguments were marginalised by the particular interests of the different stakeholders" (Kaphegyi et al. 2006: p. 173). Given that large carnivores, due to their absence, have no immediate influence on the conflict, this area provides an ideal context within which to study the social mechanisms at play.

Data collection

The actors in the conflict at hand appear and act as social groups (e.g. "hunters", "foresters", "nature conservationists"). When members of a group get together, their shared experience and collective sense-making form a group opinion (Pollock 1955, Bohnsack 2003). This group opinion, rather than the perceptions of individuals, is represented in the public debate. To assess group opinions and collective orientations, Bohnsack (2003) recommends group discussions. Through the group's discursive descriptions the collective orientations and opinions as well as the contexts in which they form become evident.

Five group discussions with hunters were conducted in different regions of southwest Germany as a means of taking into account heterogeneous experiences with lynx or the conflict about lynx (Table 1). Participant numbers ranged

between ten and twelve per group (Table 1). The discussions consisted of two parts:

1. Participants' opinions about lynx and experiences with the lynx issue
2. Participants' ideas about the future of lynx and lynx management

Discussions took about three hours and were audio recorded. Transcripts of the discussions underwent a qualitative data analysis process using MAX QDA software and the procedure of coding and categorising suggested by Corbin and Strauss (2008). This procedure consists of close meshed, inductive analysis of the data (open coding) and the subsequent development of interconnections between codes and categories, keeping in mind the context in which participants act and the strategies they use for interaction (axial coding). At this stage, constructs from formal theories (such as "Reactance") were added as deductive categories. The analysis produced the system of categories shown in Table 2.

Conflict definition

A frequent assumption about large carnivore conflicts in the wildlife biology literature seems to be that conflicts take place between large carnivores and large carnivore opponents and/or their livestock (Treves and Karanth 2003, Liukkonen et al. 2009, Boitani et al. 2010, Glikman et al. 2012). From our point of view this leaves out an important conflict party – the large carnivore advocates. We consider that they play a role and that conflicts take place between large carnivore advocates and large carnivore opponents rather than between large carnivores and large carnivore opponents. It is therefore a 'social conflict', which Glasl (2004) defines as an interaction between actors (individuals, groups, organisations, states etc.), where at least one actor sees differences or incompatibilities between their own perceptions, thoughts, visions, feelings, and desires and those of another actor (or other actors) in such a way that the realisation of what the actor thinks, feels and wants is impaired by the other actor(s) (Glasl 2004: p. 17, translation by authors). We chose this definition because we consider that the conflict we studied does not primarily arise between hunters and large carnivores, but rather between groups who feel impaired by other groups' perceptions, thoughts, feelings and/or desires 'about' large carnivores (q.v. Madden 2004, Marshall et al. 2007). Furthermore the definition's emphasis on the incompatibility of interactions and perceived impairment reflects two of our main observations: a) the importance of the quality of the groups' interaction as perceived by hunters for their opinions about the lynx and b) the perceived impairment resulting from this interaction and hunters' consequent choice of (re)actions. These two aspects also informed our choice of theories.

Theories

As suggested by Corbin and Strauss (2008), theories were not incorporated from the beginning. They were drawn upon in the course of the analysis to explain above mentioned observations. With regard to a) we chose Social identity theory (SIT) (Tajfel and Turner 1986) which focusses

Table 1. Regions of group discussions.

Region	Characteristics	No. of participants
Danube Valley (DV)	Experience with one lynx individual, which was tracked in the area over a period of two years (2005/2006)	10
Swabian Alps (SA)	Not much experience with lynx, apart from a road kill on New Years Eve 2006	12
Northern Black Forest (NBF)	Is assumed to be a very suitable lynx habitat and is suggested as such by nature conservationists. Single lynx sightings have been reported but no permanent resident could be verified during the last five years. The lynx discussion is very vivid, as there are regular lynx-related activities and events in the area	12
Central Black Forest (CBF)	Potential lynx habitat with no confirmed residential lynx but lynx records in the past. The lynx discussion is currently not very topical but memories and stories are still shared	11
Southern Black Forest (SBF)	No confirmed residential lynx, but individuals supposedly cross the border from France or Switzerland every now and again. This region is one of the most burdened with the conflict about lynx. The session was the most difficult to organize, because a lot of mistrust and opposition has developed regarding any activity related to lynx: "The earth is scorched, leave us alone." Trust was finally established through contact with a local hunter who, after convincing himself that the focus groups were not part of a "lynx-promotion-campaign," helped to gather participants	10

on how group interaction can lead to group conflict. Regarding b) we chose the Theory of psychological reactance (TPR) (Brehm 1966) which explains how humans respond if perceived behavioural freedoms are threatened or eliminated, or in other words, if they feel impaired. Both theories have been used in previous studies for the analysis and explanation of environmental conflicts (Bonaiuto et al. 1996, 2002, Stoll-Kleemann 2001, Schenk et al. 2007).

SIT was developed to understand group conflict (Tajfel 1981). It assumes that individuals strive for a positive self-concept. Part of this self-concept is the social identity which is derived from membership in social groups and their rating in comparison to relevant out-groups (Zick 2005). If the in-group's status is perceived to be lower, strategies to cognitively 'upgrade' its status include focussing on characteristics that improve the image of the in-group, downplaying dimensions which make it look bad or engaging in attempts to overturn the existing status hierarchy (Hornsey 2008). The stronger the members identify with their group (in-group), the

stronger the desire to positively distinguish themselves from out-groups. This process leads to in-group favouritism and out-group-discrimination which in turn will lead to group conflict (Tajfel and Turner 1986). Factors enhancing group conflict are strong cohesiveness within a group, conflictive values and norms and narrow boundaries of categorisation (Zick 2005).

The TPR is based on the assumption that there are 'free behaviours'. These are comprised of all the behaviours a person believes they are entitled to, including decisions about how and when to enact these behaviours (Brehm 1966). Individuals who experience a threat to, or elimination of, their perceived behavioural freedoms, develop a motivation to re-create said freedoms (= reactance). In conflict situations reactance is a typical phenomenon when a person experiences impairment to their thoughts, feelings, desires, etc. through the interaction with another actor. Prerequisites for reactance are: the perception that one possesses a certain range of behavioural freedom, the view that these freedoms are important/relevant and the experience of a threat to or elimination of said behaviour(s) (Raab et al. 2010). Reactance enhances the attractiveness of the eliminated or threatened behaviour, even if this did not hold much relevance or was not acted out prior to the elimination or threat (Brehm 1966). Reactance increases in accordance with the degree of importance of the threatened/eliminated behaviour, the extent to which it is restricted and the degree to which this restriction is perceived as illegitimate (Brehm 1966, Miron and Brehm 2006). Conversely, reactance can be reduced through e.g. engaging in the threatened behaviour nevertheless, engaging in a similar behaviour, encouraging others to engage in said behaviour, cognitively devaluing its attractiveness (Brehm 1966) or even derogating the threatener or acting aggressively towards the threatening object if the restriction of freedom is perceived as illegitimate (Miron and Brehm 2006).

Results and interpretation

In every discussion group there were one or two individuals with positive views about the lynx and other large carnivores.

Table 2. System of categories resulting from data analysis.

1. Impact of lynx
a. Expected advantages and disadvantages
<i>i. fascination with lynx</i>
<i>ii. immaterial disadvantages</i>
<i>iii. material disadvantages</i>
2. Socio-political significance of lynx
a. Interaction and relationship aspect
<i>i. fight for favourite animals</i>
<i>ii. power and paternalism</i>
<i>iii. symbolism of lynx</i>
b. Group differentiations
<i>i. hunters' self-perception</i>
<i>ii. perception of hunters by other interest groups (foresters, nature conservationists, general population)</i>
c. Reactance/Illegal shootings
<i>i. external source of power</i>
<i>ii. distribution of advantages and disadvantages</i>
3. Vision of the future
<i>i. building trust / empowering affected interest groups</i>
<i>ii. scientific monitoring</i>
<i>iii. financial compensation</i>

However, the general discussion was always characterised by opposition towards these animals. It was evident from the intensity of the discussions that in areas where the conflict about the lynx had been going on for many years and with more intensity (SBF, NBF), the group orientations concerning lynx were more clearly developed than in regions with less influence by the conflict (SA). Data analysis identified two dimensions in relation to which the lynx was discussed. In one (which we labelled 'ecological dimension'), study participants focussed on the expected effects of the lynx on their personal lives. Examples include fascination with the animal, material disadvantages (loss of game) and immaterial disadvantages (less enjoyment of hunting due to the lynx disturbing deer and making them 'shy'). The other dimension encompasses implications of the lynx in relation to the wider socio-political context, i.e. the lynx-related interactions between social and political groups and the perceived impairment resulting from this interaction. This 'social dimension' prevailed: participants were more concerned about 'who causes the lynx' than about 'what the lynx would cause'.

If we want to talk about acceptance of the lynx, we have to start at the very beginning: WHO WANTS the lynx and WHY? [...] I could imagine – that's an assumption! – that it comes from the part of forestry. One has heard before that roe deer eats the forest and if the roe deer isn't hunted enough, the lynx has to come to decimate it. If I hear the NABU [nature conservation association] it sounds completely different. If I read correctly between the lines, they want to ruin hunting for us. [...] If the lynx is reintroduced to spoil the hunt for us, then I don't see acceptance among the hunters. (DV 104 ff.)

This citation illustrates that hunters' acceptance of the lynx is also closely linked to other interest groups' motivations and practices concerning the lynx – or how these are perceived by the hunters. This dimension will be the focus of our analysis.

Effects of perceived group interaction on opinions about the lynx

A shared perception of the participating hunters was that they see themselves as ecosystem managers. They control and impact wildlife stock and habitat as they protect, use and reduce specific species and shape their habitats. They derive a positive social identity from this responsibility and group characteristic:

I am in the hunting district every day. And I know what's going on and I know my stuff. I am not God, but I claim that I know my district and know the creatures that live there. Someone who does a one-time inventory certainly cannot know this. [...] You have to live in nature and know it and gather experience. You can study and be as good as you want, but if you don't understand nature and don't know what goes on outdoors, nothing prudent can come of it. That's that. (NBF: 397 f)

Yet hunters who participated in this study felt that the activities, local knowledge and wildlife biology expertise on which they prided themselves, were not equally appreciated and respected by other groups. Instead, they saw hunting being

perceived and presented merely as the act of killing animals. To non-hunters, killing often has a negative connotation: participants experience that they (as hunters) are referred to derogatively as "murderers" (CBF: 156) and that they should stop killing. Thus, killing represents a highly conflictive norm and a group-conflict enhancing factor in the sense of SIT. By representatives of forestry and agriculture, participants find hunting to be reduced to killing animals as well, even though these groups perceive it as a necessary obligation and the purpose of a hunter. Participants noted that by these groups hunters are accused of not killing enough, e.g. in order to control the damage caused by ungulates. They think that hunting is reduced by these groups to mere "pest control" (SBF: 183) or game annihilation:

Tell the young foresters, that we are not game annihilators. We want to hunt. For reasons of hunting ethics. Because we enjoy it. (CBF: 125)

Thus hunters find themselves in a field of tension between divergent social expectations (stop shooting versus shoot more). Achieving a positive social identity is almost impossible under these circumstances. Furthermore neither of the out-groups' expectations reflect hunters' group-values and motivations for hunting. While killing is definitely an inevitable trademark of hunting, 'hunting' is much more to hunters than the actual kill. They see it as a culture, a tradition and a craft which is based on specific values, norms and "ethics" (CBF: 125). These are all important aspects of hunters' self-concept and group-identity, although, they might not receive appreciation by out-groups. According to SIT a group with strong separate cultural norms and traditions which the group members are not willing to give up, but who doesn't receive respect from out-group members will strive to preserve its self-respect. This can be partly achieved by comparing itself to others on the basis of characteristics which are commonly valued by the society in general, such as the intimate understanding and experience of nature mentioned in example NBF: 397 f.

Due to the external categorisations by the out-groups ('murderers', 'not shooting enough'), participants see their positive social identity as being at risk. The threatened feeling is aggravated because hunters think that hunting opponents, nature conservation and forestry have found a solution which accommodates all their interests: this being the large carnivores. They not only reduce the ungulates but also do so in a 'natural' way (i.e. without shooting). All discussion groups speculated that the protection of large carnivores was also a strategy for systematically abolishing hunters:

But we also need to be aware that it is also partly in the interest of these associations that hunting is more and more limited and, better yet, stopped completely. [...] They even say [agitated]: "Well that is great, then we won't need those hunters at all anymore! Then we have the lynx! Let's also get some wolf and some bear into the mix." (NBF: 280)

Nature conservationists' dedication to lynx was met with mistrust among participants and described as a "one-way-road" (SA: 154). Participants were convinced that a protection status would not be relaxed even in the case that a population was to recover and proliferate. They felt that the large carnivores' conservation status deprives them of their

rightful tasks and competencies (i.e. behavioural freedoms), namely the regulation (or management) of wildlife populations. This opinion was shaped by experiences of this nature with other protected species (e.g. with crow- *Corvus corone*, beaver- *Castor fiber* and cormorant- *Phalacrocorax carbo* management). Hunters stated that even if a lethal reduction of these animals was required nature conservation actors would not leave this to hunters but rather employ rangers or game wardens. This leaves hunters feeling disempowered and debilitated in their perceived behavioural freedoms by nature conservation which creates potential for psychological reactance. Furthermore the participating hunters understood this as a categorical rejection of hunting and interpreted it as a threat to their positive social identity.

The response as predicted by SIT to feeling discriminated and not appreciated because of their group characteristics can be found in the hunters' attempt to upgrade their group status by discrediting nature conservationists' motives and actions. As an example of this the participants accuse, nature conservationists of applying double standards: They are seen to pursue the active reintroduction and genetic interexchange of their 'favourite animals' such as the lynx through corridors and transfers, while for the favourite animals of the hunters, e.g. red deer, fragmentation is deliberately fostered through local eradication (in Germany).

The people who argue why lynx could be here again don't accept the same arguments for other animal species [red deer]. In my eyes that is a selection of a favourite animal as a flagship [original phrasing: Lieblingstier-Steckenpferd], but it has nothing to do with a complete ecological consideration. (DV: 52)

Another attempt to upgrade the in-group by downgrading the out-group can be seen in the hunters' suspicion that conservationists' motives, which on the surface seem to be guided by ecological concerns (such as protecting large carnivores), are also motivated by the desire for political power: By succeeding in establishing and proliferating their 'favourite animals' they underline the social significance of their values. Furthermore, participants considered that nature conservation groups preferably target attractive animal species such as the lynx because their popularity amongst the general population procures donations and supporters. Less attractive threatened species in contrast, (which also happen to be traditionally favourite animals of hunters, e.g. hare *Lepus europaeus* or partridge *Perdix perdix*), are perceived as receiving no attention from nature conservation campaigns.

For example [for] the European hare – there is not one red cent left. But for such an image-laden topic as the lynx – or the bear or the wolf – donations are coughed up. (SBF: 80)

Whilst discrediting nature conservationists' motives, hunters' emphasise that they care for these less attractive, endangered species without self-promotional or pecuniary interests. This can be interpreted as an attempt to recreate their self-respect and a positive social identity, by elevating their own reasons for protection above the reasons of nature conservationists.

Support from the general society (donations, members, sympathy) strengthens the political and social position of a group and underlines the societal importance of its interests and values. Participants generally felt that hunters are not

doing well in this respect. Nature conservation associations in particular were seen to be more successful in their image campaigns. With regard to SIT this means that they are also more successful in reinforcing their positive social identity. When participants compared hunters with nature conservationists in terms of their reputation amongst the general public they considered their group to be inferior in position.

I mean, nature conservation always sells well over here. Certain organisations sell better than the hunters do. We hunters sell relatively poorly. But the others don't kill deer. They only protect frogs and do this and that. They are all protectors and we are the evil hunters, who kill and destroy everything. (SBF: 162)

According to SIT, the perception that the in-group is in an inferior position leads to a degrading of the out-group in relation to other dimensions in order to cognitively upgrade the in-group. This could be frequently observed when participants compared ecological competences. They see hunters' knowledge and status as being superior to those of "self-proclaimed conservationists" (SBF: 116) because hunters "at least passed an exam" (SBF: 116) about wildlife biology and management to acquire the hunting license. Conservationists were often displayed by participants as specialised academics who are ideologically focussed on a certain species but lack a holistic understanding of the ecosystem. Hunters however, feel that they possess this positively rated competence. It is an important part of the hunters' positive social identity and maybe an attempt to outmatch nature conservationists in one of their group characteristics that are generally viewed as positive by society. In this respect the following quote can be understood as an attempt to display nature conservationists' conservation efforts for the lynx as based upon a lack of understanding of nature and 'actually not-natural'.

Now the lynx is supposed to regulate things [...] It is still missing in the ecological equilibrium and is supposed to substitute the human. Those are really romantic and actually not-natural beliefs. (CBF: 156)

It can be seen from the previous examples that where hunters feel discriminated, marginalised and not appreciated by out-group-members, they will in order to reinstate their positive social identity, discredit the out-groups' actions, motives and competences. This can ultimately result in the rejection of the out-group itself, including those aspects the out-group advocates for – in this case the conservation of the lynx. Participants often described hunters as not being taken seriously or respected and as being patronised by foresters, the general public and nature conservationists. In the following quotation, a participant explains how the group reacts to perceived deprecation and how this in turn reflects negatively on hunters' view of large carnivores:

They [nature conservationists] have very extreme positions. There is a lot of polarisation. And when you say something as a hunter, they generally put you in a corner: "You only think about shooting and driving your car." We are not taken seriously. And that's the danger, because that pushes us into a corner. And one day we are in the corner and then we say: "Okay, that's how it is". Well then nobody

needs to wonder why the lynx gained absolutely no acceptance in the hunting community, because they had such extreme points of view in the first place. (SBF: 418 f.)

Hunters who feel patronised by nature conservationists legitimise their opposition to lynx within the context of a broader rejection of nature conservation. Thus, in this case where nature conservationists are seen as supporting the lynx and despising hunters, hunters react defiantly and reinforce their opposition towards the lynx. It is noteworthy that the hunters construct themselves as victims within the large carnivore debate. Participants also described their role in this context as the “scapegoats” (NBF: 167), “losers” (NBF: 161) and as “being left holding the baby [german proverb: den schwarzen Peter zugeschoben bekommen]” (DV: 258). This puts them into a defensive position from where they choose a path of (self-righteous) opposition.

Perceived impairment and consequent reactant behaviour regarding lynx conservation

In all discussion groups, participants agreed that they would accept the natural in-migration of the lynx whereas they opposed human-induced reintroduction. The following statement shows how this can lead to very different perceptions of an otherwise identical result (the presence of a lynx population).

Very simply put: a natural in-migration results in natural damage. An artificial reintroduction results in provoked damage. [...] Natural in-migration, natural damage equals: accepted. Artificial reintroduction equals: provoked damage, equals: not accepted (DV: 325 ff.)

Thus the presence of the lynx seems to be a smaller problem compared to the question of how it comes to be there. The consequences of higher powers such as ‘nature’, which are beyond the personal influence of hunters, are accepted with a certain resignation to fate. In contrast, ‘artificial’ reintroduction is brought about through human power, in addition by groups who hunters perceive to be critical of hunting. This human power is regarded as wrongful and patronising, in other words: an illegitimate limitation of perceived behavioural freedoms in the sense of TPR. However, it is not perceived as being beyond personal influence and in line with TPR this leads to attempts to re-establish the threatened freedoms. Hunters’ means of defence range from public opposition against the perceived power imbalances and negative opinions about lynx to the consideration of illegal shootings. The latter was a very sensitive topic for participants given that even the possibility of one person taking illegal action reflects negatively on the entire group of hunters. The majority of participants strongly dissociated themselves from illegal shootings. However, most viewed this as a realistic scenario given that hunters possess the necessary means.

What he just said – that he would never shoot a lynx – that applies for me as well. But I think that’s a question of CHARACTER. No one here can vouch for everyone else. (NBF: 378)

From participants’ point of view, the likelihood of illegal shootings rises when hunters’ influence is perceived as being

low because of the large carnivores’ conservation status. In a situation perceived as unbearable and unjust, illegal shootings are referred to as a means of vigilantism to create conditions that can accommodate the hunters’ values and needs.

There is a saying: God helps those who help themselves. It’s just that if something takes the upper hand, the human being will always defend himself. And hunters count also as human beings, very simple. (NBF: 387)

And if it [the lynx population] reaches a high density [...] a hunter would suffer. And he says: if nobody helps me, I’ll help myself [...] and then the problem is solved. And if you don’t know what to do with it: dig a 1.20m deep hole and then it is gone. (DV: 170)

It is not possible to extrapolate from such statements whether or not the speakers would actually illegally kill a large carnivore or rather refrain from this. However, they do show how hunters, when adopting the perspective of a poacher, reason and legitimise such behaviour. The described situation is one which TPR labels a threat to perceived behavioural freedoms (living without large carnivores or controlling their populations through hunting) which in turn causes reactance. According to TPR, talking about the likelihood of illegal shootings is a means of reducing reactance. It implies that hunters (albeit not the one who speaks) are generally able to control undesired increases in lynx populations, which cognitively recreates the behavioural freedoms and values that are threatened. The TPR states further that people (hunters in this case) who experience impairment of, or threat to their freedoms can reduce reactance by encouraging “equivalent” (Brehm 1966: p. 199) people (in this case other hunters) to carry out the threatened or eliminated behaviour, as this implies that the behaviour is still possible. The consequence of this is that hunters who are willing to shoot large carnivores may very well receive social backing from other hunters. Under these circumstances, an individual might be encouraged to illegally kill large carnivores, whereas if the group norm was clearly and strictly against it (such as in the case of killing pregnant deer), they would not. In concurrence with the effect of the victim/perpetrator dimension described above, the talk about illegal shootings and their internal justification could become a group norm or value orientation amongst hunters.

Hunters’ ideas on lynx management

Once the participants had described their perception of the current situation, they were asked to describe their visions of the future. Here, building positive relationships was consistently mentioned as the most important step in lynx management. With regard to SIT this can be interpreted as a way of reducing the group-differentiation and discrimination.

There are still these old rivalries, primarily between NABU and the hunters, that is of course somewhat difficult. These relationships have been tense for a long time already, but I think that it may be time to reconsider these circumstances. We may have to get into conversations with each other. (NSW: 312)

In this context, efforts such as establishing communication, transparency and collaborative public relations are

mentioned. Furthermore, in all group discussions, the participation and integration of hunting interests in lynx management were seen to be necessary requirements for hunters' acceptance of the lynx. In particular, this includes the participation of hunters in scientific evaluation, radio tracking and monitoring activities as well as openness to the idea of eventually controlling populations through hunting.

So, not just protection across-the-board, but monitoring and maybe also intervention and regulation. (SBF: 97)
I think we should follow the lynx-case very closely, so that we hunters have a finger in the pie. (CBF: 271)

Taking responsibility and acting instead of reacting would allow hunters to let go of the victim mind-set and promote a positive social identity. It would furthermore reduce reactance, as the responsibility would imply substantial influence over the lynx management and thereby re-establish the threatened behavioural freedoms. In the following quotation a participant describes a positive experience of his: A case where the hunters association took a proactive step in the management of a single lynx occurrence by adopting the animal and thereby taking responsibility for its survival:

We openly discussed the lynx topic [with the other interest groups] and for us hunters it was important to receive a signal that we weren't again pushed into the corner: "the lynx is only competition for the hunters anyway, they will immediately shoot it anyway". Instead for us it was important [...] to say: "O.k., we'll not only adopt a positive attitude but we'll actually be proactive". (DV: 368 ff)

Financial compensation for predation or an adjustment to the cost of the hunter's lease were also frequently mentioned. However, during the discussions it became evident that the compensation was more relevant on the relationship level given that losses through road kill are not compensated for either.

Of course, I agree. For the road kill I don't get compensated either. But I do think that psychologically it plays a role for many hunters. They say: "Okay, if I have another – let's say 'competitor' – in my hunting district. I can't deliver to restaurants anymore." If you tell them: "Your damage will be compensated if it was demonstrably a lynx", then maybe more will keep the finger straight, I think. (CBF: 196)

Compensation is seen as a symbol of recognition of the hunters' disadvantages, which they perceive as "unfair" (SA: 218) and as being "provoked" (CBF:337) by lynx advocates. With regard to SIT recognising and catering to their disadvantages would also imply that hunters are recognised and respected as a group. This in turn would reduce the need to positively distinguish from lynx-favouring out-groups and discrediting their motives because hunters' own identity and group-characteristics would be (more) accepted.

Summary

Based on our analysis we have developed a diagram that outlines the conflict about the lynx and how the social mechanisms explained by SIT and TPR work together in this specific case (Fig. 1). The groups in the conflict

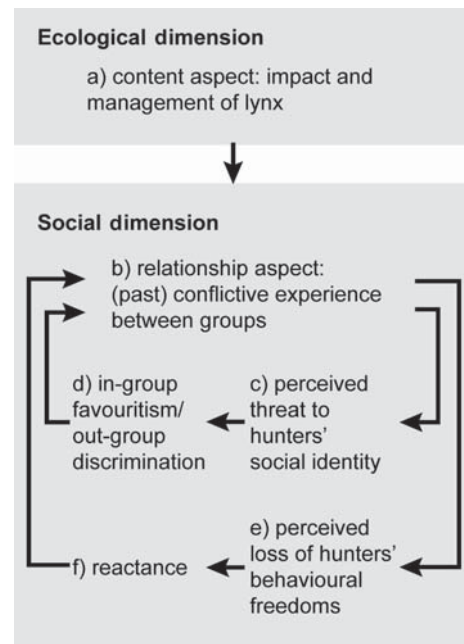


Figure 1. Dynamics of the conflict about lynx.

interact, which according to Watzlawick et al. (1967: p. 54) consists of a "content and a relationship aspect such that the latter classifies the former". In interactions where the relationship is strained (as in the conflict about lynx), the content aspect moves into the background or is (mis)interpreted at the relationship level. The content aspect corresponds to the ecological dimension in our study (a): impact and management of lynx. The relationship aspect is influenced by past conflictive experiences between the groups (b). On the relationship level hunters do not feel respected and accepted for what they are and do. They see the tasks and values on which they pride themselves as being derogated by other groups, which is tantamount to a threat to their social identity (c). This leads hunters to the assumption that the lynx is a means for foresters, nature conservationists and to a certain extent also the general public, to domineer over them. Being the common victim of the opinions and actions of these groups leads to a uniting defensiveness within the group of hunters ('nothing unites like a common enemy'). According to SIT, this is called in-group favouritism which goes hand in hand with out-group discrimination (d). Out-group discrimination in our case was frequently evident, e.g. when participants compared the ecological competence or the actions and motives for conservation between the groups.

The impression of being patronised and of lacking the possibility to engage in large carnivore management (due to the irrevocable protection status of the lynx) which they see as their rightful field of expertise creates a situation where perceived behavioural freedoms are threatened or eliminated (e). According to TPR, this causes reactance (f), which can lead to behaviour directed at recreating the freedoms. It can range from subtle opposition (e.g. verbal complaint) to derogation of, and aggression towards, the perceived cause of threat or the threatening agent (derogation of large carnivore advocates; illegal shootings).

The reactant behaviour and out-group differentiation will, in turn, have a negative impact on the relationship with the other groups in the conflict (b) (i.e. increasing group differentiation that obstructs respectful communication/interaction). A cycle develops in which the significance of the social dimension consistently grows and increasingly masks the content level of the ecological dimension. Large carnivores eventually become a symbol for the values and spheres of influence of the involved groups, showing which group succeeds in establishing their own moral concepts at the expense of others.

Discussion

Regarding the methodology, group discussions proved useful as a means of assessing hunters' perceptions of the lynx topic in southwest Germany. The dialogue between participants yielded insights and information about group orientations and dynamics (social identity, group differentiation, reactance), which would not have been revealed through individual interviews or a quantitative survey. Given that in the conflict, the parties speak for their group rather than as individuals, these results provide valuable insights for practical conflict management. In this regard, SIT and TPR were helpful for understanding how hunters' perceptions of the interactions between the conflicting groups affect the constitution and legitimisation of their opinions about lynx. However, the extent to which lynx-related findings can be generalised for other large carnivores is questionable. Given that participants themselves included references to other carnivores, like bear *Ursus arctos* and wolf *Canis lupus* in their reasoning when discussing the effects of the social dimension, we deduce that transferability is possible. When considering the results of this study, it is important to critically bear in mind that only the perspective of one group in the conflict was investigated. To address this gap, this study should be repeated in the future with large carnivore advocates to see if group differentiation and reactance processes are also active on their side. In the meantime, we regard this study as one essential step towards a better understanding of the social context of conflicts about large carnivores.

The fact that the social dimension prevailed in our study might be due to the fact, that there are no large carnivores present. Nevertheless, it is striking that the actual presence of carnivores is not a prerequisite for the conflict about them. The arguments put forward by participants in this study closely resemble those reported from regions where large carnivores do exist, e.g. hunters' perception of being subject to the patronising attitudes of carnivore advocates (Skogen and Kränge 2003), pride in being hunters and valuing their own practical knowledge above that of biologists or nature conservationists (Skogen 2001, 2003) or the demand for population control through hunting (Sjölander-Lindqvist 2008, Liukkonen et al. 2009). This suggests that social factors in conflicts about large carnivores operate somewhat independently from the animals. On this basis, we draw our conclusion that the quality of the relationship between large carnivore advocates and large carnivore opponents strongly affects the acceptance of large carnivores. Discussions about large carnivores and their management are unlikely to be

the first encounter between the conflict parties concerned. Previous conflictive interactions will have an influence on the issue of large carnivores which will ultimately be merely one arena within a larger group conflict about the definition of group identities and respective values (see also Wilson 1997, Skogen 2003). The accompanying group-differentiation and reactance processes might entail effects like uncooperativeness and opposition – perhaps even illegal shootings of large carnivores.

Participants described illegal shootings of large carnivores as an act of self-defence against patronising decisions by large carnivore advocates and the impossibility of participating in future large carnivore management and decision making due to the irrevocable conservation status of these animals. Whereas we labelled the reactions as psychological reactance, criminological literature divides illegal killing or poaching into three categories: livelihood crime (for food or commercial gain), folk crime (for custom and continuity of lifestyle) and socio-political crime (out of social defiance or symbolic protest) (von Essen et al. 2014). The latter two are representative of the situations described by participants in our study. Large carnivores bring about change in customs and livelihood practices. In defiance against the marginalisation of hunters' lifestyles through conservation policy, poaching is a form of explicit resistance (cf. von Essen et al. 2014). Illegal shootings are increasingly studied as a form of social movement in defence of symbolic resources and the achievement of symbolic goals (Woods 2003, Holmes 2007, von Essen et al. 2014). Considering that group-differentiation and reactance processes are drivers of conflicts and poaching they would be important to acknowledge and address in large carnivore management. It is necessary for these efforts to extend beyond the ecological and material dimensions (e.g. habitat management, deterrence, flock protection, compensation, etc.). While compensation payments are amongst the first measures suggested for mitigating conflict and increasing tolerance, they do not seem to yield the desired effect. Naughton-Treves et al. (2003) found that bear *Ursus americanus* hunters and livestock owners in the USA, who received compensation payments were even less tolerant than individuals who had not received compensation. Boitani et al. (2010) found that compensation schemes in Italy have been unsuccessful in ensuring conservation goals and might even “become an added bonus to illegal predator killing” (p. 728). We assume that this might be the case because the disadvantages are not purely material and therefore cannot be addressed through material compensation alone. Our findings show that hunters do demand compensation schemes as part of large carnivore management. However, they consider the effect more on the relationship level: Compensations are a symbol that the disadvantaged are not abandoned by carnivore advocates to an unwanted situation. Instead, someone is recognising their disadvantage and trying to create equity in distribution of disadvantages and advantages associated with large carnivores. On the other hand, Boitani et al. (2010) also point out cases where large carnivore opponents understand accepting compensation as supporting large carnivore conservation, which they are unwilling to do. This underlines that material loss is often secondary and that in addition to the ecological and material dimensions, other measures have to be found which explicitly address the social dimension

(interaction/relationship building between the groups and institutions in conflicts about large carnivore).

In this respect, integration and participation are measures which immediately spring to mind in order to reduce group differentiation and reactance processes. They have previously been suggested for large carnivore conflict management (Zimmermann et al. 2001, Skogen 2003, Treves and Karanth 2003, Bath et al. 2008, Sjölander-Lindqvist 2008, Treves et al. 2009, Molinari-Jobin et al. 2010). In our study, the participating hunters' vision of the future also anticipates a handing over of management responsibility which would reduce the threat to their perceived behavioural freedoms and acknowledge their group identity and characteristics. Considering that the underlying group conflict, in which the authority over certain species' management also symbolises the manifestation of a group's values and ideals, this is a challenging demand. A sharing of power with supposed adversaries has been found to be one of the main reasons for the failure of participatory processes in nature conservation (Stoll-Kleemann and Welp 2008) because nature conservation authorities perceive that this calls their professional knowledge (identity – SIT) into question and diminishes their competences (loss of freedom – TPR) (Stoll-Kleemann 2001).

Yet, in some German states, steps of this kind have been taken. In Saxony, the wolf, which is subject to nature conservation law, was also included under hunting law (with permanent closed season) to demonstrate recognition and shared responsibility. Lower-Saxony left the wolf under nature conservation law, but made hunters officially responsible for wolf management and monitoring to demonstrate inclusion. These measures have met with approval as well as criticism amongst nature conservationists and hunters alike. Whereas the hunters association welcomed these measures, nature conservationists felt that their competencies had been diminished (c.f. 'favourite animals' as spheres of influence and symbol for group values/identity) and some hunters felt they were being lured into supporting wolves (c.f. restricted behavioural freedoms and reactance). It will be interesting to observe how these measures will develop. Especially, if and how hunters will use the responsibility given to them and if opposition will decrease. Nevertheless, we consider that they were an important step towards overcoming the impasse in the discussions about large carnivore management.

References

- Andrén, H. et al. 2006. Survival rates and causes of mortality in Eurasian lynx (*Lynx lynx*) in multi-use landscapes. – Biol. Conserv. 131: 22–32.
- Bath, A. J. 1989. The public and wolf reintroduction in Yellowstone National Park. – Soc. Nat. Resour. 2: 297–306.
- Bath, A. J. et al. 2008. From human dimensions perspective, the unknown large carnivore: public attitudes toward Eurasian lynx in Poland. – Human Dimensions Wildl. 13: 31–46.
- Bisi, J. et al. 2010. The good bad wolf – wolf evaluation reveals the roots of the Finnish wolf conflict. – Eur. J. Wildl. Res. 56: 771–779.
- Bjerke, T. et al. 1998. Attitudes toward wolves in southeastern Norway. – Soc. Nat. Resour. 11: 169–178.
- Bohnsack, R. 2003. Rekonstruktive Sozialforschung – Einführung in qualitative Methoden. – Leske und Budrich, Opladen (in German).
- Boitani, L. et al. 2010. Ex-post compensation payments for wolf predation on livestock in Italy: a tool for conservation? – Wildl. Res. 37: 722–730.
- Bonaiuto, M. et al. 1996. Identity processes and environmental threat: the effects of nationalism and local identity upon perception of beach pollution. – J. Commun. Appl. Soc. Psychol. 6: 157–175.
- Bonaiuto, M. et al. 2002. Local identity processes and environmental attitudes in land use changes: the case of natural protected areas. – J. Econ. Psychol. 23: 631–653.
- Brehm, J. W. 1966. A theory of psychological reactance. – Academic Press.
- Breitenmoser, U. and Breitenmoser-Würsten, C. 2008. Der Luchs: Ein Grossraubtier in der Kulturlandschaft. – Salm, Wohlen, Bern.
- Červený, J. et al. 2002. Eurasian lynx (*Lynx lynx*) and its chance for survival in central Europe: the case of the Czech Republic. – Acta Zool. Lituanica 12: 362–366.
- Corbin, J. and Strauss, A. 2008. Basics of qualitative research, (3rd edn. – Sage, Los Angeles, CA.
- Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. Available at: <http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm>.
- Ericsson, G. and Heberlein, T. A. 2003. Attitudes of hunters, locals, and the general public in Sweden now that the wolves are back. – Biol. Conserv. 111: 149–159.
- Ericsson, G. et al. 2004. Support for hunting as a means of wolf (*Canis lupus*) population control in Sweden. – Wildl. Biol. 10: 269–276.
- Council of Europe 1979. Convention on the Conservation of European Wildlife and Natural Heritage. Bern, Switzerland. Available at: <<http://conventions.coe.int/Treaty/EN/Treaties/Html/104.htm>>.
- Glasl, F. 2004. Konfliktmanagement – Ein Handbuch für Führungskräfte, Beraterinnen und Berater. – Haupt, Bern.
- Glikman, J. A. et al. 2010. Segmenting normative beliefs regarding wolf management in central Italy. – Human Dimensions Wildl. 15: 347–358.
- Glikman, J. A. et al. 2012. Residents' support for wolf and bear conservation: the moderating influence of knowledge. – Eur. J. Wildl. Res. 58: 295–302.
- Herrmann, N. et al. 2013. Wildlife value orientations as predicting factors in support of reintroducing bison and wolves migrating to Germany. – J. Nat. Conserv. 21: 125–132.
- Holmes, G. 2007. Protection, politics and protest: understanding resistance to conservation. – Conserv. Soc. 5: 184–201.
- Hornsey, M. J. 2008. Social identity theory and self-categorization theory: a historical review. – Soc. Personality Psychol. Compass 2: 204–222.
- Hunziker, M. et al. 2001. Die Akzeptanz von Wolf, Luchs und "Stadtfuchs" – Ergebnisse einer gesamtschweizerisch-repräsentativen Umfrage. – For. Snow Landscape Res. 76: 302–326.
- Kaczynsky, P. et al. 2004. Public attitudes towards brown bears (*Ursus arctos*) in Slovenia. – Biol. Conserv. 118: 661–674.
- Kaltenborn, B. P. and Bjerke, T. 2002. The relationship of general life values to attitudes toward large carnivores. – Human Ecol. Rev. 9: 55–61.
- Kaphegyi, T. A. M. et al. 2006. Status of the Eurasian lynx (*Lynx lynx*) in the Black Forest region, southwestern Germany. – Mammal. Biol. 71: 172–177.
- Karlsson, K. and Sjöström, M. 2007. Human attitudes towards wolves, a matter of distance. – Biol. Conserv. 137: 610–616.
- Kleiven, J. et al. 2004. Factors influencing the social acceptability of large carnivore behaviours. – Biodivers. Conserv. 13: 1647–1658.
- Liukkonen, T. et al. 2009. Conflicts and compromises in Lynx (*Lynx lynx*) conservation and management in Finland. – Wildl. Biol. 15: 165–174.

- Lüchtrath, A. et al. 2012. Vom Gerichtssaal zu gemeinsamen Strategien: Entwicklung des Luchskonflikts in Baden-Württemberg aus Sicht der beteiligten Akteure. (In German with English summary: From conflict in court to joint adoption of strategies: the evolution of the lynx dispute in Baden-Württemberg, Germany, from the perspective of the various stakeholders. – *Natur Landschaft* 87: 114–119.
- Madden, F. 2004. Creating coexistence between humans and wildlife: global perspectives on local efforts to address human-wildlife conflict. – *Human Dimensions Wildl.* 9: 247–257.
- Majic, A. et al. 2011. Dynamics of public attitudes toward bears and the role of bear hunting in Croatia. – *Biol. Conserv.* 144: 3018–3027.
- Marshall, K. B. et al. 2007. Conflicts between humans over wildlife management: on the diversity of stakeholder attitudes and implications for management. – *Biodivers. Conserv.* 16: 3129–3146.
- Miron, A. M. and Brehm, J. W. 2006. Reactance theory – 40 years later. – *Z. Sozialpsychol.* 37: 9–18.
- Molinari-Jobin, A. et al. 2010. Recovery of the Alpine lynx *Lynx lynx* metapopulation. – *Oryx* 44: 267–275.
- Naughton-Treves, L. et al. 2003. Paying for tolerance? The impact of livestock depredation and compensation payments on rural citizens' attitudes toward wolves. – *Conserv. Biol.* 17: 1500–1511.
- Nie, M. A. 2001. The sociopolitical dimension of wolf management and restoration in the United States. – *Human Ecol. Rev.* 8: 1–12.
- Pollock, F. (ed.) 1955. Gruppenexperiment – Ein Studienbericht. – *Frankfurter Beiträge zur Soziologie*, Bd. 2: Frankfurt a. M.
- Raab, G. et al. 2010. Marktpsychologie – Grundlagen und Anwendungen. – Gabler/Springer, Wiesbaden.
- Schenk, A. et al. 2007. Factors influencing the acceptance of nature conservation measures – a qualitative study in Switzerland. – *J. Environ. Manage.* 83: 66–79.
- Sjölander-Lindqvist, A. 2008. Local identity, science and politics indivisible: the Swedish wolf controversy deconstructed. – *J. Environ. Policy Planning* 10: 71–94.
- Skogen, K. 2001. Who's afraid of the big, bad wolf? Young people's responses to the conflicts over large carnivores in eastern Norway. – *Rural Sociol.* 66: 203–226.
- Skogen, K. 2003. Adapting adaptive management to a cultural understanding of land use conflicts. – *Soc. Nat. Resour.* 16: 435–450.
- Skogen, K. and Kränge, O. 2003. A wolf at the gate: the anti-carnivore alliance and the symbolic construction of community. – *Sociol. Ruralis* 43: 309–325.
- Skogen, K. et al. 2008. Cry wolf! Narratives of wolf recovery in France and Norway. – *Rural Sociol.* 73: 105–133.
- Stoll-Kleemann, S. 2001. Barriers to nature conservation in Germany: a model explaining opposition to protected areas. – *J. Environ. Psychol.* 21: 369–385.
- Stoll-Kleemann, S. and Welp, M. 2008. Participation and integrated management of biosphere reserves – lessons from case studies and a global survey. – *Gaia* 17: 161–168.
- Tajfel, H. 1981. Human groups and social categories – studies in social psychology. – Cambridge Univ. Press.
- Tajfel, H. and Turner, J. C. 1986. The social identity theory of intergroup behavior. – In: Worchel, S. and Austin, L. W. (eds), *Psychology of intergroup relations*. – Nelson-Hall, Chicago.
- Teel, T. and Manfredo, M. 2010. Understanding the diversity of public interests in wildlife conservation. – *Conserv. Biol.* 24: 128–139.
- Treves, A. and Karanth, K. U. 2003. Human-carnivore conflict and perspectives on carnivore management worldwide. – *Conserv. Biol.* 17: 1491–1499.
- Treves, A. et al. 2009. Participatory planning of interventions to mitigate human-wildlife conflicts. – *Conserv. Biol.* 23: 1577–1587.
- von Arx, M. et al. 2004. Status and conservation of the Eurasian Lynx (*Lynx lynx*) in Europe in 2001. – *KORA_Bericht*. Muri 19: 330.
- von Essen, E. et al. 2014. Deconstructing the poaching phenomenon – a review of typologies for understanding illegal hunting. – *Br. J. Criminol.* 54: 652–672.
- Watzlawick, P. et al. 1967. *Pragmatics of human communication – a study of interactional patterns, pathologies and paradoxes*. – Norton, New York, London.
- Williams, C. K. et al. 2002. A quantitative summary of attitudes toward wolves and their reintroduction. – *Wildl. Soc. Bull.* 30: 575–584.
- Wilson, M. A. 1997. The wolf in Yellowstone: science, symbol, or politics? Deconstructing the conflict between environmentalism and wise use. – *Soc. Nat. Resour.* 10: 453–468.
- Woods, M. 2003. Deconstructing rural protest – the emergence of a new social movement. – *Rural Studies* 3: 309–325.
- Zeiler, H. et al. 1999. Attitudes of Austrian hunters and Vienna residents toward bear and lynx in Austria. – *Ursus* 11: 193–200.
- Zick, A. 2005. Die Konflikttheorie der Theorie sozialer Identität. – In: Bonacker, T. (ed.), *Sozialwissenschaftliche Konflikttheorien. Eine Einführung*. – Verlag Sozialwissenschaften, Wiesbaden, pp. 409–426.
- Zimmermann, B. et al. 2001. Human-carnivore interactions in Norway: how does the re-appearance of large carnivores affect people's attitude and level of fear? – *For. Snow Landscape Res.* 76: 1–17.