

Homecoming without Nostalgia: Local Communities and the Reintroduction of the Wild Forest Reindeer (*Rangifer Tarandus Fennicus*) in Finland

Juha Hiedanpää

Natura Resources Institute Finland (Luke)

Email: juha.hiedanpaa@luke.fi

Jani Pellikka

Natura Resources Institute Finland (Luke)

Email: jani.pellikka@luke.fi

ABSTRACT

Wildlife translocations often raise concerns about the purpose and impact among people living in target locations. In anticipation of this, the IUGB guidelines advise exploring socioeconomic circumstances, community attitudes, values and expectations as an integral part of translocation planning. However, such explorations are often done unsystematically and without a theoretical focus. We applied the integrated impact assessment (IIA) in planning the reintroduction of wild forest reindeer in Finland. We investigated the variety of expected socioecological impacts, the relative importance of these impacts and local willingness to participate in local-level reintroduction activities. The reintroduction project organised four forums in 2013 and 2016 in each of the four regions suitable for wild forest reindeer and collected various types of data from the participants, including written descriptions of personal expectations, recorded discussions (group deliberation) about the variety of impacts and personal Q sorting of impact cards. In the first location, a non-response analysis was made among people who were invited to participate but were absent. The variety of recognised potential impacts was high, but the relative importance given to the expected impacts varied relatively little from forum to forum, and between those participating and absent. Importantly, and surprisingly to us, we found a curious contextual value of wild forest reindeer that extended beyond their intrinsic and instrumental value. The results indicate high local acceptance of reintroduction and willingness to participate in it.

Keywords: wildlife reintroduction, local community, integrated impact assessment, pragmatism

INTRODUCTION

Reintroducing wild animals within their historical range has maintained its role in wildlife management and especially as a conservation method, regardless of the fact that a notable proportion of reintroductions has not resulted in the establishment of viable populations in the target regions (Wolf et al. 1996; Fischer and Lindenmayer 2000; Seddon et al. 2007). Worse, they are statistically unlikely to succeed, as repeated audits have shown (Clark and Westrum 1989; Griffith et al. 1989; Kleiman 1989; Fischer and Lindenmayer 2000; Reading et al. 2002; Lipsey et al. 2007; Seddon et al. 2007; Reading et al. 2013). However, they are the only way to restore an extirpated species to its prior home in cases where natural recolonisation is impossible or unlikely, and reintroduction therefore remains an essential conservation tool (Tear et al. 1993; Ostermann et al. 2001). It has typically been associated with conservation endeavours seeking to ensure the population viability of a single threatened or endangered species. Recently, its role has been emphasised as a way of restoring multiple species (Plein et al. 2016) and even ecosystem processes or functions (the ‘rewilding’ discourse, see e.g. Nogués-Bravo et al. 2016). There is an ongoing ethical debate about the anthropocentric (Norton 2005) or non-anthropocentric (Michael 2020) reasons to assist or not to assist wildlife to return. Although this is already a true challenge for environmental policy, the debate opens a discursive space for a wider debate about human-non-human relations in the Anthropocene (Gammon 2018; Johanssen 2020).

The literature on the method has most often focused on crucial technical questions such as how to succeed in reintroducing animals to establish a viable population in the target region. Strategies have typically focused on ecological or biological aspects under the discipline of reintroduction biology (e.g. Seddon et al. 2007, Batson et al. 2015). Other issues contributing to the overall success are, however, increasingly recognised. The reintroduction of wild

animals is a designed managerial intervention in a socioecological system (Converse et al. 2013), and issues such as the financial and social implications need careful consideration (e.g. Helmstedt and Possingham 2017). Drake and Temple (2012) point out that local awareness and practical knowledge should not be overlooked. In line with this perception, IUGB reintroduction guidelines (2013) advise an exploration of socioeconomic circumstances, community attitudes, values and expectations as part of the translocation planning process.

Our empirical case deals with the seven-year (2016–2023) LIFE project (LIFE15 NAT/FI/000881), aiming to reintroduce wild forest reindeer to new regions in Western Finland. This is the second reintroduction project to support the species' viability in Western Finland (the first reintroduction took place between 1979 and 1980, e.g. Nieminen and Laitinen 1983). The estimated population is currently some 2,200 individuals (Luke 2020), and the species is categorised as near threatened in Finland (IUCN classification system; Hyvärinen et al. 2019) and protected by the Hunting Act (1093/1996) which means that it is also categorised as a game species. During the ongoing reintroduction project, wild- and captive-born animals originating from Eastern Finland are moved to onsite enclosures in the target area, fed, and their offspring are released into the environment when they reach adulthood. The main purpose of the endeavour relates to the weakly observed survival of wild forest reindeer in Eastern Finland, probably due to significant large carnivore predation pressure (e.g. Kojola et al. 2009). The Finnish management plan for wild forest reindeer (Anon 2007a) identifies animal reintroductions as one of the ways to ensure the viability of the animal population. As part of reintroduction planning, the Ministry of Agriculture and Forestry financed a study of the local acceptance of the idea.

We frame our research task as an integrated impact assessment (IIA). The environmental and social impact assessment procedure and legislation were launched in the USA in the early seventies and have institutionalised their place in environmental and development planning (Therivel and Wood 2018). The integrated approach to impact assessment was introduced to establish a procedure to simultaneously bring different impacts to attention and into contact with those who will potentially experience them (Rossini and Porter 2018). The conception of the IIA is rather sparsely used, perhaps because most of the impact assessment processes already incorporate the multidimensional notion of impacts with participatory processes (Bond et al. 2001; Brouwer and Van Ek 2004; Ortiz and Markanday 2009).

Our approach to the IIA relies on John Dewey's philosophical pragmatism, and especially his three notions of problematic situation, the community of inquiry and social learning (Dewey 1988; 2008; see also Fesmire 2003). The reintroduction of a long-vanished species is a specific process and will probably, at least to some extent, be a challenging situation for those who will be affected by it. Reintroduction modifies a given socioecological setting (human and non-human community or the environment) and its impact assessment and management planning gathers various actors around it. The integrated assessment process provides a context for participatory reason giving and therefore for individual and social learning. Our key concept is belief. Beliefs are habits of feeling and thinking on which people are prepared to act. Dewey (2008: 15) specifies that 'belief here names the settled conditions of objective subject-matter, together with readiness to act in a given way when, if, and as, the subject matter is present in existence'.

The integrated impact assessment is a process for holistic sustainability. Our approach is integrated in three ways: we intertwine the different types of impacts; we integrate various actors with their interests and values; and we integrate the impacts and actors in expected preparedness to act for the reintroduction. Before us, Norton (2005: 464–465) and Weston (1992: 99–131) especially have developed the Deweyan approach to integrated environmental thinking and practice.

Until now, the role of local communities in co-producing positive impacts and mitigating negative impacts has received surprisingly little attention in the impact assessment literature. It is worth exploring local people not just as the interested audience of the translocation process, but as potential collaborators who have a valuable understanding of the target location's socioecological conditions, including social tensions that the reintroduction process may reinforce or mitigate. Local people may also have practical capabilities to offer the implementation process. Our objective is to identify (i) the expectations of local wildlife experts about the relative importance of various impacts of the reintroduction of wild forest reindeer and (ii) willingness to participate in the actual implementation process to achieve the desired outcomes and avoid pitfalls.

MATERIAL AND METHODS

We started the IIA in 2013 by interviewing two experts in a wildlife administration involved in previous reintroductions: wild forest reindeer were reintroduced from the Kainuu region to Ostrobothnia at the beginning of the 1980s. The themes of the interviews included the variety of translocation impacts and the consequent increase in the target area's animal population.

We also identified the potential impact of reintroduction in Finnish research articles about the previous process (Bisi and Kurki 2003; Bisi et al. 2006). The resulting list included twenty-seven potential impacts (see Table 1).

We continued the collection of data among a total of eighty-three participants in four regional wild forest reindeer forums (Fig. 1), the first three arranged in April 2013 before the securing of funding and selection of target locations. The fourth was arranged in November 2016, after the funding was ensured, and the target locations were preliminarily selected. According to the habitat suitability model, all four areas were estimated as suitable for wild forest reindeer, from moderately to very suitable. The estimation was based on the movements of some dozen GPS/GSM-collared animals.

Figure 1

In chronological order, the forums were arranged in Isojoki (Western Finland), Ilomantsi (Eastern Finland), Pyhäntä (Central Finland) and Seitsemäniemi (Western Finland). The organising team consisted of personnel from Metsähallitus, the Finnish Wildlife Agency (a state-owned enterprise), and the Natural Resource Institute Finland (Luke) (the Finnish Game and Fisheries Research Institute until 2015).

The invitees represented a range of regional or local organisations (nature entrepreneurs and NGOs such as local hunting clubs, village associations and environmental associations operating within fifty kilometres of the anticipated release sites). In attempting to increase the equal representation of the local NGOs with potentially varying interests and to restrict the

number of participants to enable the efficient performance of tasks in the forums, we randomly selected whom to invite within the types of organisation mentioned above. We let the organisations self-select their representatives. We also systematically invited representatives of the administration from the local municipalities, environment and local or regional representatives of the Finnish wildlife agency.

After first giving a brief introduction to the experience gained and impacts perceived after the original reintroduction in the 1980s in the target area, we asked the participants to write in their own words the expected impact of reintroducing wild forest reindeer in that particular target location and its environments. After the participants had listed potential impacts, they discussed the impacts in small groups consisting of between four and five people. They were then asked to personally quantify each of the impacts (twenty-seven recognised from interviews and the literature before the forums, supplemented by those viewed as relevant by the participants) by their expected importance. The quantification was made by ordering the impacts in a table (i.e. placing them in seven columns, using a numerical scale from 1 (minor importance) to 7 (very important)). Finally, the participants were asked whether they would be willing to participate in the reintroduction process if it took place in their area.

To examine the sensitivity of the results to non-participation, a random sample of twenty-one people (out of a total of thirty-two) was drawn from the list of invited organisations that were absent from the forum held in Isojoki. Our assistant contacted the absentees in October 2013 to enquire about the reasons for their absence and ask for an opportunity to interview them about the potential reintroduction. Nearly all (twenty people) agreed. During the interviews, they were first given a brief introduction to the previous reintroduction and its impacts and

the initial idea of the new one (the same presentations were shown to them as to the participants in the forums held in April 2013). They were then asked to perform exactly the same tasks (listing impacts on paper and ordering impact cards) as the forum participants.

We clustered the perspectives with relatively similar statements concerning the importance of impacts across all four forum participants by applying Q methodology (e.g. Brown 1980).

This method enables abductive reasoning. Watts and Stenner (2012: 40) regard the manifestation of statistical clustering of gathered Q sorts (here: the sorting of impacts) as a surprising empirical finding that initiates the generation of plausible explanations (interpretations) or ‘story building’ (ibid: 156). In our case, it helped us evaluate how separate impacts together define more holistic sub-group beliefs, each shared by at least three people in the dataset. It also helped us to examine which expected impacts showed consensus or potentially relevant disagreements regarding their relative importance values (as positive or negative expectations). While Q methodology has been applied to many fields of the social sciences (McKeown and Thomas 2013), it has also been utilised in many environmental and social impact assessments (Cotton and Mahroos-Alsaiari 2015; Weldegiorgis and Ali 2016). However, it has not been utilised in IIA or wildlife reintroduction studies.

The Q data analysis was performed using the qmethod-package (ver. 1.4.2.; Zabala 2014) and R statistical software version 3.31 (R Core Team 2015). The Spearman rank-correlation matrix was used as the input to extract the main components. A significance level of $p < 0.05$ was used as the criterion to define significant factor loadings and distinguish statistically significant differences between impact-specific z-scores.

RESULTS

Abductive grouping interpretation

A summary of the collected data reveals that most participants viewed the potential reintroduction as mainly positive (Table 1). The wildlife experts and forum participants identified the reintroduction and consequent appearance of the wild forest reindeer with a wide range of impacts. We recognised nearly half the impacts (27) based on a review of the literature describing past wild forest reindeer reintroductions in Finland and two interviews with the two experts with long expertise concerning the previous reintroduction process. The list of potential or expected impacts grew by nine, six, three and two after the review of data collected from the first, second, third and fourth forum participants respectively.

While the median and mode values showed the great importance typically given to many expected impacts, the wide range of values observed in the dataset showed that there were large differences in importance from person to person. Largely irrespective of the participant interest groups, the most important expected impacts related to the increasing recreation values and the intrinsic or symbolic value of the species. Important expected impacts were also associated with an increase in future hunting opportunities.

The groupings of Q sorts (the composite sort of factors), the groups' characterising statements (i.e. highly important or the least important expected impacts) and differences between specific impacts showed that there were meaningful patterns of different emphasis in

viewing the expected impacts. In the following, we describe and interpret in detail the four main patterns of belief that we identified from the whole dataset by using Q methodology.

We named the first belief cluster, consisting of thirty-one people whose beliefs were significantly loaded in the first principal component, as the '*undivided support*'. The beliefs of the people belonging to the cluster explained 28.7 per cent of the variance of the numerical data as a whole (Table 2). It was strongly emphasised that wild forest reindeer played a positive role in the socioecological system at large, both by increasing biodiversity (z-score 1.40) and by serving as a new source of human recreation (z-score 1.48). Animals were expected to increase tourism in the region from moderately to strongly (z-score 0.94), and improve the general image of species protection and that of the local community supporting coexistence with the animals (z-scores 1.26 and 1.22 respectively). In the long term, the presence of wild forest reindeer was expected to open the way to a deeper awareness of nature (z-score 1.15) for people living in the region and for tourists, giving a higher value to the species as a whole (z-score 1.32). Compared to the positive expectations, the potentially negative impacts, such as the tension or damage that reintroducing animals might increase in the target region, were regarded as either rather improbable, unimportant outcomes or easily manageable. The belief cluster disagreed with all the other clusters (which shared a common view) in their lower expectation that large carnivores predated the wild forest reindeer would cause notable problems in the target region (z-scores 0.04–0.07), or that hunting of game animals with hounds might become more difficult (z-score -0.84). From the perspective of the translocation process, it may be worth noting that this largest belief cluster consisted of people from very different backgrounds, from nature protection and farmers' and hunter's

NGOs to municipalities, wildlife administration and so on – they seemed to share the most positive beliefs of a shared future with the animals.

A second ‘*new community resource*’ cluster consisted of beliefs held by ten people (Table 2). Their beliefs explained 14.9 per cent of the total variance of the numerical Q sorting data. They broadly regarded the same expected impacts as either very important or very unimportant like the first belief cluster, but they lacked a belief that the expected ecosystem impacts would be strongly positive (z-score = 0.1 for biodiversity impact). This cluster – like clusters 3 and 4 (see their introductions below) – shared a common concern about the important role large carnivores might play in the outcomes of the process and the community of the target region. However, it only had a few specific items of belief that distinguished it significantly statistically from all the other clusters. The first related to the expectation that the image of species protection would not improve strongly or weakly, but merely moderately (z-score 0.55). Another difference was their expectation that an increasing population would not be unimportant, but might indeed to some extent (z-score 0.13) increase tension between hunters, who might compete in future for hunting opportunities. These beliefs, while showing statistically significant differences with other clusters, were not extreme. This cluster mainly consisted of wildlife agency, hunting NGO and village NGO representatives.

The third ‘*traffic collision threat and resource*’ cluster consisted of ten people with beliefs that explained 10.2 per cent of the total variance of the data (Table 2). In this cluster, significantly higher expected importance was given to future wild forest reindeer–vehicle collisions in the target region (z-score 1.68) than in any other cluster (z-scores < -0.81 for each). A concern about increased agricultural and other damage was also notable. In contrast

with the other clusters, there were also moderately high expectations in this cluster concerning the potential of future hunting and hunting tourism values (z-scores 0.96-0.99). While they regarded the recreation value as high like many in other clusters, they evaluated the emotional attachment of the species as a less important impact (z-score -1.71) than the three other clusters (z-score > 0.09 for each). In this cluster, the expectation that tensions would arise either between the interests of the resource use of animals and conservation or among competing hunters was also regarded as very unimportant (z-scores < -1.28). The cluster mainly consisted of participants representing hunting NGOs, the wildlife agency and one municipality.

The fourth '*agricultural pest without hunting value*' cluster was smaller than each of the previous ones (seven people; Table 2). They anticipated many notable threats, but few opportunities that the translocation of wild forest reindeer might bring to the target regions. There was no expectation of a specific impact that would have divided this cluster from the consensus of others, but there was a higher number of specific expected impacts, the relative importance of which separated them from one or more expectation of the other clusters. This cluster can be defined as representing those people (a minority) who were sceptical of the entire translocation process. Their main articulated threat was that wild forest reindeer would attract predators (large carnivores) to the region (z-score 1.71) and might indirectly increase large carnivore damage to farm animals. According to the cluster, wild forest reindeer might also cause notable agricultural damage for farmers (z-score 1.39). These impacts might lead in time to increasing tension between those suffering and those benefiting from the wild forest reindeer presence (z-score 1.31), and between those wishing to extract the new resource and regulate the number and others wishing to conserve the animal (z-score 1.19).

Not surprisingly, in this cluster, there was no high expectation that wild forest reindeer could change the way in which people viewed animals, species protection or the cultural heritage of historical coexistence. Their expectation of the impact of the reintroduction of animals on future opportunities for hunting as a resource (z-score -1.16), impact on local hunting culture as a whole (z-score -2.13) or hunting tourism (z-score -1.03) was very pessimistic. These beliefs were represented by participants with a variety of backgrounds, such as agricultural producers, local hunters, the wildlife agency and village NGOs. The perceptions explained 8.5 per cent of the total variance of the Q sorting data.

The impact on tourism was the only impact out of twenty-seven that indicated a consensus (the z-score ranged from 0.85 to 1.11) among the four main clusters. None of the clusters prioritised this impact at the top of their Q sorts, but all regarded it as having a moderate value.

The willingness to act for reintroduction

All four clusters had a similar stated level of willingness to personally participate in the monitoring (censuses) of the wild forest reindeer population in the target region (67–70 per cent responded ‘yes’ in each of the four clusters), to participate in the feeding of animals in the enclosure (60–78 per cent) or the mitigation of damage (67–70 per cent). This is in line with Hiedanpää and Pellikka (2013), who reported no correlation between the personal expected importance of impacts and personal willingness to participate in various tasks among the participants in the first three forums.

Non-participating bias

The participants in the Isojoki forum had rather similar expectations to the invited NGOs that were absent (i.e. not represented) from the forum (Table 3). When asking absentees to list the most relevant expected impacts of the reintroduction in their own words, it was shown that a lower percentage of them than the participants in the forums mentioned opportunities for wildlife tourism. In contrast, a higher percentage of absentees mentioned that large carnivores would decrease wild forest reindeer hunting opportunities due to an expected high predation pressure. When quantifying the expected values by asking the participants to perform a Q sorting of twenty-seven impact cards, the results revealed that traffic accidents were regarded as more important (like the '*traffic collision threat and resource*' cluster), and the research needs as less important by the absentees than the participants.

The personal explanations given by the absentees from the Isojoki forum indicated no strong positive or negative expectations related to reintroduction. Instead, they listed practical obstacles to participation, a perceived lack of expertise regarding wild forest reindeer or a lack of interest in the issue (Table 4).

DISCUSSION

Intrinsic value and motivation

The types of impact and expected importance given to each impact showed that the participants mainly viewed the potential reintroduction in possible target regions positively.

Largely irrespective of the participants' interest groups, the most important expected impacts were related to the increasing recreational and intrinsic value of the species. We interpret this as a general indication of a strong non-instrumental support for the reintroduction of wild forest reindeer. It is inherently good to restore the wild forest reindeer to where it once was. As one participant commented, the wild forest reindeer reminds us of pristine species composition in Finland and our responsibility for coexistence.

In the forums, we observed that these reasons for coexistence were derived from longing for a specific type of balance of nature. Participants wanted to welcome the wild forest reindeer back and reassign its rights to its homeland. As our results indicate, its presence was considered to bring integrity to the current socioecological setting, making it inherently more complete. In this regard, we identified longing, a form of environmental homesickness (Boym 2002), and this call for environmental integrity bore a certain idea of the admired – telos, or purpose: where ungulates thrive, large carnivores ought to be under human control. There was thus a holistic aspect of end-directedness to the appreciation and intrinsic value of the wild forest reindeer. Non-instrumental value was integrated into the whole, where other values also thrived.

The forest reindeer needs assistance for its return. In other words, some environmental preconditions need to be secured for translocation to become successful (see also Seddon 2010). This is very different from the return of the grey wolf, for example. The wolf returns spontaneously, without active assistance, and reclaims the lands that were once its territories. The landscape of return has become problematic for the wolf, because it is fragmented by infrastructure, human activity and a relatively strong resistance among humans in Finland

(Hiedanpää and Pellikka 2017a). Contrary to this, many people are willing to actively help the forest reindeer to return. Harrington et al. (2013) would call this an act of benevolence. The presence of both animals is associated with potential damage, but the nature and mechanisms through which damages arise differ greatly. Here we face a key dilemma of environmental and especially wildlife ethics: is human restorative agency a part of environmental integrity or not (Thiele 1999, 166–201; Norton 1996)? According to our wild forest reindeer case, active human agency is part of it. The conditions of return are co-created by natural conditions, human modified environments, the other species and the wild forest reindeer itself.

Interestingly, the webs of beliefs regarding the reintroduction of wild forest reindeer do not build on conventional interest group divides. We might even say that there is a certain disinterestedness due to the aesthetic nature of the return of wild forest reindeer (on disinterestedness in environmental aesthetics, see Brady 1998). None of the participants framed the approaching process as an act of supporting trophic rewilding, which has been a topic of active discussion in recent years in many countries (Galetti et al. 2017). In contrast, anticipation regarding hunting opportunities and other interests were moderate. None of the clusters built on the divide between use and non-use values. In the face of the translocation of the wild forest reindeer, the most obvious aspects of instrumental–intrinsic value conflict were therefore absent. Clustered beliefs indicated that the expected presence of the wild forest reindeer was derived from a more systemic and holistic understanding of the problem.

Co-creating the situation and potential impacts

The variety of potential or expected impacts increased cumulatively throughout the planning of the reintroduction and our impact assessment process. We recognised nearly half (twenty-seven impacts) in the literature review and in interviews with the two experts. In the first forum, the participants identified nine new additional impacts, in the second, six, in the third, three and in the fourth, two. The process showed that experienced local citizens and wildlife practitioners could contribute to the process as participants with new insights into preventing collisions with vehicles and caution regarding the presence of large carnivores. This finding may prove critical when considering the success of this or any other planning process. Many policy and management processes are ultimately failures, because side or cumulative impacts are not identified during the planning or implementation phase (McConnell 2010). Our case shows that local wildlife experts are capable of identifying the early signs invisible to the planner and decision makers operating further afield from the actual reintroduction sites. Bringing many types of expertise to bear in a problematic policy and management planning situation is key to a successful integrated impact assessment.

Our case demonstrates the role of prior expectations that do not build from scratch or in a vacuum, but form a continuum. The previous wild forest reindeer reintroduction was a success in terms of its main goal – it succeeded in building a viable population in the neighbouring area of Western Finland. Although this was the case, the literature emphasised the negative impacts (Bisi et al. 2006) – grazing by a growing population in the fields caused losses and negative reactions, especially in the 1990s, in the target region, regardless of the fact that farmers were compensated for economic damage. The scepticism we observed among some participants may therefore have historical roots in the tensions that arose in the neighbouring region (the target region of the previous reintroduction project) some decades

ago. Such residual habits die hard. In these situations, stakeholder meetings with an open opportunity to ask for and give reasons, combined with a stated willingness to act for the common good, provide new cues for thinking and feeling, enabling critical changes in a socioecological setting (Hiedanpää and Bromley 2016). This, combined with a willingness to seek novel impacts and actively contribute to the success of the reintroduction process, creates optimism for the entire process and a co-created future.

While this may be the case, the new reintroduction creates novel development and employment opportunities. The situation is in many respects new, and the process builds on the ground where public participation and information sharing, and consequently collaboration, with different groups, have a notable role to play. The policy during the time of the previous reintroduction in the early 1980s regarded local people more as a potential disturbance factor for the animals and kept the process largely away from public attention. The current trend in multifunctional and urban lifestyle features has brought changes to rural livelihoods during the last thirty years. We witnessed considerable reflexivity towards the multitude of impacts of the reintroduction of the forest reindeer, and to some extent, the interest groups were also open to reflecting on controversial positive impacts and working on mitigating the negative aspects of reintroduction.

Image and hopefulness

Today, transparency is emphasised as a critical managerial element that contributes to the successful outcome of reintroduction programmes (e.g. Sutton 2015). As our case demonstrates, operating according to this principle raises the question of the role power and

influence play in the early phase of the process: who decides which impacts are the most important, which negative impacts are most effectively mitigated, which positive impacts are most actively enhanced and by which methods and so on. For example, these questions are brought to the fore when discussing the presence of wolves in the context of the reintroduction of wild forest reindeer, because both species are protected by the Habitats Directive (1992), and the latter is actively being reintroduced in this project. There were demands in the forums to regulate wolf populations to protect wild forest reindeer. This is unsurprising, because the partial reason for the reintroduction was the high predation pressure in the source area (Kojola et al. 2009). Whether directly associated with the role of predation or not, reintroduction was openly used in some comments as an argument to loosen the strict protection of wolves in the target region. The control of the wolf population near the reintroduction location was considered a key criterion of meaningful project implementation.

Reputation and image were also at stake. The ongoing reintroduction was perceived as emphasising hunters' image as wildlife stewards and providing nature educational opportunities for the younger generation, not only as takers of animal life. As it is, the image is not only about reputation but about the future – about an admired purpose. Not only hunters as a group but also representatives of communities therefore considered the reintroduction an improvement of their internal and external image through imagined aesthetic integrity and advancement (see Brady 2019). Internally, as the previous introduction also indicates, host communities are expected to imagine the animal as 'our wild forest reindeers', a commons belonging to a particular landscape. Externally, the image of the wild forest reindeer may attract new visitors to these communities. Natural features have become

more important factors in human wellbeing and health and therefore in community image building as well.

In general, our data indicated that conflicts were not expected when reintroducing wild forest reindeer. Indeed, the species seemed to mediate rather than trigger conflict. This was because the impact was expected to be positive on the community (development opportunities), social (image) and individual (aesthetics and biodiversity values) levels. A certain degree of hopefulness was present. This is especially important, because much wildlife management effort in these areas is consumed in combating the impact of the presence of wolves or other hardships of rural life (Hiedanpää et al. 2016).

According to the analyses, local willingness to participate in activities related to the reintroduction of animals was equally high in all the four potential target regions. This was probably related to the intrinsic value assigned to the wild forest reindeer, as well as relatively high expectations that there would be an increase in long-term hunting and tourism opportunities. The direct economic benefits derived from hunting or tourism are expected to be low or moderate. Surprisingly, no clear pattern was found in the associations between the belief clusters and the general willingness to participate in the specific concrete actions listed in Table 4 in the target regions. A plausible interpretation was that a high capability of acting (hunters as nature stewards) might overcome the scepticism (pessimism) that some clusters clearly had concerning the process.

In the fourth forum, which was the last and was held after the decision to reintroduce wild forest reindeer to the Seitsemien area was taken, the participants indicated a slightly lower

willingness to participate in implementation (Hiedanpää and Pellikka 2017b). While this may partly be explained by the perceived restrictions to participating (in rural areas, distances may be considerable, and many participants did not live in the immediate vicinity of the release site and enclosure in the target region, which might increase the effort and costs of participating), it may also be due to the fact that there was no need to indicate extra support for the project, and promises – even informal promises – would now be retracted, because the project would be implemented with or without the expressed commitments. The intrinsic motivation to act for nature has some surprising contingent features that call for further investigation.

CONCLUDING REMARKS

As we have shown, our socioecological approach has produced quite a novel angle to integrated impact assessment in wildlife, and especially in the wildlife reintroduction context. Surprisingly little has been done in this regard. The focus seems to be on the non-anthropogenic aspects of translocation success. Social acceptance and stakeholder and citizen willingness to contribute to the translocation process are of course critical to success, but especially important in our case is the finding of the importance of non-instrumental reasons and motivations. We and the administrators assumed the reasons would be more instrumental. Surprisingly, wild forest reindeer were welcomed home. This might have been different thirty years ago. As shown in the USA, attitudes towards iconic and enigmatic species have become more positive in recent decades (George et al. 2014). Interestingly, however, and to return once more to the wolf, the general attitude towards large carnivores has become more

negative in Finland, and especially more fearful in the last ten years or so (Hiedanpää and Pellikka 2020).

From the scientific perspective, an analysis of the views of absentees from the Isojoki forum indicates that public participation methods, at least based on the random sampling of participants, may serve reasonably well in representing the beliefs of those who are unable to participate because the meeting is held during the working day and office hours, those who are not interested or those who may not have a personal interest in the wildlife issue at hand. Given the popularity of workshop methodology in obtaining stakeholder contributions for management planning and implementation, we discovered that creative individual and group-based working methods still attracted people to such meetings.

Where policy is concerned, the analysis reveals that many participants felt the major preconditions for successful reintroduction included a sufficient allocation of resources to the reintroduction process and clear and transparent guidelines regarding the management of large carnivores. The current management plans for both wild forest reindeer (MAF 2007a) and recently updated management plans for large carnivores (Anon. 2007b; Anon. 2007c; Anon. 2015; Anon 2019) provide the stepping stones to interlinking the practical implementation of protection for these two constituents of Finnish forest ecosystems and hence potentially provide practical guidelines for understanding and exercising Aldo Leopold's (1989, 224–225) ethical maxim: 'A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.'

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Table 1a. The summary statistics of the personal expected importance values regarding the reintroduction of forest reindeer in regions (scale: 1 = highly insignificant, ...7= highly significant). The Mann-Whitney U-test (MWU) was used to test whether the expected importance values differed between the people present at and absent from the Isojoki forum, and the Kruskal-Wallis-test (K-W) to test whether there were differences in response patterns between the participants in the four forums (ns. = not significant (2-sided); * = $P < 0.05$; ** = $P < 0.01$; *** = $P < 0.001$)

<i>Impact</i>	All forum participants				MWU	KW
	min–max	me-dian	mo-de	n		
Recreation	1–7	7	7	84	ns.	ns.
Attracts large carnivores to the region	1–7	6	7	84	ns.	ns.
Biodiversity	1–7	6	7	84	ns.	ns.
Community image	1–7	6	7	82	ns.	ns.
Value of species	2–7	6	7	83	ns.	ns.
Tourism	1–7	6	7	83	ns.	*
Consciousness of nature	1–7	6	6	83	ns.	ns.
Natural (hunting) resource	1–7	5.5	7	82	ns.	ns.
Large carnivores decrease hunting opportunities	1–7	5	7	83	ns.	ns.
Hunting tourism	1–7	5	6	82	ns.	*
Awareness of cultural history	1–7	5	6	84	ns.	ns.
Research needs	1–7	5	6	81	**	ns.
Attachment to the species	1–7	5	5	83	ns.	ns.
The image of species conservation	1–7	5	5	83	ns.	ns.
The diversity of hunting culture	1–7	4	3	83	ns.	ns.
Disturbs the use of dogs for hunting	1–7	3	4	83	ns.	ns.
Conflicts between hunters and researchers	1–7	3	3	83	ns.	ns.
The sharing of benefits and costs	1–7	3	3	83	ns.	ns.

Traffic accidents	1-7	3	3	83	*	***
Damage to agriculture	1-7	3	2	84	ns.	***
Land use	1-7	3	2	83	ns.	*
Spreading wildlife diseases	1-7	3	2	80	ns.	ns.
Tension between resource use and conservation	1-7	3	2	83	ns.	ns.
Temporal asynchrony of benefits and costs	1-7	3	1	83	ns.	ns.
Damage to forestry	1-7	2	1	83	ns.	*
Other damage	1-7	2	1	83	ns.	***
Tension among hunters competing for prey	1-7	2	1	83	ns.	ns.

Table 1b. 10 most often added impact (categories) by participants in the impacts listed in Table 1 a..

	<i>Number of forums, where mentioned</i>
- creates new project development opportunities	3
- develops the process of integrating public participation	2
- adds constructive collaboration with different groups	3
- creates new employment opportunities and costs	3
- increases information sharing	4
- changes the habitats used by animals and affects the plant community (2 forums)	2
- increases demands to regulate other species populations (mainly large carnivores) to protect wild forest reindeer	2
- improves hunters' image as stewards of nature	3
- raises questions about power relations (who decides, what criteria/impacts are emphasised)	1
- youth education opportunities	2

Table 2. The clusters based on the groupings of Q sorts.

Cl	No.	ust of	er peo	%-	Com	<u>Most important</u>	<u>Least</u>	<u>Expectations that</u>
		ple	vari	ance	posite	<u>expected</u>	<u>important</u>	<u>distinguishe the cluster stat.</u>
		expl	ity	reliab	ity	<u>impacts</u>	<u>impacts</u>	<u>sign. from other clusters or</u>
								<u>all others having a consensus</u>
1	31	28.7	0.99			Recreation, biodiversity, the value of species, the image of species protection and the local community, tourism, consciousness of nature	Conflicts, agricultural damage, other damage, forest damage	<i>Impacts biodiversity to a large extent</i> Is only a moderate hunting resource <i>Large carnivores decrease the hunting opportunities only to a small extent</i> Attracts large carnivores to the region only to a small extent Disturbs the use of dogs for hunting other game animals to a very small extent
2	10	14.9	97.6			Attracts large carnivores to the region, recreation, the image of the community, tourism, the value of the species, hunting culture	Agricultural, forest and other damage, Spread of wildlife diseases	The image of the species protection is moderate Tension among hunters Competing for prey is moderate
3	10	10.2	97.6			Traffic accidents, recreation, hunting resource,	Tension among hunters competing for	<i>Attachment to the species (low), traffic accidents (high), attracts large carnivores to the</i>

				hunting tourism, attracts large carnivores to the region, tourism, large carnivores decrease hunting opportunities	prey is moderate, attachment to the species, the temporal asynchrony of benefits and costs, the tension between resource use and conservation	region (moderate), hunting tourism (high), agricultural damage (moderate), other damage (high), land use (moderate), cultural history (moderate), forest damage (moderate), tension between resource use and conservation (low), tension among hunters competing for prey is moderate (low)
4	7	8.5	96.6	Attracts large carnivores to the region, agricultural damage, the sharing of benefits and costs, recreation, large carnivores decrease hunting opportunities	Hunting culture, land use, hunting resource, cultural history	Attracts large carnivores to the region, agricultural damage, the sharing of benefits and costs, tension between resource use and conservation, temporal asynchrony of benefits and costs, the image of the community, the value of the species, the difficulty of using dogs for hunting (low), other damage (moderately low), hunting tourism (low), cultural history (low), hunting resource (low)

Table 3. Willingness of participants in the wild forest reindeer forums to participate in activities related to the potential reintroduction of animals (the numbers denote those who responded 'yes' out of all respondents). The differences between the participants and those

absent in Isojoki were tested using Fisher's exact test (the differences between the responses of the participants of the three regions were not statistically significant at the level $P < 0.10$, based on the Kruskal-Wallis test, and not shown here).

<i>Activity</i>	<i>Region</i>				<i>Difference</i>	
	<i>Total</i> (yes %)	<i>Iilomants</i> i forum (%)	<i>Pyhäntä</i> ä forum (%)	<i>Isojoki</i> (%) (participant s present in forum)		<i>Participant</i> s absent from Isojoki forum)
<i>Willing to participate</i>	98	94	100	100	75	0.01
<i>Keeping an eye on animals</i>	87	93	90	79	60	ns.
<i>Development projects</i>	78	80	86	71	45	ns.
<i>Preventing damage</i>	77	60	86	79	50	0.06
<i>Monitoring population size</i>	75	73	71	79	45	0.03
<i>Predator control</i>	73	67	81	71	45	ns.
<i>Feeding of animals in the enclosure</i>	62	60	67	58	35	ns.
<i>Translocation of large carnivores</i>	50	47	38	63	35	ns.
<i>Other activities</i>	35	53	38	21	15	ns.
<i>Respondents (n)</i>	61	17	21	24	20	

Table 4. The explanations given by absentees for being absent from the Isojoki forum.

<i>Explanation</i>	<i>%</i>	<i>n</i>
<i>Could not participate due to other activities and did not find</i>	38	8

<i>anyone to replace her or him.</i>		
<i>Has not received invitation at all</i>	29	6
<i>Not interested</i>	24	5
<i>Perceived that he or she had no interest in reintroduction</i>	5	1
<i>No longer representative of the organisation (forwarded invitation)</i>	5	1
<i>Respondents</i>	100	21

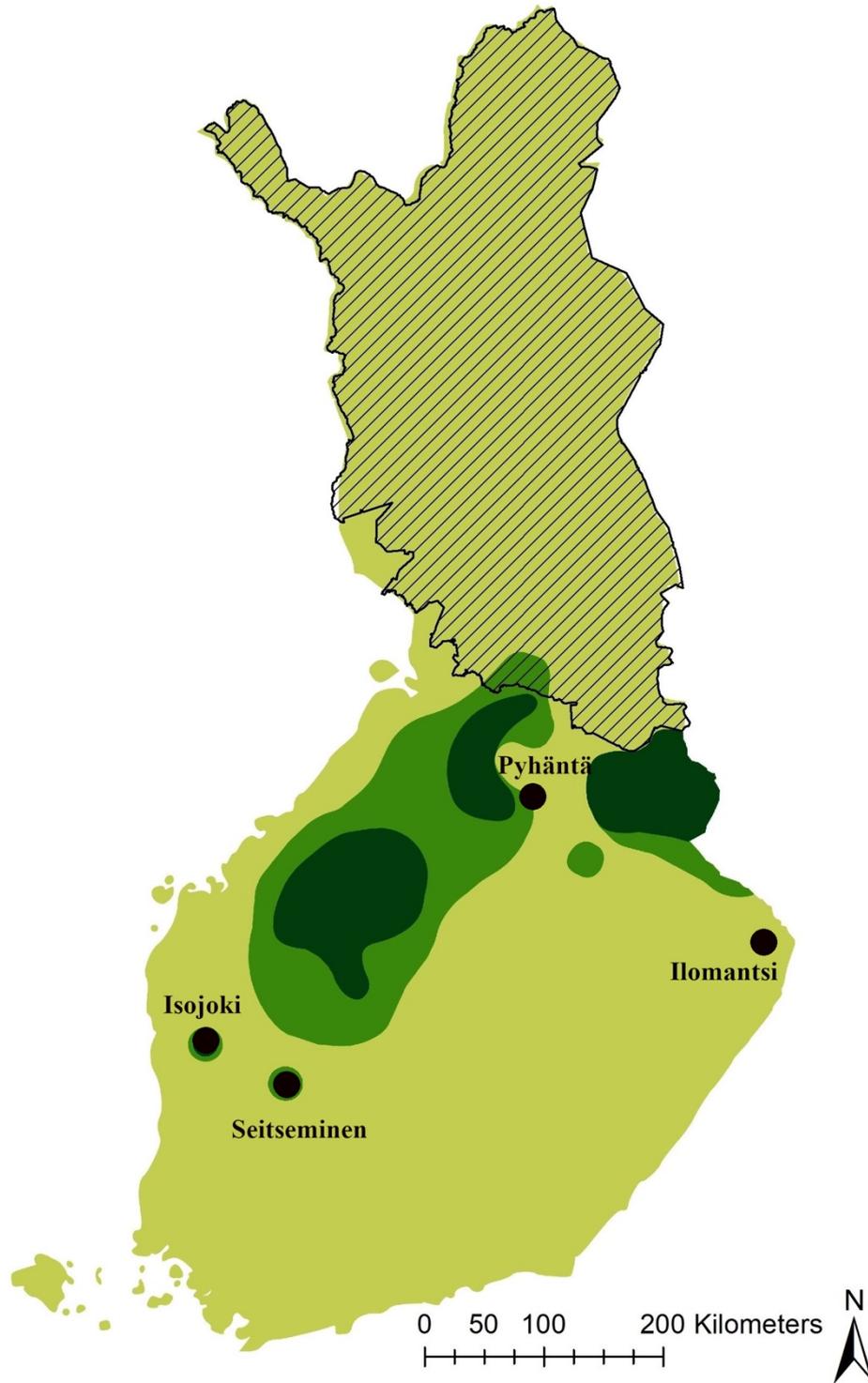


Figure 1. The locations of four forums, the current range of wild forest reindeer subpopulations (green areas) and the reindeer herding area in Finland (diagonal shaded area) (modified from the map provided by Metsähallitus and The Finnish Wildlife Agency).