

The Lynx to Scotland Project: assessing the social feasibility of potential Eurasian lynx reintroduction to Scotland

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Contents

List of figures and tables	3
Acknowledgements	4
Executive Summary	5
1 Background and Introduction	6
2 Methods	9
2.1 Q-Method investigation	9
2.2 Stakeholder consultation	11
2.3 Webinars for stakeholder organisations	11
2.4 Community consultation events	12
3 Results	14
3.1 Q-Method analysis	14
3.2 Stakeholder consultation	23
3.3 Webinars for stakeholder organisations	24
3.4 Community consultation events	33
4 Discussion	48
4.1 Q-Method	48
4.2 Key themes	49
• Habitat suitability	49
• The role of lynx within ecosystems	52
• Lynx, gamebirds and livestock	57
• Lynx and livestock	57
• Compensation and the mitigation of potential impacts on livestock	60
• Lynx, the economy and society	63
• Trust	67
4.3 Views at the community level	68
4.4 Aspirations for process	69
5 Conclusion	71
6 Recommendations	73
7 References	74
Ethics statement	69
Appendix	80
• Full accounts of the five Q-Method Perspectives	80



List of figures and tables

Figure 1	A completed Q-sort from a Q survey of stakeholder perceptions towards potential Eurasian lynx reintroduction in Scotland.	14
Figure 2	Word cloud derived from the questions and statements made by attendees to the community event in Dalwhinnie.	36
Figure 3	Word cloud for the community event in Boat of Garten.	39
Figure 4	Word cloud for the community event in Oban	42
Figure 5	Word cloud from the community event in Kilmartin (Dunadd Community Council).	45
Figure 6	Comparison of the proportion (percentage) of attendee views that were captured by one or more of the five emergent Perspectives from the Q-Method investigation, between the community group events.	46
Figure 7	Comparison of the mean percentage of attendee views across the events in Cairngorms National Park and Argyll that were captured by one or more of the five emergent Perspectives from the Q-Method investigation	46
Table 1	The 12 interviewees for the first phase of the Q-Method study, investigating stakeholder perceptions towards potential lynx reintroduction to Scotland.	10
Table 2	Stakeholder organisations for whom online webinars were delivered by Vincent Wildlife Trust, as part of the consultative element of the Lynx to Scotland study, with the total number of attendees across all sessions.	12
Table 3	The community groups engaged during the Lynx to Scotland study	13
Table 4	Summary of a Q-method analysis of the perceptions of stakeholders towards the potential for Eurasian lynx Lynx lynx reintroduction to Scotland.	15-16
Table 5	Factor loadings for the 34 participant sorts over five perspectives.	17
Table 6	Semi-structured interviews undertaken with stakeholders across the duration of the study.	23
Table 7	Summary and comparison of the proportion (percentage) of community meeting attendees' views that were captured by one or more of the five emergent Perspectives (P1-P5) from the Q-Method investigation or stakeholder interviews. Views that were not captured by the Perspectives or stakeholder interviews are in the 'Unrepresented' column.	45



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Executive summary

The Lynx to Scotland study sought to assess the social feasibility of potential lynx reintroduction to Scotland through consultation with stakeholders and communities in two focal areas – Cairngorms National Park (CNP) and Argyll. Whilst the ecological feasibility of lynx reintroduction has been approached by previous efforts for Scotland, the Lynx to Scotland study represents the first effort to assess social feasibility. This is of central importance for the proposed reintroduction of a large carnivore that has been absent from Britain for a period of time equivalent to multiple human generations. The backbone of the study constituted an academic investigation using Q-Methodology, a technique used to quantify the subjective views of people towards a given topic. This was built upon and contextualised with an iterative process of stakeholder engagement, where 116 informal, semi-structured interviews were undertaken with stakeholders over the duration of the study. Online webinar sessions were conducted with eight stakeholder organisations and facilitated community consultation events were undertaken with five community groups— three in the CNP and two in Argyll.

Five Perspectives emerged from the Q-Method investigation. These, in order of prevalence, were

- **Perspective 1:** We are ready for lynx, and lynx are part of the change we need (*Lynx for Change*);
- **Perspective 2:** There is no need for lynx, and we don't want them back (*No to Lynx*);
- **Perspective 3:** We support the conversation, but Scotland is not Ready (*Scotland is not Ready*);
- **Perspective 4:** We are open to discussing lynx reintroduction, but it must be better justified (*We are not Convinced*);
- **Perspective 5:** We should reintroduce missing species; lynx will be a boon for local economies (*Lynx for Economy*).

The consultation revealed divergences over the perceptions of stakeholders towards the potential costs and benefits of lynx reintroduction, perceived impacts on biodiversity and rural industries, and disclosed tensions between people over values, process, contested information and sources of knowledge, and interpersonal/group conflicts. It is not currently appropriate for proponents of lynx reintroduction to submit a licence application for reintroduction. At present, there are significant areas of contestation with regards to the feasibility of lynx reintroduction and if these are not satisfactorily addressed, there is strong potential for the escalation of existing conflicts. However, there was sufficient support for lynx reintroduction amongst stakeholders and a desire amongst others to further investigate the potential, to warrant a continued exploration of feasibility. This should embrace uncertainty and not be interpreted as an inexorable trajectory towards lynx reintroduction. There was consensus agreement that in the event of further exploration of the feasibility of lynx reintroduction, a collaborative approach inclusive of cross-sectoral interests was necessary, to explicate and expound upon contested areas of information, address knowledge gaps, proactively approach existing and potentially emergent conflicts, and crucially, to begin a process of trust building between stakeholder groups. This should seek to integrate local knowledge and science and be coordinated within a Social-Ecological Systems framework to better integrate the ecological and social feasibility of potential lynx reintroduction.

A close-up photograph of a lynx's face, showing its intense gaze and thick fur. The image is used as a background for the title.

Background and introduction

Large predators have long inspired awe, respect, admiration and fear in humans, and reversing global declines in large predator populations is a major conservation objective (Ripple *et al.*, 2014). In some cases, (though not all; Sergio *et al.*, 2008) large predators fulfil roles and enable processes, such as trophic cascades, that are integral to the healthy functioning and maintenance of biodiversity within ecosystems (Berger *et al.*, 2001; Terborgh *et al.*, 2001; Ripple & Beschta 2006; Sergio *et al.*, 2008; Estes *et al.*, 2011). They are often perceived, sometimes in spite of evidence (Sergio *et al.*, 2008), to act as effective indicators of ecosystem health or as protective umbrella species (Simberloff 1998; Ray *et al.*, 2005), and as such are popular candidates for reintroductions (Seddon *et al.*, 2005).

Wildlife reintroductions are an increasingly frequent practice in conservation (Berger-Tal *et al.*, 2020). They are undertaken to restore absent or extirpated native species, to mitigate biodiversity loss, and are an increasingly important component of restoration ecology (Seddon, Strauss & Innes 2012; IUCN/SSC 2013). Despite their growing popularity, the majority of historical reintroductions have failed to establish viable populations (Griffith *et al.*, 1989; Wolf *et al.*, 1998) and remain risky, high-cost endeavours associated with low success rates (Seddon *et al.*, 2007; Letty *et al.*, 2007; Van Wieren 2012; Berger-Tal *et al.*, 2020). They are made especially complex by the continually changing nature of human communities, landscapes and ecosystems resulting from human activity, cultural evolution, and climate change (Weeks *et al.*, 2011; Payne & Bro-Jørgensen 2016). Landscapes that historically supported species that became locally or entirely extinct may no longer be suitable or appropriate for their re-establishment, whilst in other places the concerted and/or spontaneous regeneration of habitats and cultural shifts in attitudes towards nature, particularly in western societies, make reintroduction of historically absent species an increased possibility (Armstrong & Seddon 2008; Manfredo *et al.*, 2003; Mace 2014; Trouwborst *et al.*, 2015; Martínez-Abraín *et al.*, 2020).

Reintroducing wildlife is an expressly human endeavour, and the complexities associated with reintroductions are as much sociological and cultural as biological in origin (Arts *et al.*, 2012; O'Rourke, 2014; Batson *et al.*, 2015; Berger-Tal *et al.*, 2020). They invariably take place in complex socio-ecological contexts where the sustainability of populations of reintroduced species is contingent on their acceptance and tolerance by the people who experience the impacts of their daily coexistence (Dickman, 2010). Attitudes towards and perceptions of reintroductions are affected by a number of socio-cultural and individual factors (Dickman & Hazzah, 2016), whilst the deep-seated fear associated with unfamiliar threat and perceptions of exposure to harm to people and livelihoods, especially when imposed by an external agency, are important components of conflicts between people over wildlife (Starr, 1969; Skogen *et al.*, 2008; Prokop *et al.*, 2009; Naughton-Treves & Treves, 2005; Inskip & Zimmermann, 2009; Peterson *et al.*, 2010; Knopff *et al.*, 2016). Reintroduction projects can cause or exacerbate conservation conflicts, where conflict is defined as when 'two or more parties with strongly held opinions clash over conservation objectives and when one party is perceived to assert its interests at the expense of another' (Redpath *et al.*, 2013). They have the potential to become the focal point for disagreement over competing objectives, expression of existing grievances, and clashes of ideology (Wilson, 1997; Farrell, 2014; O'Rourke, 2014, Madden & McQuinn, 2014; Trouwborst *et al.*, 2015). Reintroductions have, however, played a fundamental role in the recovery of some critically endangered species (eg, Kleiman & Mallison, 1998; Cade & Burnham, 2003) and given the current global biodiversity crisis, have become an important component of the conservation toolkit (Seddon *et al.*, 2012; Berger-Tal *et al.*, 2020). Equally, conflict is not necessarily negative, but can provide a barometer, or indicator, of particular challenges associated with the ever-changing state of human society's relationship with nature which when understood can be addressed (Hill, 2021).

In recognition of the importance of the human dimensions of reintroductions, community and stakeholder engagement are emphasised as crucial components in the International Union for the Conservation of Nature (IUCN) guidelines for reintroductions and other conservation translocations (IUCN/SSC 2013). Failure to adequately include these can lead to contestation on ethical grounds, tense relations or outright conflict between opposing stakeholders, and damage to the credibility of conservationists and the reintroduction process (Redpath *et al.*, 2013; Coz & Young, 2020; Thulin & Röcklinsberg, 2020). It can also lead to the alienation of communities alongside which reintroduced species must coexist, causing direct conflict between people and reintroduced species that can result in their being killed, raising further ethical questions associated with animal welfare (Armstrong & Seddon, 2008; O'Rourke, 2014; Drouilly & O'Riain, 2021). Large predator reintroductions tend to be more challenging than with other taxa, in part because they present perceived or actual risks to the safety and livelihoods of people (König *et al.*, 2020).

In spite of concerns over the potential impacts on human livelihoods and welfare, there is increasing public support for the recovery of endangered wildlife and attempts to reintroduce missing species in Britain (Loth & Newton, 2018; Sampson *et al.*, 2020; Pheby, 2020). People on the island of Britain are increasingly looking to recovering populations of large carnivores in mainland Europe (Chapron *et al.*, 2014) and asking – ‘Can we live alongside top predators again?’ – a question facilitated and mainstreamed by a burgeoning interest in rewilding (Monbiot, 2014; Svenning *et al.*, 2016). The rewilding debate, coupled with a growing public awareness of environmental issues and a cultural shift in western attitudes towards nature, is providing space and opportunity to discuss and explore the feasibility of large carnivore restoration.

Wilson (2004) concluded that the most feasible large carnivore reintroduction in Britain is the Eurasian lynx (*Lynx lynx*), a conclusion substantiated to some extent by ecological modelling focusing on habitat availability, connectivity, and prey abundance (Hetherington & Gorman, 2007; Hetherington *et al.*, 2008; Ovenden *et al.*, 2019; Johnson & Greenwood, 2019). Since the lynx became extinct in Britain (400-500 years ago), a significant amount of time has passed (from a human perspective) representing many generations of people (Hetherington, 2006). British culture and land use practices have developed without the need to accommodate large predators such as lynx, whilst wildlife habitats in Britain are often on private land which typically consist of fragmented patches within an agricultural matrix (Oldfield *et al.*, 2003). Conflict with humans and illegal killing represent an acute threat to large predators globally (Treves *et al.*, 2017), and are a significant threat to the survival of many European populations of lynx (Breitenmoser *et al.*, 2000; Drouilly, 2019; Melovski *et al.*, 2020), leading Linnell *et al.*, (2009) to state that the human dimension is the most important consideration for lynx restoration. For lynx reintroduction in Britain, and recovery of predators more broadly, establishing ecological feasibility alone is not sufficient and is arguably subordinate to the necessity of thoroughly exploring the complex dynamics of social feasibility (Breitenmoser, 1998; Wilson, 2004; Milner & Irvine, 2015; Gray *et al.*, 2016; Hawkins *et al.*, 2020; Drouilly & O'Riain, 2021).

Despite this, efforts to pursue lynx reintroduction in Britain to date have failed to adequately incorporate the human dimension into the exploration of feasibility (Gray *et al.*, 2016; Convery *et al.*, 2016; Drouilly & O'Riain, 2021). A proposal for the trial reintroduction of lynx to Kielder Forest by the Lynx UK Trust (LUKT) in 2018 was rejected by the then Secretary of State for Environment, Food, and Rural Affairs for, among other reasons, insufficient engagement with key stakeholders and communities (Gove, 2018). A report by Convery *et al.* (2016) highlighted that consultation with local communities and key stakeholder groups had been insufficient, whilst media coverage during the consultation suggested tense relations between LUKT, local people, and stakeholders (Halliday & Parveen, 2017; Hexham Courant, 2018). As a result of this well publicised experience, conversations around lynx and other predator reintroductions have tended to be viewed as being emotive and contentious, with the Chief Executive of Scotland's nature conservation body, NatureScot, publicly distancing the organisation from the possibility of large predator reintroductions for fear that such proposals could ‘significantly damage public support for rewilding the British countryside’ (Carrell, 2021).

The potential for lynx reintroduction continues, however, to be discussed and proposed as a desirable component of rewilding and ecosystem restoration in Britain by environmentalists and pro-environmental media (Nielson, 2019; Weston, 2021). But the public debate around wildlife reintroductions in Britain has become increasingly polarised, with advocates for and against wildlife reintroductions making vociferous cases across media platforms (Hodgson *et al.*, 2018; British Broadcasting Corporation, 2021). In recognition of this, Vincent Wildlife Trust (VWT) was approached by the environmental charities Trees For Life and Scotland: The Big Picture to carry out a study exploring the social feasibility of potential future lynx reintroduction to Scotland – the Lynx to Scotland study. The study was conducted over fourteen months from January 2021 to February 2022. The backbone of the study was an academic investigation using Q-Method, which provided an in-depth exploration of stakeholder perceptions towards the potential for lynx reintroduction to Scotland, focusing on the perceived challenges, opportunities and aspirations for process. The study also involved an ongoing, iterative consultation with stakeholder organisations and individuals, webinar events for stakeholder groups, and events with communities in the two focal regions, Cairngorms National Park and Argyll.

Q-Methodology, developed as a means of characterising human subjectivity, is a method with increasingly recognised potential for conservation science (Adams & Proops, 2000; Webler *et al.*, 2009; Zabala *et al.*, 2018; Bavin *et al.*, 2020; Crowley *et al.*, 2020; Dempsey, 2021). Q-Methodology is a form of pattern analysis, combining quantitative and qualitative elements (Stephenson, 1935), that typically involves a comparatively small number of respondents (< 60: Watts & Stenner, 2012), employing a Factor Analysis of individual responses to explore patterns of commonality in perspectives across a topic, rather than generalising from a sample to a larger population (Watts & Stenner, 2012). The resulting clusters of commonality might represent value positions, belief systems or mental models (McKeown & Thomas, 2013). Q-Methodology has found application in research on perceptions of ecosystem services (Eyvindson *et al.*, 2015), resource and land management (Swedeen, 2006), and carnivore conservation (Chamberlain *et al.*, 2012; Bavin *et al.*, 2020). Compared with other approaches, the methodology provides insight into more nuanced, sophisticated opinions (Kamal *et al.*, 2014). It is also sensitive to minority voices which might otherwise be marginalised and excluded, but which can have a disproportionately great impact on the outcome of conservation initiatives (Ockwell, 2008; O'Rourke, 2014; Redpath *et al.*, 2013).

The overall objective of the Lynx to Scotland study was to provide an evidence base to inform the discourse amongst stakeholders towards the feasibility of potential lynx reintroduction, disclosing the range of views of stakeholders in a structured way that will inform current and future dialogue. In doing so we sought to facilitate a more substantive means of communication between conservation practitioners and stakeholders over this contested topic, and establish a conversation based on a philosophy of empowerment, trust, learning, and two-way exchange of information. The purpose of the study was to gain a clearer understanding of public belief and perceptions around the concept of reintroducing lynx to Scotland and to make impartial recommendations for the next steps. The partners Trees For Life and Scotland: The Big Picture sought to understand whether it was currently appropriate to embark on the process of developing a licence application for the reintroduction of lynx in Scotland. Nonetheless, they acknowledged that a possible outcome of the study was that opposition to lynx restoration is such that it is inappropriate to proceed, and they were willing to accept such a conclusion.

Methods



2.1 Q-Method investigation

The Q-Method investigation formed the core of the study. Q-Method was specifically chosen as a recognised technique used to characterise the subjective views of people towards a topic – lynx reintroduction in this case. The study authors previously used it to explore the social feasibility of pine marten (*Martes martes*) translocation to Wales (Bavin *et al.*, 2020). Q-Methodology is a form of pattern analysis, combining quantitative and qualitative elements (Stephenson, 1935). It typically involves a comparatively small number of respondents (< 60: Watts & Stenner, 2012), employing a Factor Analysis of individual responses to explore patterns of commonality in perspectives across a topic, rather than generalising from a sample to a larger population (Watts & Stenner, 2012). The resulting clusters of commonality might represent value positions, belief systems or mental models (McKeown & Thomas, 2013). Q-methodology has found application in research on perceptions of ecosystem services (Eyvindson *et al.*, 2015), resource and land management (Swedeen, 2006), and carnivore conservation (Chamberlain *et al.*, 2012; Bavin *et al.*, 2020). Compared with other approaches, the methodology provides insight into more nuanced, sophisticated opinions (Kamal *et al.*, 2014). It is also sensitive to minority voices which might otherwise be marginalised and excluded, but which can have a disproportionately great impact on the outcome of conservation initiatives (Ockwell, 2008; O'Rourke, 2014; Redpath *et al.*, 2013).

The Q-Method study was geographically focused on the Cairngorms National Park (CNP), though not all of the engaged stakeholders were based within the boundaries of the national park. The Cairngorms has a resident population of 18,000 people and covers an area of 4,528 km², centred around the Cairngorm mountain range. Most of the land area is owned and managed by private individuals or businesses (www.cairngorms.co.uk), whilst the major land uses (in order of area coverage) are managed moorland, farming (rough grazing), conservation, forestry, and recreation.

The stakeholders in this study constituted non-governmental organisational representatives and some independent individuals who had a potential interest in lynx in relation to environmental use/management. Stakeholders were identified through initial conversation with members of the Lynx Working Group (LWG), a sub-group of the National Species Reintroduction Forum (NSRF), and through core members of the NSRF. Where it was perceived that there were gaps in the spectrum of interest, individuals or organisations who were not members of the NSRF were identified, until it was deemed, with cross-checking from members of the LWG, that the spectrum of stakeholder interest was represented. The Q-Method element of the Lynx to Scotland study was not repeated in Argyll. It was felt that although there may be some contextual differences between CNP and Argyll, the topic of lynx reintroduction is one of national scope, and the majority of facets associated with the topic were pan-regional. Repeating the investigation in Argyll would have been unlikely to disclose an appreciable amount of new, or different information.

Semi-structured interviews with twelve stakeholder representatives were initially undertaken to build a concourse of verbatim statements from which a subset, the Q-set, was derived for use in the wider study. The aim of these interviews was to disclose, as much as possible, the full spectrum of viewpoints amongst stakeholders towards the potential for lynx reintroduction. Due to the physical restrictions of COVID-19, the interviews were conducted online over Zoom at a time and date agreed with the participants. The interviews aimed to explore the desirability, potential opportunities and challenges, and aspirations for process in the exploration of potential lynx

reintroduction. The interviews were orientated around four questions: (a) How do you feel about the potential for lynx reintroduction to the Cairngorms within the next five years? (b) Do you think there are opportunities associated with lynx reintroduction? (c) Do you think there will be negative impacts from lynx reintroduction? (d) What do you think are the challenges associated with a lynx reintroduction process? Interviewees were given the freedom to discuss and expand upon issues they deemed relevant or connected. The conversations were recorded and transcribed.

Table 1 *The 12 interviewees for the first phase of the Q-Method study, investigating stakeholder perceptions towards potential lynx reintroduction to Scotland.*

Interviewee
Field Sports Policy and Farm Management
Rewilding Advocate and Ecotourism Operator
Ecologist and Deer Management Advisor
Lynx Expert
Species Reintroductions and Policy Expert
Farming Representative
Environmental Campaigner
Field Sports Scientist
Forest Manager
Conservation and Environmental Policy
Agricultural Policy Advisor
Deer Ecologist
Land Use Policy and Wildlife Reintroductions

A concourse of 430 verbatim statements were initially selected from the interview transcripts, with the aim of achieving full representation of the interviewees' responses. These were refined to a set of 52 statements following consideration by a team comprising the authors, the wider VWT team and advice from four independent experts who had experience of the discourse around lynx ecology, reintroductions, and rural land use. Statements were selected by omission of those that were deemed ambiguous, had actual or potentially conflicting or contrasting interpretations or were duplications (Watts & Stenner, 2012; Webler *et al.*, 2009).

Participants for the second phase of the survey were approached based on previous contact during the initial period of the study (January-April), when approximately 60 informal interviews had been conducted with individual and organisational stakeholders. These participants had been initially identified through a mixed process of snowball sampling and targeting of specific organisations/ individuals. Ideally, Q-Method should be administered with participants in person, but due to the restrictions of the COVID-19 pandemic the survey was necessarily hosted online using Q-Method Software (www.qmethodsoftware.com). Participants were able to log on to the survey with a unique code and password. Following introductory information and instructions, the first step of the survey involved sorting the 52 statements into three piles – statements the participants agreed, disagreed, or felt neutral/ambiguous about. The participants then sorted the statements into a forced choice array approximating a normal distribution, where there was one space for each statement, and where +6 was 'most agree' and -6 'most disagree' (Figure 1). After populating the array, participants had the ability to refine and shuffle sorts until they were satisfied, before submitting their response. The lead author followed up to glean any additional comments, whilst also referring to their initial interviews. These two sources of additional information were used to contextualise and enrich the data from the sorts.

2.2 Stakeholder consultation

Due to the limits on resources and time available, the consultative element of the study focused on stakeholders and did not constitute a widespread assessment of public opinion towards lynx reintroduction, which was also thought to be inappropriate at this initial stage of the exploration. Stakeholders were defined as individuals, statutory bodies and non-governmental organisations (NGOs) that could be affected by lynx reintroduction, but participation was extended to include people with particular technical expertise or relevant insight. There were two geographical areas of interest for this exploration: the Cairngorms National Park (CNP) and Argyll. The initial focus was on the CNP, which was also where the Q-Method exercise was undertaken, with the focus then shifting to Argyll.

The consultation was underpinned by a philosophy of empowerment, trust, learning, and two-way exchange of information. The identification of, and engagement with stakeholders was an iterative, ongoing process throughout the duration of the study. Stakeholders were initially identified from (a) VWT's experience of carnivore reintroduction in Britain (MacPherson, 2018; Bavin *et al.*, 2020), (b) a review carried out of the literature on lynx reintroduction, and (c) consultation with members of the Lynx Working Group (LWG), a sub-group of the National Species Reintroduction Forum. The LWG was established to specifically address aspects of lynx reintroduction in Britain. Stakeholder engagement was ongoing throughout the study until it was perceived by the authors that the spectrum of views, as it was understood, had been saturated.

Consultation with individual stakeholders and NGO representatives took the form of informal, semi-structured interviews. These were orientated around the four questions used in the Q-Method investigation: (a) How do you feel about the potential for lynx reintroduction to the Cairngorms within the next five years? (b) Do you think there are opportunities associated with lynx reintroduction? (c) Do you think there will be negative impacts from lynx reintroduction? (d) What do you think are the challenges associated with a lynx reintroduction process? Due to the study taking place during the COVID-19 pandemic, the great majority of these informal interviews were conducted online using tools such as Zoom or Microsoft Teams, or by phone, at a time and date agreed with participants. Given that lynx reintroduction is perceived by many to be a controversial topic, participants were guaranteed anonymity in the reporting of results, which facilitated more open, expansive discourse.

2.3 Webinars for stakeholder organisations

Online webinar sessions were conducted for eight organisations over the period of the study (Table 4). These webinars were offered to a number of other organisations. The webinars were hosted by the focal organisation, and were conducted over Zoom. The purpose of the webinars was to consult with stakeholder organisations and their members, actively embodying the philosophy of empowerment, trust, learning, and two-way exchange of information. In order to create a trusted, inclusive environment that encouraged open dialogue, the sessions were conducted under Chatham House Rules, whereby the information shared could be used but not attributable to any individual.

Each webinar began with a PowerPoint presentation by David Bavin, which was followed by discussion, facilitated by a member of the host organisation. The presentation was structured to: deliver information on (a) the nature and remit of the study; (b) describe the partners involvement and roles; (c) share background information to the study; (d) provide an overview of Eurasian lynx ecology; and (e) provide specific information tailored to the interests of the focal organisation. The content relating to lynx was derived and cited directly from scientific and other published literature. Following the presentation, participants were able to ask questions and express their views, either directly or by posting in the text chat. It was emphasised by the author that engagement did not equate to endorsement of lynx reintroduction. The sessions were recorded and transcribed to accurately capture the content of the discussion. Two of the organisations (NSA and BASC) had the capability on Zoom to run polls. Participants were polled at the end of the session with the following questions: (a) Has this session improved your knowledge of lynx? (b) Do you trust

the information you have heard? (c) Do you wish to learn more, and remain engaged in this process? The poll results are included with the discussion summaries in the results. Participants were given contact details for David Bavin to facilitate further/ongoing communication. Summaries of the discussions for each webinar are provided in the results under organisational subheadings, whilst the content of the discussions informs the synthesis of information in the discussion.

Table 2 Stakeholder organisations for whom online webinars were delivered by Vincent Wildlife Trust, as part of the consultative element of the Lynx to Scotland study, with the total number of attendees across all sessions.

Organisation	Date
National Sheep Association	07/06/21
British Association for Shooting and Conservation	15/06/21
Scottish Land and Estates Session 1	24/06/21
Association of Deer Management Groups	08/07/21
The Scottish Association of Young Farmers Clubs	20/07/21
Game and Wildlife Conservation Trust	26/08/21
National Farmers Union Scotland, Argyll	17/11/21
Scottish Land and Estates Session 2	30/11/21
Scottish Gamekeepers Association Board Members	20/12/21
Total number of webinar attendees	173

2.4 Community consultation events

Though the focus of the study was primarily on stakeholder perceptions towards the potential for lynx reintroduction in Scotland, it is also important to determine if these are representative of the views of community members within the geographical areas of focus (though many of the stakeholders in our study were themselves members of the communities within Argyll and CNP). Within the parameters of the study, in terms of time and resources available, we sought to begin an exploration of community members' views, to facilitate a two-way exchange of information, to empower people with information, and to investigate whether the Perspectives that emerged from the Q-Method investigation were representative of people's views at a community level.

On the advice of some of the participants involved in the stakeholder consultation, Community Councils (CCs) were approached to host these consultative events (Table 3). The CCs within the CNP were contacted on behalf of Vincent Wildlife Trust via the regional Ward Manager who coordinates across the CCs. Although 21 Community Councils were approached, only two (Dulnain Bridge and Dalwhinnie) were able to facilitate a meeting in the available time. A third session was organised in Boat of Garten through the Boat of Garten Wildlife Group, which is part of the Boat of Garten Community Company. They publicised the session to the wider community through a Facebook group, community mailing list, and posters put up around the village. The sessions in the CNP were conducted during July and August.

There was no Ward Manager for the Community Councils in Argyll and Bute, so we approached five CCs, of which three expressed interest. However, only Dunadd CC progressed to the organising of an event. A second event was organised in Oban through the Scottish Wildlife Trust, Argyll and Lochaber, who organised and advertised the event to the Oban community. The events in Argyll were undertaken over two weeks in November 2021. The most up-to-date COVID guidelines for public meetings in Scotland were adhered to in the planning of all the events, and attendance was restricted to 30 people. The event with Dulnain Bridge was carried out online over Zoom and structured in the same way as the webinar sessions for stakeholder groups.

We initially aspired to undertake a deliberative process for the consultation events, whereby

information would be shared and discussed in a first session before a period of deliberation, during which the information from the session would be provided to attendees for appraisal in their own time. This would then be followed by a second session of facilitated discussion. Unfortunately, it was not possible to organise consecutive sessions, given that the Community Councils met either monthly, or once every two months – sometimes less frequently – and council members generally expected repeat attendance by community members to be low. We therefore undertook a single two-hour session, during which an initial PowerPoint presentation was delivered by David Bavin, covering background information, an overview of lynx ecology, and then an overview of the facets of lynx reintroduction that were most prominent in discussion with stakeholders. Time was allowed for questions after the first presentation before a refreshment break. A second PowerPoint presentation was provided, which shared information on the emergent Perspectives from the Q-Method investigation. This constituted summaries of the five Perspectives key themes, areas of divergence, and consensus. The remainder of the session involved three facilitated breakout groups where attendees had the opportunity to communicate their views. The facilitators of these groups scribed people's views directly onto flip chart paper for everyone to see, and check that their points had been represented correctly. Following the sessions, participants who had provided contact details for the purpose, were sent a short questionnaire as well as a PDF of the presentations and a collation of the views communicated during the breakout groups. David Bavin's contact details were provided for return of the questionnaire, and for any further communication/expression of views or sharing of information.

Table 3 *The community groups engaged during the Lynx to Scotland study*

Community	Location	Organised by	Date	Number of Attendees
Dalnain Bridge	Online: Zoom	Dalnain Bridge Community Council	14/07/21	13
Dalwhinnie	Dalwhinnie Village Hall	Dalwhinnie Community Council	16/08/21	19
Boat of Garten	Boat of Garten Community Centre	Boat of Garten Wildlife Group	23/08/21	22
Oban	Oban, Rockfield Centre	Scottish Wildlife Trust, Argyll and Lochaber	18/11/21	13
Dunadd	Kilmartin church	Dunadd Community Council	19/11/21	22

The results of the Q-Method investigation, stakeholder consultation, webinar events and community consultation events are reported separately in the results. These results are then synthesised in the discussion, under topical sub-headings, to provide a holistic overview of the findings of the study.

Results

3.1 Q-Method analysis

A total of 34 participants completed the survey (see Table 5). During the post-sort follow up, four participants commented that there were not enough spaces on the right-hand side ('agree') of the distribution for their responses. This can happen in Q-Method surveys, where some people either disagree or agree with more statements than are available. This is accounted for to a large extent by the factor analysis, which seeks pattern in the sorts based on the statement distribution – their position in the grid relative to each other. This was also considered during the interpretation, and concluded that it did not affect the integrity of the Perspectives.

						44						
				36	45	43	37	38				
		42	49	32	28	35	31	27	46	52		
	40	39	16	26	24	30	29	20	34	48	51	
50	17	11	12	23	9	22	19	7	33	21	25	15
47	5	3	2	10	8	6	13	1	14	4	18	41
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Most disagree					Neutral			Most agree				

Figure 1 A completed Q-sort from a Q survey of stakeholder perceptions towards potential Eurasian lynx reintroduction in Scotland. The sort shown here is the exemplar sort for Perspective 1. (The statements corresponding to the numbers in the grid are presented in Table 4).

The Q-sorts were analysed using principal component analysis with automated varimax rotation (Webler *et al.*, 2009) in the R package qmethod (Zabala, 2014). Five factors were determined to be appropriate for extraction. The selection criteria for factor extraction were based on visual interpretation of the scree plot, the Kaiser-Guttman criteria (eigenvalues exceeding 1), and the authors' understanding of the discourse around lynx reintroduction. The sorts that had a positive significant loading on each factor were identified from their factor loadings (the degree to which a sort was exemplified by a factor; Table 5). Absolute factor loadings of (0.47) or greater were deemed significant at $p < 0.01$ (Brown, 1993).

Thirty sorts significantly loaded onto the five factors, explaining 63% of the variance within the data (solutions that account for 60% or more of the variance are considered sound; Table 5). These positive, significantly loading sorts were used to derive factor arrays, effectively a single 'ideal-typical' sort for each factor. Each array was inspected and cross-referenced with the other arrays to identify the perspective-defining features, areas of consensus and points of disagreement. Material from the initial interviews with phase one and phase two participants, and the post-survey follow-up discussions, were referred to and incorporated into interpretation at this stage. Factor 5 was constructed from two positively loading sorts, which is the minimum required to constitute a factor (Webler *et al.*, 2009). In this case, the authors made a judgement decision based on the percentage explained variance, the eigenvalue and the perception that the factor was coherent and captured elements of the discourse distinct from the other four factors.

Table 4 Summary of a Q-Method analysis of the perceptions of stakeholders towards the potential for Eurasian lynx (*Lynx lynx*) reintroduction to Scotland. A Q-set of 52 statements were sorted by 34 participants. The eigenvalues and percentage variance explained are provided for each of five significant factors. The statement scores for each factor represent a weighted average derived from the contributing sorts. Distinguishing statements for each Perspective factor are highlighted in yellow, whilst statements over which there was consensus are highlighted in green.

Statement	Perspective				
	1	2	3	4	5
1 Some land managers would be quite pleased to share their deer management responsibilities with lynx.	2	-3	3	1	-1
2 Deer control is an inappropriate argument to justify lynx reintroduction.	-3	5	0	-2	-1
3 I am particularly concerned about predation of lambs and sheep.	-4	2	2	3	-4
4 Accepting predation of sheep will occur, and trying to devise management at an early stage, is important.	4	3	5	5	0
5 Farming cannot adapt to accommodate a large carnivore.	-5	2	-4	-2	-4
6 Are farmers worried about one lamb? No, it's the cumulative pressure on farmers and crofters.	0	0	1	-1	-2
7 There's an emotional toll on farmers, seeing their animals being taken by predators.	2	3	-1	6	-2
8 The risk to sheep will only increase with widespread afforestation.	-1	-1	-6	3	-3
9 The threat to gamebirds and traditional sporting activities is minimal.	-1	-5	0	-5	3
10 Gamekeepers are under a lot of pressure; this will be seen as just another problem.	-2	5	-3	-3	-5
11 Lynx would kill the remaining capercaillie.	-4	1	-5	3	-4
12 I think that lynx could and would kill wildcats if they came across them.	-3	2	-1	-4	-4
13 They will disrupt and kill other predators, eg, foxes.	1	1	1	-5	-5
14 Lynx would restore a set of ecological processes which are completely absent at the moment.	3	-4	-1	-6	3
15 Lynx may contribute towards our objective of healthy, multi-functional woodlands.	6	-2	2	-1	3
16 It's naïve to think we can completely revert to non-interventive management of landscapes.	-3	4	5	3	0
17 We don't have the habitat or landscape connectivity for lynx.	-5	-1	3	-2	1
18 Countries with much denser human populations than ours have got the full set of major predators; there's no reason we shouldn't have lynx.	5	-4	-1	-4	4
19 We can look at the evidence from Europe and make reasonable assumptions about what lynx will do.	1	1	2	-3	2
20 Lack of information is a barrier.	2	0	0	0	4
21 Community empowerment will make lynx reintroduction more feasible.	4	-4	4	0	-5
22 The lynx is seen as part of a movement that is threatening people's belief systems, ways of life, culture and heritage.	0	2	-2	-2	-1
23 The appetite for this is from those who don't have to bear the cost of reintroductions.	-2	4	-3	2	-1
24 There is a moral imperative to reintroduce lynx.	-1	-6	-5	-3	-3
25 Reintroducing lynx will be symbolic of developing a better relationship with nature than we have currently.	5	-4	-2	-4	4
26 We persist in spending obscenely large amounts of money on individual species which are attractive.	-2	4	-3	2	6
27 There would have to be a long term, sustainable compensation scheme in place that is acceptable to everybody.	2	3	2	4	1
28 I have no issue with private funding.	-1	-1	0	1	5

	Perspective				
Statement	1	2	3	4	5
29 When sheep are fenced in they can be reasonably well protected from predation.	1	-3	-3	-5	0
30 Managing problem animals can be incredibly unpopular with the public.	0	2	6	4	0
31 Farmers would potentially consider livestock protection animals.	1	-2	-1	-1	-2
32 Lethal control needs to be in the mix of mitigations.	-2	6	1	6	-3
33 Community empowerment will make lynx reintroduction more feasible.	3	-1	1	-2	0
34 Coexistence incentives need to be imaginative and proactive.	3	0	2	-1	2
35 I would expect some level of illegal killing to occur.	0	-3	5	2	3
36 My worry is those who want it to happen will get frustrated by the necessary slowness of the process and just go ahead and do it anyway.	-2	1	1	-1	5
37 Problems with these things don't arise straight away and certainly don't go away at the end of a project.	1	5	3	0	0
38 There's a lot of mistrust built up between groups in this country.	2	4	4	5	2
39 It's one step away from wolves.	-4	-2	-4	-6	-4
40 Lynx are a threat to people's pets.	-5	-2	-4	1	-1
41 There needs to be a cross-sectoral working group on lynx to direct research and work through conflicts.	6	3	6	5	1
42 It's not clear what people hope to achieve by lynx reintroduction.	-4	-1	-2	0	-3
43 There would need to be a clear exit strategy if things went horribly wrong.	0	6	3	1	0
44 Lynx reintroduction in five years' time is possible.	0	-6	-4	0	2
45 Lynx will be seen as an additional burden for landowners and estate managers.	-1	1	0	4	-6
46 Some estates will consider it an attractive marketing bonus to say they have lynx.	3	0	4	2	5
47 I would feel threatened, walking in a landscape with lynx.	-6	-5	-6	-3	-6
48 Tourists will like the idea that lynx are in the landscape, even if they never see them.	4	0	4	2	1
49 There's a bit of me that would really like to see that kind of wildlife in Scotland, but our recent experiences of reintroductions have not been helpful	-3	0	-2	4	6
50 I can't see local economies benefiting from lynx reintroduction.	-6	-3	-5	0	-2
51 Lynx should be reintroduced to Scotland.	5	-5	-2	1	4
52 We are in a climate change and biodiversity crisis, so it's reasonable to be having this conversation.	4	-2	0	-4	1
Eigenvalue	7.3	6.3	3.4	2.4	2.1
Percentage explained variance	21.4	18.5	10	7.1	6.3
Cumulative % explained variance	21.4	39.9	49.9	57	63.3

Table 5 Factor loadings for the 34 participant sorts over five perspectives. Thirty of the sorts loaded significantly positive on one of the five factors, where absolute factor loadings of (0.47) or greater, denoted by an asterisk, were deemed significant at $p < 0.01$. Participant 3, Estate Factor, significantly loaded on both Factors 2 and 3, and was dropped from further analyses.

	Perspective				
Sort (participant)	1	2	3	4	5
1 Countryside Ranger	0.71*	0.01	0.32	0.13	0.08
2 Public Servant	0.46	-0.04	0.28	0.12	0.57*
3 Estate Factor	0.19	0.52	0.52	0.22	0.00
4 Estate Manager	-0.39	0.61*	0.29	0.04	0.04
5 Environmental Justice Campaigner	0.55*	-0.30	0.14	0.18	-0.22
6 Uplands Scientist	0.515	0.67*	-0.01	0.01	0.15
7 Forestry Consultant	-0.06	0.28	0.37	0.38	-0.02
8 Forester/Wildlife Ranger	0.40	0.42	0.46	0.06	0.09
9 Rewilding Advocate	0.87*	-0.14	0.03	-0.14	0.05
10 Forester/Estate Manager	-0.24	0.25	0.46	0.21	0.35
11 Gamekeeper	-0.05	0.51	0.22	0.68*	0.20
12 Animal Welfare Campaigner	0.77*	-0.31	0.01	-0.25	0.17
13 Conservation Ecologist	0.79*	-0.21	0.11	0.19	0.02
14 Research Ecologist	0.77*	-0.09	0.15	-0.09	0.27
15 Field Sports Representative	-0.12	0.64*	0.26	0.38	-0.30
16 Nature Reserve Manager	0.71*	-0.12	0.15	0.25	0.28
17 Conservation Woodland Manager	0.56 *	-0.14	0.47	0.14	0.14
18 Reintroduction Biologist	0.35	0.07	0.59*	-0.04	0.02
19 Environmental Policy Researcher	0.59*	0.04	-0.02	0.22	0.08
20 Community Woodlands Advocate	0.39	0.13	0.59*	0.32	0.24
21 Sporting Operations Manager	-0.07	0.36	0.20	0.67*	0.12
22 Farmer (cattle and sheep)	0.25	-0.05	-0.03	0.65*	0.28
23 Rural Policy Advisor	0.02	0.77*	-0.02	0.29	0.04
24 Estate Owner	0.33	0.23	0.66*	0.11	-0.01
25 Wildlife Veterinarian	0.56*	0.01	0.31	0.20	0.21
26 Gamekeeper	0.03	0.69*	0.03	0.14	-0.46
27 Head Gamekeeper	-0.19	0.77*	0.12	0.06	0.08
28 Farmer (sheep)	-0.13	0.60*	0.56	-0.04	0.08
29 Estate Biodiversity Manager	-0.11	0.72*	0.41	0.06	-0.14
30 Estate Manager	0.25	-0.07	0.05	0.09	0.76*
31 Deer Manager	-0.09	0.84*	0.08	0.14	0.07
32 Outdoor Recreation Representative	0.74*	0.16	-0.02	0.03	-0.12
33 Estate Factor	0.57*	0.27	0.18	0.29	0.17
34 Sheep Farming Representative	-0.03	0.59*	0.20	-0.12	-0.41

Thirty participants loaded significantly on five Perspectives, which are distinct and representative of multiple participant sorts, rather than any one individual's point of view. **Perspectives 1-5** are presented as summaries of their key themes and in order of the amount of variance they explain in the data. The full Perspective interpretations are included in the appendix. Statements, from which the themes within the perspectives are derived, are presented in brackets in bold, followed by their corresponding score from the factor array. Quotations from interviewees, and participants during post-sort follow up and their initial and semi-structured interviews, are included to enrich the interpretations.

Perspective 1 — Lynx for Change

We are ready for lynx, and lynx are part of the change we need (21.4% explained variance)

Lynx for Change strongly supports the potential for lynx reintroduction in Scotland (51, 5). Lynx reintroduction represents an opportunity to develop a more enlightened, less controlling relationship with nature (25, 5), and a strong theme within **Lynx for Change** is the belief that lynx reintroduction could and should be an important part of a desirable and necessary transition towards increasingly self-regulated ecosystems (13, 1; 14, 3; 15, 6*; 16, -3; *‘Personally, I am a big proponent of lynx and reintroductions, which are part of restoring self-regulating ecosystems.’*, Policy Researcher). It also represents an important step in Scotland’s efforts to contribute towards global efforts to stem biodiversity loss and mitigate climate change (52, 4; *‘It’s planetary health. It’s bigger than Scottish ecosystems, it’s our role as a planet player and it affects us all.’*, Policy Researcher). However, there is a relatively neutral stance on claiming a moral imperative for lynx reintroduction (24, -1*); humans were responsible for the extirpation of lynx and have some obligation to address this, but *‘... moral decisions are inherently complex and shouldn’t be reduced to simple statements like this.’* (Environmental Justice Campaigner).

European countries with more dense human populations than rural Scotland have top predators, so there’s no reason Scotland could not (17, -5*; 18, 5), but caution should be taken when making inference from European experience (19, 1; *‘We must be careful to ensure that that all relevant factors are considered when making comparisons.’* Animal Welfare Campaigner). **Lynx for Change** does not anticipate that lynx would negatively impact populations of protected species (11, -4; 12, -3), but that lynx will play an important role in the regulation of woodland deer, benefiting afforestation efforts and habitat regeneration (1, 2; 2, -3; 15, 6*). Lynx will contribute to a healthier wider environment for human communities, whilst providing economic benefits through the creation of tourism opportunities and associated products (46, 3; 48, 4; 50, -6; *‘It’s not just about wildlife watching, but all kinds of nuanced products.’*). A perceived trend towards community empowerment in Scotland is anticipated to make lynx reintroduction increasingly democratically feasible (21, 4).

Lynx will not have a major impact on sheep or other livestock (3, -4; 8, -1), but there will likely be some level of sheep predation, so a mitigation strategy and

compensation scheme should be devised early on (4, 4; 27, 2). **Lynx for Change** perceives that farmers are under pressure, but change is necessary (6, 0; *‘We are becoming more conscious of our environmental impact. We are eating less meat, and that’s the trajectory.’*, Policy Researcher), and that farmers will be able to adapt to living alongside lynx (5, -5; 29, 1; 31, 1). The potential emotional impact on farmers who experience livestock predation should be taken into consideration (7, 2), but **Lynx for Change** expresses a counter point in feeling that there is also an emotional toll for those who feel that lynx could, and should, be part of Scotland’s fauna, and are being deprived of the opportunity; *‘Nature is being suppressed in Scotland, it could be so much more.’* (Rewilding Advocate).

Lynx for Change perceives long standing issues between stakeholder groups associated with the implementation and management of wildlife reintroductions in Scotland, which has damaged trust (38, 2), but believes these experiences can be learned from and the reintroduction process improved (49, -3; *‘Conservationists should own up to the fact that in the past we’ve not done these things as well as we should have.’*, Conservation Practitioner). In the event of lynx reintroduction, the welfare of lynx should be a priority (*‘This needs to be done with individual welfare prioritised.’*, Animal Welfare Campaigner). So although due responsibility should be taken by practitioners to mitigate any impacts, an exit strategy would be ethically debatable, besides being very difficult to implement (43, 0). Lethal control is not desirable or appropriate for establishing lynx (32, -2), but *‘... may be necessary as an absolute last resort.’* (Nature Reserve Manager).

Proactive and innovative solutions to promote coexistence between people and lynx should be developed (33, 3; 34, 3; *‘I agree that there would have to be some way of compensating farmers’ losses, but think we can and should remain open to different frameworks and possibly fresh ideas for achieving that.’*, Rewilding Advocate), though there are ethical considerations as to whether this could be privately funded (28, -1). **Lynx for Change** supports an inclusive approach to exploring the feasibility of lynx reintroduction, strongly supporting the potential for establishing a cross sectoral working group to direct research priorities and manage emergent conflicts (41, 6).

Perspective 2 — No to Lynx

There is no need for lynx, and we don't want them back (18.5% explained variance)

Ten sorts significantly loaded on **No to Lynx** representing sorts from an Estate manager, Uplands Scientist, Field Sports Representative, Rural Policy Advisor, Gamekeeper, Head Gamekeeper, Sheep Farmer, Estate Biodiversity Manager, Deer Manager and Sheep Farming Representative.

No to Lynx strongly disagrees that lynx should be reintroduced to Scotland (51, -5; 18, -4) and reintroduction within the next five years is neither desirable nor possible (44, -6). The stated justifications provided are perceived as weak or speculative (2, -5*; 15, -2; 17, -1; 25, -4; 52, -2; 24, -6; 'There is a wide spectrum of what is feasible; there is too much speculation.', Farmer B), whilst obscene amounts of money are spent on species by virtue of them being attractive and charismatic (26, 4). A strong theme for **No to Lynx** is a feeling of injustice that external agencies implement change that directly affects the lives of local people but do not themselves take on any personal risk or experience the negative impacts of their actions (23, 4*; 37, 5*). Compared to the other four Perspectives, **No to Lynx** agrees that lynx reintroduction is part of a wider environmental movement that is threatening people's belief systems, ways of life, culture and heritage (22; 2*; 'You can see a situation here where there is no more production – we stop farming altogether – and turn the whole of the Scottish Highlands into a de-populated tourism destination with bears, wolves and wilderness.' Interview C).

The ecosystem processes that are apparently missing with the absence of a top predator are in fact implemented by people (14, -4; 15, -2), whilst proponents' aspirations for lynx to contribute towards increasingly self-regulating ecosystems is thought unrealistic (16, 4; 'The lynx is hypothetical land management, whereas gamekeepers have a century's worth of experience.', Interview A).

Deer can be adequately controlled by stalking and culling effort (2, 5*; 'Deer are under control over vast tracts of land; they are effectively controlled here with five full time stalkers.', Gamekeeper A), whilst for some estates, lynx predation of roe deer would negatively impact commercial stalking opportunities (10, 5*, 45, 1; 1, -3). Lynx will threaten game birds and protected wildlife such as the wildcat and possibly capercaillie (11, 1; 12, 2*; 9, -5; 'I'm not sure about trying to recover the wildcat and then bringing in lynx, which will threaten the wildcat.', Estate Warden), whilst although lynx might kill individual animals, it is unlikely they will have any appreciable regulatory effect on populations of smaller predators (13, 1). Indeed, top predators are not required for this; ecosystem balance could be better regulated by empowering gamekeepers and land managers to

control protected predators ('You used to be able to control these species – there was more balance then.', Head Gamekeeper).

Predation of sheep and the emotional impact on farmers will be an issue (3, 2; 7, 3; 'The issues go beyond livestock. It's not just the financial implications but the emotional impact.', Sheep Farming Representative). Farmers have not had to shepherd with large carnivores for many generations and have limited ability to adapt to living alongside lynx (5, 2*; 29, -3; 31, -2; 'A major challenge is that we have not had to shepherd with large predators for literally hundreds of years.', Interview A).

The experience of issues associated with the reintroduction of white-tailed eagles in west Scotland and the illicitly released Tay beavers have undermined trust in the competency of conservationists (36, 1; 37, 5*; 38, 4; 49, 0; 'With the eagles, farmers were not listened to by the office dwellers in Edinburgh.', Sheep Farming Representative). Gamekeepers and sporting land managers already feel '... under pressure to deliver as a results based sporting enterprise.' (Estate Biodiversity Manager), and lynx reintroduction will be perceived as just another problem. **No to Lynx** feels that society does not recognise or value the contribution that land managers, farmers and gamekeepers make to maintaining balance in the environment. 'Society needs to accept that day-to-day management of wildlife is a reality.', (Estate Biodiversity Manager). Of the five Perspectives however, **No to Lynx** perceives it least likely that there would be illegal killing of reintroduced lynx (35, -3*; 'Persecution is not as bad as it used to be. Estates are under pressure from public scrutiny.', Upland Researcher).

Should the exploration of lynx reintroduction be pursued further, development of a robust exit strategy that ensures reversibility should be a top priority (43, 6*). Practitioners must be accountable over the long term (37, 5*; 'Farmers are always told that x, y and z will happen. Then when there are problems, we're not listened to by the office dwellers in Edinburgh.', Farmer A), and recourse to lethal control is an absolute necessity (32, 6). Establishing mitigation for the potential impact on farmers and livestock is important (4, 3), and this should include a sustainable compensation mechanism (27, 3). Development of innovative coexistence measures for landowners and farmers is received neutrally (33, -1; 34, 0); if lynx reintroduction were to occur, coexistence support would be necessary – but for **No to Lynx** it would be simpler and more desirable to not reintroduce lynx in the first place 'It is really unfair to suggest supporting every shepherd to prevent a sporadic attack. Better not to have lynx.', Farmer B.

Perspective 3 — Scotland is not ready

We support the conversation but Scotland is not ready (10% explained variance)

Three sorts contribute to **Scotland is not Ready**, representing a Reintroduction Biologist, Community Woodlands Advocate, and Estate Owner. **Scotland is not Ready** broadly supports the conversation exploring lynx reintroduction but does not feel Scotland is ready (51, -2; 44, -4; *'I think short time frames for lynx reintroduction are challenging.'*, Interview E). The environment in the Cairngorms is perceived as one of high risk for lynx; the available habitat is not of sufficient quality (17, 3), there is too much disturbance. *'There are horse riders, hikers, and bikers everywhere.'*, Community Woodlands Advocate, and there is a significant risk to lynx from illegal killing (35, 5; *'Lynx would wander into hostile environments. There is co-ordinated persecution over hundreds of square kilometres.'*, Reintroduction Biologist).

Lynx reintroduction might contribute to existing and emergent tensions between landowners with divergent management trajectories, namely those that managed land traditionally for field sports and those adopting management principles associated with rewilding. *'It needs to be framed as recovery — of a species, habitats etc — rather than rewilding.'*, Reintroduction Biologist.

It is desirable to aim for more self-regulated ecosystems as part of a holistic approach to managing the environment, and a top predator could be part of that (1, 3; 15, 2; *'We are all about a holistic approach on our estate, encouraging natural processes where we can.'*, Estate Owner), but it is unrealistic to think that a contemporary Scottish landscape can be wholly self-regulating without human management (14, -1*; 16, 5). **Scotland is not Ready** has some concern for the impact on sheep but it is thought that farmers are able to adapt to coexist with lynx (5, -4), particularly if incentivised and supported to do so (27, 2; 33, 1; 34, 2).

Developing a mitigation strategy for livestock predation is a priority (4, 5). However, the practicality of livestock guardian animals is questionable (31, -1; *'Guard dogs will be problematic due to ramblers and right to roam.'*, Community Woodlands Advocate), whilst protective fencing is unlikely to be feasible in the Cairngorms (29, -3). **Scotland is not Ready** perceives that an anticipated increase in woodland cover would significantly reduce the risk of livestock predation (8, -6*; *'Lynx reintroduction would make much more sense if there was more woodland and less sheep.'*, Estate Owner).

Community buy in *'... is essential.'* (Community Woodlands Advocate). Community empowerment is anticipated to make lynx reintroduction more feasible whilst tourism associated with lynx reintroduction would strongly benefit local economies and prove an attractive marketing option for some estates (50, -5; 48, 4; 46, 4).

Given the potential for conflict, establishment of a cross sectoral working group to direct research and work through conflicts should be the top priority (41, 6). Current conflicts need to be addressed and trust needs to be built — this could take a long time and requires long-term investment (37, 3*; 44, -4; *'Building up trust takes a considerable amount of time.'*, Interview E). Lethal control is not very palatable, but will probably need to be included in the mitigations (32, 1*). However, public opposition to lethal control, based on experience with the Tay beavers, is perceived as a major barrier to implementing mitigation (30, 6; *'The government understood that some beavers needed to be culled, but there was so much vitriol online from the public.'*, Estate Owner).

Perspective 4 — We are not convinced

We are open to discussing lynx reintroduction, but it must be better justified (7.1% explained variance)

Three sorts contribute to **We are not Convinced**, representing a Gamekeeper, Sporting Operations Manager (SOM), and Farmer (cattle and sheep).

We are not Convinced is open to discussing lynx reintroduction (44, 0; 51, 1), but it needs better justification and reassurances than have been provided to date (24, -3; 26, 2; 52, -4; *'If we had the right reassurances, then maybe.'*, SOM). The landscape and land use context in Scotland is very different from European countries with lynx (18, -4; 19, -3; *'Scotland is over-populated and highly managed.'*, SOM). Scotland is a managed landscape (16, 3) and it is strongly rejected that the ecosystem processes associated with lynx as a top predator are currently absent (14, -6). The potential for regulation of woodland deer populations by lynx is a reasonable aspiration (2, -2; 1, 1), but *'The reality is that no one has put forward data to substantiate what the broader impact of lynx will be in woodland and upland ecosystems.'* (15, -1; Interview L).

There is concern over the potential cultural and economic impact on shepherding, which is intimately entwined with the management of grouse moors (3, 3; 5, -2; *'If we lose the sheep we lose the grouse, and if we lose the grouse we lose the sheep.'*, Gamekeeper). A projected increase in woodland cover will only increase the risk to sheep, which is informed by the experiences of farmers in Norway (8, 3*; *'Small Norwegian farms that are near woodland can't keep their sheep outside anymore.'*, SOM). Some farmers could potentially adapt to accommodating lynx if they are supported to do so, both societally, by valuing the role of shepherds, and practically with resources to facilitate training and cover the cost of additional labour (4, 5; 5, -2; 27, 4; *'It would be a positive if funding for extra labour and training was provided.'*, Farmer). Overall though, *'If the pros and cons are laid*

out in black and white then there are not many pros for your average farmer.' (Farmer).

Estate managers must balance the conservation requirements of protected species with sporting objectives, and lynx might threaten this (9, -5; 13, -5; 45, 4*). Significant amounts of money have been invested in the conservation of species like capercaillie (*Tetrao urogallus*) which could be jeopardised (11, 3). For example, the presence of lynx *'... might prevent the use of snares and hounds to control foxes, which is already difficult enough around capercaillie and black grouse.'* (SOM). Lynx presence could benefit some estate economies via increased tourism (46, 2; 48, 2), but *'Tourism is a fickle economy.'* (Gamekeeper; 50, 0).

We are not Convinced perceives that *'... there would be impacts on other land uses, and strong potential for conflict.'* (SOM) should reintroduction be pursued without the right assurances and mitigations (23, 2*; 49, 4), and it is not thought fair that change should be imposed on people by external agency (23, 2*; 7, 6*). The exploration of lynx reintroduction requires a transparent, collaborative process in order to address perceived trust issues between stakeholders and expound the case (38, 5) — *'... it needs to be a slow, step-by-step approach. The issues need to be able to be addressed.'* (41, 5; SOM). An exit strategy is desirable but not necessarily practical (43, 1). For **We are not Convinced**, the main reassurance would be recourse to lethal control, as other mitigation options do not seem feasible (29, -5, 31, -1; 32, 6). This could be potentially problematic, given the perception that the public are becoming increasingly intolerant of the lethal management of wildlife (30, 4). Overall for **We are not Convinced**, *'There has to be a net environmental gain from lynx reintroduction.'*, Interview A).

Perspective 5 — Lynx for Economy

We should reintroduce missing species; lynx will be a boon for the local economies (6.3% explained variance)

Two sorts contribute to Perspective 5, representing a Public Servant and an Estate Manager.

Lynx for Economy supports lynx reintroduction and efforts to restore missing species generally (15, 3; 18, 4; 20, 4; 42, -3; 51, 4; 52, 1; *'I am very much in favour of native species reintroductions.'*, Public Servant, and *'Lynx are solitary, with minimal impact on people. At the broadest stroke, we have no negative views towards lynx.'*, Estate Manager). Compared to the neutrality or disagreement of the other four Perspectives, **Lynx for Economy** believes lynx reintroduction within the next five years is possible (44, 2). Access to scientific information from a trusted source with knowledge and experience of lynx in Europe has been important in shaping the views of **Lynx for Economy** (18, 4; 19, 2; *'We are informed by X, and respect X's solid scientific voice.'*, Estate Manager). A lack of information amongst people more widely is perceived as a barrier however (20, 4).

Aspirations for lynx reintroduction are perceived to be in keeping with what is perceived as a current change in trajectory for land use in the Cairngorms; a transition from traditional sporting management towards increasingly holistic objectives (25, 4; *'If you look back 20 years, almost all the estates were sporting. Now it's many fewer.'*, Public Servant). The environment must deliver *'... multiple-uses.'* (Public Servant) however, resulting in neutrality on whether it is a naïve ambition to move towards non-interventive ecosystems (16, 0). The change of trajectory in land use is perceived as positive and primarily driven by private enterprise (22, -1; 28, 5*; *'X now owns a huge amount of land, but he's not trying to make a profit, he's restoring nature.'*, Public Servant), and private investment rather than community empowerment is anticipated to increase the feasibility of lynx reintroduction (21, -5).

Lynx for Economy perceives that the threat to gamebirds and other traditional sporting activities is minimal (10, -5; 9, 3; *'We have hundreds of black cock and a few capercaillie — we're not worried about a conservation impact.'*, Estate Manager). Upland farming constitutes a *'... precarious living.'* (Public Servant),

but it is not anticipated that there would be any appreciable impact on livestock from lynx (3, -4; 5, -4; 6, -2; 7, -2 8, -3; *'I previously thought that lynx would have a massive impact on sheep, but changed my mind on watching some informative webinars.'*, Estate Manager).

Lynx for Economy perceives tourism to be *'... the biggest industry in the Cairngorms.'* (Public Servant). There is strong branding potential for lynx and, though elusive, lynx will contribute to local and estate economies by making the area more attractive to tourists (45, -6*; 46, 5; 48, 1; 50, -2; *'It would be an attraction to the area — if I saw one I would tell a thousand people.'*, Public Servant). Innovative coexistence measures should be designed to be attractive to estates and farms with diverse sources of income (34, 2; *'Sport, forestry and tourism all need to be in the mix. We offer 70,000 bed nights per year.'*, Estate Manager).

The perceived mis-management of the Tay beaver population by a cross sectoral stakeholder group — specifically the feeling that use of lethal control was overzealous — has damaged trust in wildlife management (35, 3; 38, 2; *'There was that disgusting carry on with the slaughter of beavers last year.'*, Public Servant). **Lynx for Economy** perceives that the experience with the Tay beavers, along with calls from some for a cull of white-tailed eagles, sets a problematic narrative that all reintroduced species eventually cause problems and need to be lethally controlled (49, 6). This mutes support for an exit strategy (43, 0), which it is assumed will include lethal control, and for the inclusion of lethal control in a suite of mitigations (32, -3). Establishment of the illicitly released Tay beavers also informs the perception that if proponents of lynx reintroduction become frustrated by slow progress, they will go ahead and release lynx regardless (36, 5*). It is anticipated that there will be a split in public support for lynx reintroduction along urban/rural lines (*'The fields vote one way, the houses vote the other.'*, Public Servant).

3.2 Stakeholder consultation

Semi-structured interviews were conducted with 116 stakeholders over the duration of the study. The interviewees are designated to the sector in which they work or with which their NGO is aligned (table 6), though most interviewees, particularly those at the policy level, had some level of cross-sectoral insight. Seventy-six of the interviews were conducted between January and July 2021 when the geographic focus was on the CNP. Thirty-six interviews were then conducted between July 2021 and January 2022, focusing on Argyll. The interviews lasted between 20 minutes and two hours and, due to the restrictions of the COVID pandemic, were conducted using an online platform such as Zoom or over the phone. Though the consultation was primarily focused on the CNP and Argyll, a proportion of the stakeholders consulted held roles or had relevant expertise with national overview. These individuals were predominantly interviewed in the early stages of the study to explore contextual factors relevant to both the CNP and Argyll, and to address issues that required specific expertise. This explains the apparent disparity in the numbers of stakeholders interviewed across the two focal areas. The insights from the stakeholders interviews are synthesised and incorporated into the discussion.

Table 6 *Semi-structured interviews undertaken with stakeholders across the duration of the study*

Sector	Number of Interviewees
Conservation	22
Farming	16
Forestry	5
Estates and Private Landowners	13
Field Sports	12
Environmental Policy	14
Rural and agricultural Policy	14
Leisure and Tourism	5
Rewilding	4
Community Outreach and Education	8
Science and Research	15
Statutory Body and Government	12
NGO total	49
Independent total	51
Total number of interviews	116

3.3 Webinars for stakeholder organisations

National Sheep Association (NSA)

Present were an NSA panel of four trustees and 40 NSA members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The predominant themes of the discussion related to the anticipated risk to sheep within a Scottish context, farmers' experiences of coexisting with reintroduced white-tailed eagles, and the welfare considerations for livestock in the presence of lynx but, more importantly, the welfare of farmers.

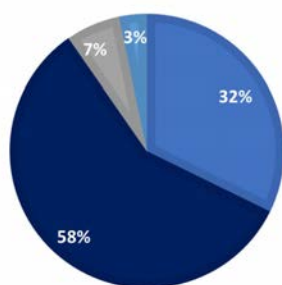
The attendees generally felt that the Scottish landscape and sheep farming practices are distinct and incomparable with countries that have lynx in Europe, and that extensively grazed sheep will be highly vulnerable to predation by lynx. The subtleties of impact were communicated. For example, it was expressed that farmers with locally specialised bloodlines could be disproportionately impacted due to the irreplaceable nature of their stock. Though the focus was on upland sheep farming, a few attendees expressed concern that the most optimal lynx habitat, in terms of woodland and deer densities, were in the middle ground and lowlands, where there are also high densities of sheep. The view that lynx will take the easiest prey available – sheep – was consistently raised. It was generally felt that lynx would have little appreciable impact on deer, though one attendee highlighted that the economic loss to their farm and family from roe deer damage to newly planted trees would 'greatly exceed' the losses anticipated from lynx, which would also be controlling roe deer numbers in a sustainable, humane way.

Roughly a third of all the points made by attendees referenced white-tailed eagles, which was clearly a highly emotive issue and formed the lens through which most attendees perceived potential lynx reintroduction. White-tailed eagles are perceived to have caused significant damage to sheep farming on the west coast, and it was suggested this was in large part due to a lack of their preferred wild food. The eagles' protected status has left farmers feeling powerless to act to protect their stock, whilst a number of attendees made the point that there was no compensation for stock loss and the financial incentives for coexistence were insufficient. Points about a lack of exit strategy and practitioners' perceived failure to foresee the purported impacts on farming were reinforced multiple times.

The most strongly held views related to the emotional toll that sheep predation by white-tailed eagles has had on farmers – and impacts from predators in general, with badgers also specifically cited. One attendee referred to the '*cruel*' way that lynx kill their prey – '*... playing with their prey like a cat.*' – whilst another attendee described their distress at finding a cauped ewe being attacked by ravens. It was thought unfair that sheep farmers adhere to strict animal welfare legislation which can be undermined by conservationists releasing '*... yet another predator*'. Numerous attendees made the point that farmers care a great deal for their animals and prioritise their welfare, and that financial compensation for loss would not be enough to offset predation impact. This was emphasised as the most important message for VWT to take back to the funding partners – '*No amount of money could compensate for the emotional upset that I would feel if a lynx killed my sheep.*' More than one attendee expressed the view that lynx reintroduction could not possibly proceed before outstanding issues over the impacts of white-tailed eagles and other predators had been resolved. Overall, the discussion was appreciated by attendees and NSA Trustees emphasised the importance of ongoing, transparent dialogue, recognising and respecting that there are other groups with very different views.

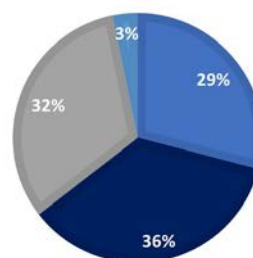
HAS THIS SESSION IMPROVED YOUR KNOWLEDGE OF LYNX?

Strongly Agree Agree Undecided Disagree Strongly Disagree



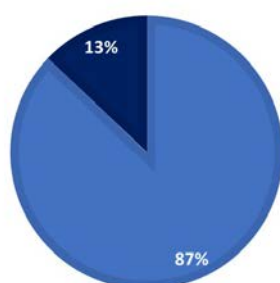
DO YOU TRUST THE INFORMATION YOU HAVE HEARD?

Strongly Agree Agree Undecided Disagree Strongly Disagree



DO YOU WISH TO LEARN MORE, AND REMAIN ENGAGED DURING THIS PROCESS?

Yes No



Results of a Zoom poll at the end of the session.

British Association for Shooting and Conservation (BASC)

Present were two BASC representatives, and 25 BASC members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The two predominant themes of discussion related to the interactions between lynx and deer, and the potential management options for a lynx population should they be reintroduced and become widely established. Attendees highlighted the potential for lynx to negatively impact the deer stalking economy. Although roe deer stalking is not a large commercial sector comparable to red deer stalking, it was viewed to be an accessible route into stalking for many people, and one attendee estimated that each roe deer in the Cairngorms was worth approximately £400. It was questioned whether lynx would have any desirable impact on populations of red deer, which ‘... *everyone is told is the main problem.*’, whilst there was concern from one attendee that predation of hinds might orphan red deer calves. One of the attendees posed a question as to whether predation of red deer could reduce costs to the taxpayer of culling, whilst another questioned whether lynx, being nocturnal, would increase the risk of road traffic accidents from spooked deer. One attendee highlighted that roe deer are increasingly peri-urban, which might attract lynx to human settlements.

It was communicated that sheep farmers are currently under enormous pressure and ‘... *was it fair to add to that?*’ with a discussion about lynx reintroduction. It was perceived by one attendee that there was a ‘... *massive amount of sheep killing.*’ in Norway, which was leading to a decline in the industry. One attendee pointed out that the licence application to release lynx in Kielder Forest was rejected in large part due to the antipathy the proposal received from the sheep farming

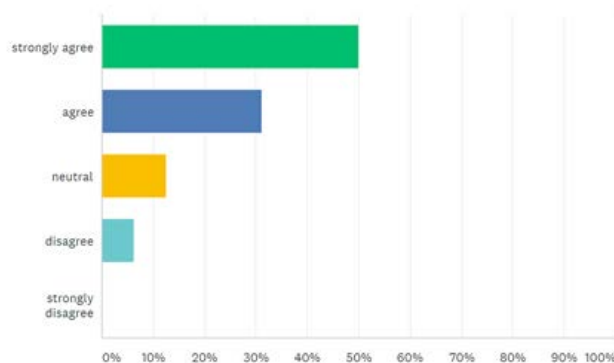
community. It was expressed that in Scotland, the perceived mishandling of the Tay beaver situation has made people very nervous about wildlife reintroductions.

It was expressed that given the perceived abundance of wild prey and livestock, a lynx population would grow rapidly and require some form of management to minimise the potential impacts on hunting and sheep farming economies. Questions were asked about what limiting factors there would be naturally for lynx in Scotland and should licences be made available to control problem individuals, whilst it was generally thought that alternative mitigation options would prove impractical in the Scottish context.

Poll results (the Zoom poll function malfunctioned, so the poll was re-run post session by BASC).

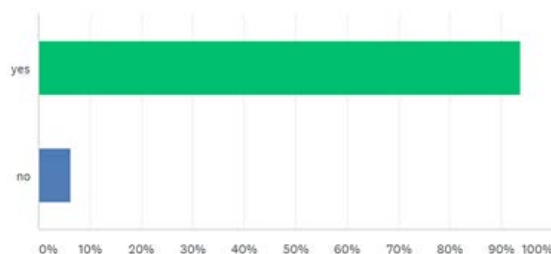
Has this session improved your knowledge of lynx?

Answered: 16 Skipped: 0



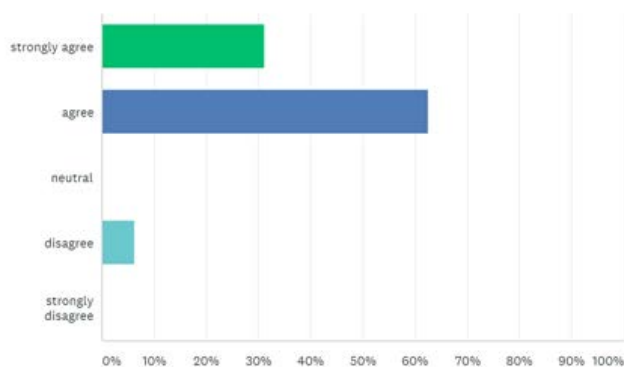
Do you wish to learn more, and remain engaged during this process?

Answered: 16 Skipped: 0



Do you trust the information you have heard?

Answered: 16 Skipped: 0



Scottish Land and Estates session 1 (SLE)

Present were three representatives of SLE, and 12 invited members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

Some time was spent at the beginning of the session discussing the historical evidence of lynx presence in Britain, which was questioned. It was thought that the evidence was too scant to suggest native presence since the last Ice Age, whilst the existing evidence could have resulted from waves of Roman, then Norse settlement; bringing with them furs and other lynx body parts as status symbols, or perhaps because of religious significance. It was declared that a more solid case for the lynx being present, and native, in Britain during the Holocene (since the last glaciation, 11,500 years before present) would need to be made, as this underpins the whole rationale for reintroduction.

One attendee anticipated that the roe deer population would explode over coming years as more woodland is planted. It was perceived that human culling is not able keep roe deer populations under control and that other, complimentary options, such as lynx, need to be considered. It was reinforced that roe have become '*hugely problematic*' over recent decades and difficult to hunt under woodland cover, supporting the need to look at more sustainable, longer-term alternatives to culling. Whether lynx could have any appreciable impact on deer populations was also questioned, whilst it was cautioned that expectations should be managed; it could take decades or more for any impacts to be realised.

It was thought desirable that, in an ideal world, lynx would have a regulatory impact on smaller carnivores that are negatively impacting protected species such as capercaillie, and it was questioned what role lynx might play in contributing to nutrient recycling in woodland. However, it was expressed that red deer are commercially very valuable to the Highland economy, and lynx might be detrimental to this. A potential consequence of lynx reducing red deer abundance was thought to be loss of grazed heath, with knock-on impacts to protected species, and perhaps an increased risk of wildfire on peatlands.

Potential management of lynx was another prominent point of discussion. It was thought that given the unpredictability of how lynx will behave, in terms of their relationship with livestock and other wildlife, a lethal control mechanism would need to be in place. It was anticipated that the agricultural sector would lobby strongly for this. Badgers were cited as a problem because they had legal protection and could not be managed. Questions were asked about growth dynamics for lynx populations, and what limited their numbers in Europe. One attendee cited information from a contact in Norway who had suggested that sheep predation was underestimated in the country; that it was causing farmers to take in and house their sheep over winter, costing a great deal. Lynx predation was perceived to be damaging food production in Norway. It was suggested that ideal habitat for lynx existed south of the CNP, and that the funding partnership should look further south, beyond the boundaries of the national park.

Association of Deer Management Groups (ADMG)

Present were two representatives of the ADMG steering committee and 18 ADMG members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The main focus of discussion was on the potential for lynx to contribute to controlling woodland deer populations; it was viewed that, anecdotally at least, roe deer populations are '*increasing all the time*'. One attendee cited former Norwegian forestry colleagues that believed lynx have a suppressing effect on deer, but that lynx home ranges are vast, so there is the potential they would quickly saturate optimal habitat and expand into less suitable areas. This was anticipated for Scotland – that lynx would deplete roe deer numbers within their core range, then search for

prey in sub-optimal habitat where there was a greater chance of conflict with human interests. It was viewed that when this occurs in Norway, lynx can be lethally controlled, which was thought unlikely to be sanctioned in Scotland should they be reintroduced. One attendee had been informed by a lynx expert that in countries where lynx were permitted to be hunted, tolerance for them was high because they were valued and held in high regard; illegal persecution was therefore not an issue. Support was expressed for licenced hunting of lynx in Scotland, should they be reintroduced. Questions were asked about the stability of lynx populations in countries where culling was permitted, and whether lynx would preferably hunt 'easy' sheep over 'difficult' deer.

The discussion then focussed on people's perceptions of the illicit release of beavers on the river Tay, and their subsequent protection and management. One attendee perceived that mitigating the beavers impacts on agriculture was '*costing a fortune*', whilst lethal control had been removed from the list of options. It was expressed that the biggest expansion in the beaver population occurred before they were protected, and that once they were protected, '*people went out of their way*' to reduce their numbers because they did not have '*on demand*' lethal control as an option. It was expressed that Scotland's track record on reintroducing wildlife was poor; that '*Pandora's box is opened*', then nothing can be done when numbers '*get out of hand*'.

The legitimacy of the Lynx UK Trust's use of ecotourism as a selling point, in their attempts for a trial reintroduction of lynx to Kielder Forest, was questioned, whilst one attendee's experiences of the elusiveness of lynx in the Romanian Carpathians led to the view that ecotourism opportunities associated with lynx would be limited. Questions were asked about the potential impact of lynx on capercaillie and wildcats in Scotland, whilst one attendee asked under what circumstances VWT would report back to the funding partners that lynx reintroduction was not socially feasible.

The Scottish Association of Young Farmers Clubs (SAYFC)

Present were three members of the board of SAYFC, and nine SAYFC members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The main body of discussion concerned the potential impact of lynx on sheep farming in Scotland. One attendee, citing figures presented on the level of sheep predation in Sweden, perceived that a comparable level of predation in Scotland would amount to several thousand sheep per year – on a par with what is reported from Norway. It was expressed that predation of sheep by lynx would be an unwelcome addition to '*fly strike, anthelmintic resistance, and everything else*', whilst attendees believed that lynx would always go for the easier option of sheep over wild prey. The point was enforced that above all else, farmers want to protect their sheep from traumatic, unnecessary death. It was viewed that upland sheep farming, though old fashioned, was the backbone of the sheep farming industry, and mitigations such as protective fencing were perceived as impractical over large areas. One attendee did not like the idea of using llamas or donkeys as guardian animals, whilst another asked '*how will this benefit me? Will lynx scavenge, and save me the disposal of dead sheep?*' It was thought that ultimately, Scottish Government would have to incentivise coexistence and compensate loss of stock, but experience suggested they would not be proactive in doing this. It was perceived by one attendee that there is an anti-farming agenda being pushed by vegans in relation to animal welfare and climate change, and that this might influence a government decision to support lynx reintroduction with the implicit understanding that it would lead to a reduction in the numbers of sheep. One attendee amusingly suggested that he '*reintroduce*' some sheep to DB's garden, but not compensate the destruction of flowerbeds. Though somewhat facetious, the point was well made.

It was perceived that protected wildlife, such as white-tailed eagles, beavers and badgers, were causing a lot of damage, and because there were no predators '*above them*' and they were protected, this damage could not be controlled. Questions were asked about the potential impacts on other species, whether lynx carried disease, and whether lynx posed an road traffic accident risk to people.

Game and Wildlife Conservation Trust (GWCT)

Present were two representatives from GWCT, and sixteen GWCT members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The discussion focused on the potential impacts to livestock and game birds, and the equitability of wildlife reintroductions. It was felt by one attendee that the sheep farming context in the Scottish Highlands, where lynx reintroduction would likely focus, was most similar to Norway; that although sheep are not necessarily grazed in woodlands, they are in close proximity to woodland over substantial areas. It was not perceived that Highlanders would be willing to change their husbandry techniques to accommodate lynx. Another attendee perceived that sheep predation figures from Norway are oft referred to, but when compared to other countries in Europe appear to be outliers. They agreed that there was a fuzzy boundary between sheep grazing and woodland edges in Scotland, but highlighted that there is a long land border between Norway and Sweden, yet the difference in levels of sheep predation is marked, there being substantially less in Sweden. This was met by another attendee who perceived that the methods of sheep farming in Sweden are unrelated to how sheep are kept in Scotland. They also felt that electric fencing, which is implemented in Sweden to protect sheep, would be incompatible with other uses of hill ground in Scotland. One attendee voiced concern that if lynx were reintroduced to Scotland, the impact on sheep farming would be ‘*massive*’. It was stated that there had been a huge reduction in the number of roe deer in Argyll over the last twenty years, but an increase in the east and lowlands of the country where there are also high densities of sheep – the colonisation of these areas by lynx would be a ‘*disaster*’ for sheep farmers. Another attendee also felt that the densities of roe deer in their locality were much lower than what was generally assumed.

It was felt by one attendee that lynx reintroduction would be opposed for the fear that it would cause harm to sheep farming, and put gamekeepers out of jobs; whilst there is never an exit strategy for wildlife reintroductions. The white-tailed eagle reintroduction on the west coast of Scotland was perceived by one attendee to have been an example of where ‘*experts*’ got it wrong, mishandling the reintroduction and not anticipating predation of livestock. It was felt that those implementing reintroduction initiatives do not have to incur the costs or consequences, and it was reiterated that an exit strategy would be imperative, but that in reality, and from experience, an exit strategy would never be drawn up.

A question was asked about the anticipated impact on pheasant shooting, given that pheasants are ‘*fat, slow moving birds*’ reared at high densities. One attendee expressed that currently, generalist predators such as foxes can be controlled around pheasant pens, but a large, protected cat would be a problem. One attendee felt that a more mature conversation around predator management was required. It was felt that predator control was not always evidence based, which was an issue, but that it was necessary in places. However, convincing Scottish Government of this was challenging, and was talking about lynx simply ‘*pouring oil on the fire*’?

Questions were asked about what was anticipated in terms of the size of an established lynx population in Scotland – how long would it take for a population to reach carrying capacity, and what would this carrying capacity be? Overall, it was also expressed that these kind of ‘*sensible*’ discussions were what was required; not a fruitless back and forth between ‘*keyboard warriors*’.

The discussion primarily focused on the welfare implications for livestock, mitigation of impacts, and the appropriateness of lynx reintroduction for recovering biodiversity.

It was communicated by one attendee that despite it being a sustainable way of producing food, sheep farming in the west was on a knife edge; for many farmers, it was perceived that lynx reintroduction would tip the balance. The emotional impact on farmers, should livestock be preyed on by lynx, was emphasised as being a vital consideration. The welfare of livestock was also a key concern for attendees, with one attendee expressing the feeling of injustice that high standards of care could be undermined by the imposition of ‘another’ reintroduced predator. It was highlighted that there was new legislation concerning dog attacks, but it was apparently acceptable that lynx might kill livestock. One attendee referred to the white-tailed eagle management scheme, highlighting that the Scottish Society for the Prevention of Cruelty to Animals were not on the board – it was felt that Scottish Government did not feel livestock should have the same protection as wildlife. Another perceived injustice was with regard to the illicit release of wildlife; it was felt that there needed to be stronger penalties for people releasing wild animals without licence, as it was anticipated that lynx would start ‘*popping up*’ in parts of the country.

Electric fencing was perceived to be a valid mitigation method in other countries where it was more feasible, but in Scotland the areas grazed were too rough and too extensive. It was also anticipated that there would be an issue with ramblers and their right to access land, whilst the cost of installing and maintaining electric fences over extensive areas would be prohibitive. One attendee cited the experiences of an Italian apprentice who had experience shepherding with guard dogs; it was purported that the dogs were very dangerous – would the farmer be liable if someone was injured, or even killed by a guard dog? One attendee referred to white-tailed eagle reintroduction in making the point that the ‘*warm words*’ of assurance from conservationists were meaningless, and that Scottish Government would not provide compensation; the white-tailed eagle reintroduction was felt to have been an ‘*unmitigated disaster*’ for sheep farmers in some localities. Another attendee cited the views of colleagues in Norway who, despite being fully compensated for stock loss, advised Scottish farmers not to entertain the idea of bringing back lynx. In reference to sheep predation in Norway, a point was made that the figures for sheep loss to predation only reflect six months of exposure, as sheep are brought in over the winter in Norway, whereas they are kept on the hill all year round in Scotland. Separate concerns were raised over the risk to farmed deer and to small cattle breeds such as Dexter cattle. One attendee was using Dexters for a conservation grazing scheme as part of a carbon trial on peatland; for them, predation would not just represent the loss of an animal, but potentially the loss of the payment from the grazing scheme.

It was felt by one attendee that lynx reintroduction could undermine the conservation of other protected species which have received significant financial investment, whilst another attendee felt that there were too few roe deer in the west. One attendee suggested, however, that it would be an advantage if lynx reduced fox numbers in the forest adjacent to farmland, where predation of lambs by foxes was an issue. It was expressed that the forests in Argyll were not suitable; that they needed to be diversified before lynx could thrive, and that the focus should be on building biodiversity from the bottom up, by enhancing what we have, not by reintroducing predators at the top. There were a number of questions concerning the Lynx to Scotland report, and where and when it would be published. Reassurance was sought that the report would not be ‘*spun*’ to reflect the views of the urban population, whilst another attendee felt that the science around white-tailed eagle reintroduction had been kept secret – that the report on lynx needed to be published in full and made available to the public.

One of the attendees complimented the presentation. They felt that the state of biodiversity in Scotland was poor, and *'what we've done over the last 100 years is terrible'*. They expressed that there was strong consensus across the board for wanting nature to recover, but that currently, there was not the prey base to support lynx, whilst the forests were poor quality monocultures of Sitka spruce. *'We have an emergency on our hands as species disappear, and monocultures replace them. We need to get this sorted out first – come back in 50 years' time'*.

Scottish Land and Estates session 2 (SLE)

Present were two representatives from SLE, and ten SLE members.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The majority of discussion in this second session was focused on mitigation and the potential for illicit release of lynx, after the contested issue of the lynx's historical presence in Scotland was re-visited. It was felt by one attendee that the number of sheep kept on higher ground in the west had been steadily declining for twenty years, and was this the perception of others? It was felt that there was a lack of appetite from prospective young farmers to undertake the hard work of shepherding in that environment, whilst sheep in the east were being predominantly kept for habitat management rather than meat production.

Questions were asked over who would pay for compensation of stock loss and mitigation. This was a concern, given the perception that mitigation would be necessary, but that there were limited finances and human resources available to implementation mitigation. The point that guard animals and fences seemed inappropriate for Scotland was reiterated; were there any other options available in Europe?

It was agreed that there needed to be a continuation of the conversation around lynx reintroduction in the middle ground; that the polarities associated with social media discourse were not helpful. One attendee was concerned that if the conversation was stymied, or did not continue, then illegal release of lynx would seem inevitable, whilst another attendee felt that now that there was a *'head of steam'* on discussion around lynx, then illicit release was on the cards – this would damage and undermine the efforts made to bring the conversation around lynx reintroduction back into a reputable space.

Scottish Gamekeepers Association (SGA)

Present were six members of the SGA board.

Vincent Wildlife Trust (VWT): David Bavin (presenting) and Jenny MacPherson (recording).

The discussion focused on potential impacts of lynx on livestock, commercial deer stalking and other wildlife, and the accountability of practitioners involved in wildlife reintroductions. It was felt that given the long absence of lynx there was a lack of knowledge within the farming community over how to coexist with the species, whilst it was anticipated that sheep and lambs would represent easy prey for lynx. White-tailed eagles were referred to as causing *'furore'* amongst the west coast crofting communities, and whilst some would regard their population's growth as a success, there were others who felt they had *'outgrown the parameters set for them'* but nothing could be done to manage the perceived impacts. It was felt that there is a false narrative being perpetuated by environmentalists that sheep have little value, which was felt to be subjective and biased towards vested interest; sheep products could become much more valuable in the future as, for example, a sustainable source of fibre. It was expressed that these kind of factors need to be thought about with regards the potential impact from lynx, and whilst some people would be able to sleep soundly at night knowing lynx were back in the woods, there would be many sleepless nights for farmers whose livelihoods and welfare are at stake.

It was felt that lynx would have a detrimental impact on biodiversity; that Scotland would trade a species *‘that has been absent for 900 years anyway’* with upland sheep, consequently losing the flora and fauna that rely on sheep grazed pasture and heath. It was anticipated that lynx would negatively impact protected species such as capercaillie, mountain hare and wildcat, whilst the point was made that all of the species that we are concerned about in relation to lynx are already under threat of extinction.

It was felt that a comprehensive risk assessment would be required for sheep farming and the commercial deer stalking industry, which could incur major economic impacts, and the potential expansion of a lynx population must be incorporated into this. It was expressed that top end, medal head roe bucks were worth over a thousand pounds each, and whilst there might not be many of these, it was possible for a stalking business to earn five figures over May to June from roe buck stalking alone. Associated with the stalking are local hospitality businesses that might feel a knock-on effect from a reduction in business. It was stated that there had been no mention of compensation for lost stalking revenue in discussions of compensation so far. One attendee perceived that roe deer were increasingly peri-urban in their distribution, which increased the risk of road traffic accidents from lynx presence — another factor that must be included in a risk assessment. It was felt that in talking about lynx, a trajectory was being set towards their reintroduction; *‘how could the ball be stopped once it starts rolling’*, whilst there has never been an exit strategy devised for wildlife reintroductions. It was perceived that an active conversation around lynx will act as an incentive for proponents to speed the process up, whilst it was feared that if the conversation was necessarily slow, the impatience of advocates would lead to illegal releases. This was a concern; it was felt that statutory bodies had done nothing in response to the illicit release and establishment of beavers and wild boar, whilst lethal control of any released animals would cause public uproar.

There was a feeling of injustice relating to the perceived disparity in the weighting of science over local knowledge in relation to wildlife management and decision making. It was felt that local knowledge needed to be embedded in decision making, and importantly, acted upon. Ravens were cited as an example where local knowledge was used to reach a decision, which was to manage their impacts through lethal control, but the outcome was overruled following challenge from the powerful lobbying of celebrity endorsed environmentalists. It was felt that there is always one section of society doing the giving for these initiatives, and it’s usually farming and hunting.

3.4 Community consultation events

A total of 89 community members attended the five consultation events over the duration of the study. The views of attendees, communicated during the facilitated break out groups, are presented below as they were recorded, under themed headings for each session. The views from community members that are captured by one or more of the five stakeholder Perspectives from the Q-Method investigation are denoted in superscript with numbers 1-5, corresponding to *Perspectives 1-5*. Views that had been communicated during the stakeholder consultation, but which were not explicitly captured by the Q-Method Perspectives are denoted with a cross, whilst views that had not yet been represented up to the point of the sessions are denoted with an asterisk. Questions that were posed but did not constitute a view are also presented. A comparison of the proportional difference between the community groups in their alignment with the different Perspectives is presented after the session reports.

The session with Dulnain Bridge Community Council took the form of the webinar sessions with stakeholder groups, and is reported as such.

Dulnain Bridge

Fourteen participants

Vincent Wildlife Trust (VWT): David Bavin (presenting). and Jenny MacPherson (recording).

Following the presentation, there was discussion of the potential impacts on sheep and livestock, focusing on the figures reported from Sweden, Switzerland, France and Norway. There was discussion of what the capacity for a lynx population would be in Scotland; one participant asked what would control their population, whereby there was some discussion of mitigation of impacts, carrying capacity and lethal control. A participant suggested that the estimate for a lynx population in Scotland of 400 animals seemed low, and questioned whether that would be genetically viable. There was then some discussion about lynx and deer, and whether lynx had the capability to control deer populations. One participant cited ambitions for a limited wolf reintroduction in northern Scotland, expressing that wolves kept deer on the move so that the deer do not ‘*strip woodland*’ – would this be the case with lynx? Participants expressed a desire to know what was felt by stakeholders towards lynx reintroduction, as it was perceived that this would ‘*set the temperature*’ for any ongoing discussions. Participants expressed thanks for the session, which they felt made a nice change from the ‘*usual routine*’ of consultation, and looked forward to discussing the issue further.

Potential Impact on protected species and conservation priorities

- Why are we always looking back? Why do we focus on what we used to have, rather than what we have currently? ^{2, 4}
- Focus on what we already have! ^{2, 4}
- There are impacts of ticks on prey potential, reducing prey availability.*
- There's an opportunity if lynx kill pine martens.^{1, 3}
- Why another predator? ²
- We need to redress conservation priorities — focus on what we have that is in need. ²
- We need a bottom-up approach. ^{2, 4}
- Issues of sea eagles chasing off other species, ie, golden eagle. [†]
- We need to focus on what is here before adding a new species. ^{2, 4}
- Where do we draw the line for reintroductions? Lynx leads to wolves, which will lead to bears.*
- It's too much for vulnerable species, eg, capercaillie. ^{2, 4}
- If we reintroduce lynx then biodiversity would be reduced — there would be a loss of deer and sheep. ²
- What will lynx eat when deer are scarce? Vulnerable species. ²
- It's been 400 years! There are too many unknowns. ^{2, 4}
- Would lynx benefit throughout Europe from a Scottish population?
- Rabbit declines since 2010 (big storm event) has reduced a potential wild food source. *

Deer and habitat

- There are too few deer around here.*
- The habitat is not right. ^{2, 3}
- There is too much disturbance from people. ^{2, 3}
- There are very few roe deer around here. There's issues around accurate data on roe deer — there isn't any or enough. ^{2, 3}
- The roe deer here are very small compared to populations in the east.*
- The farming system in Scotland is more similar to Norway than other countries. ^{2, 4}
- Lynx would decimate the roe deer population around here.*
- Culling is already reducing deer numbers and more woodland is being planted, so deer are needed as part of the woodland ecosystem.*
- Timescale — we need time for deer numbers and new woodland to settle before assessing what lynx might do.*
- We need more accurate data. ^{3, 4}
- There's access rights, and the issue of protecting lynx from roaming tourists. Will disturbance move lynx to less suitable areas? ^{2, 3}
- There's a low percentage of forestry at a local scale — where would lynx go? [†]
- Scandinavia has huge forests by comparison. ^{2, 4}
- Deer fencing is a question? Is Scandinavia similarly fenced?
- I like the idea, but the landscape has changed so much. ^{2, 3, 4}
- We don't know how lynx will react when released. ^{2, 4}
- There is potential for lynx to be killed on roads and railways. [†]
- Scotland is not big enough. [†]
- There will be a timber shortage by 2035 (less suitable habitat for lynx). *

Potential impacts on farming

- There are no shepherds available — you can't get them. [†]
- There will be predation of sheep at the woodland edge — we must consider the afforestation increasing risk to livestock. ⁴
- What will lynx eat after roe deer — sheep! [†]
- Food production is key. It is okay at the moment, but we should consider what it might be like if people were going hungry — which might be the case in the future. ^{*}
- What about calves left for a short time on the hill when the cows come to feed — calves would be vulnerable to lynx. ^{*}
- Other countries have a continuous history of 'traditional' shepherding, unlike Scotland. ²
- Sheep are feeding the human population. ^{*}
- Compensation is not an answer — it's not about the money. ^{2, 4}
- There'll be mental health issues from the stress of living with lynx. ^{1, 2, 4}
- Training guard dogs would be expensive. ²
- The way lynx kill sheep is cruel. [†]
- Sheep farmers are not able to fence — not allowed to in some places — so how can we put up fences to exclude lynx? ^{2, 3, 4}
- Too much would have to change in farming. ²
- It de-values the culture, history and heritage of the land (the hard labour of our ancestors). ²
- Guarding dogs would be a danger/risk to people and inhibit outdoor education/activities. ^{2, 3, 4, 5, *}
- Farmers are conservationists. ^{2, 4}
- It's not just lynx that will pressure sheep — there are lots of pressures on sheep farming already. We don't need another pressure ^{2, 4}
- They would/could go for cows/calves (calving near the edge of forest) and poultry. ^{*}

Economy, culture, communities and rewilding

- There's too much power from urban populations who think lynx will be cute, etc. ^{2, 4}
- Education/engagement of teenagers is important on discussions about land use, etc. We need to embed these debates into rural skills training. [†]
- Extra pressure on infrastructure — more tourists. Like the north American national parks. [†]
- Would be detrimental economically — would lose employment for keepers. [†]
- What about loss of jobs related to lynx? [†]
- Sea eagles are supposed to bring in tourism, but someone was fined for allowing a visitor to photograph an eagle nest. ^{*}
- Increased protection leads to more surveying/mitigation for development proposals and timber management. ^{*}
- Tourism would not work — lynx are too elusive. ²
- The most endangered species is the Scotsmen. [†]
- It's part of a middle class urban ideology. ^{2, 4}
- It's probably not viable to have commercial deer stalking and lynx together. Deer have already declined a lot due to rewilding. ^{2*}

Trust and conflict

- The decision on lynx has already been made — it will happen anyway, especially if the greens get in. †
- There is a lack of trust between land managers and city dwellers. ^{2, 4}
- How much can you trust the promises that are made? ^{2, 4}
- I am worried about the poor management practices of conservation groups. ^{2, 4}
- Conservationists need to start telling the truth. ^{2, 4}
- We need a clear timescale. †



Figure 2 A word cloud derived from the questions and statements made by attendees to the community event in Dalwhinnie. Words with the greatest prominence are those which appeared the most frequently.

Potential impact on livestock/farming practices

- I bring my sheep down to wooded shelters during lambing. There's no literature on that dynamic — risk assessment needed. *
- Farmers are being encouraged to create wooded corridors, etc, in recent years — ideal for lynx! Would that be discouraged if lynx were reintroduced?
- There would be an issue of using guard dogs when there is the right to roam/lots of domestic dog walkers. ^{1, 2, 3, 4, 5}
- Guardian dogs and shepherding are not part of Scottish culture. ^{2, 4}
- Could use GPS tags for sheep in lynx range. *

Habitat, lynx behaviour and population viability

- It's uncertain where Scotland sits on the sheep spectrum between Norway and Switzerland. ^{2, 3, 4}
- There are big, but not huge, chunks of woodland interspersed with open/grazed land in Scotland. ^{1, 2, 4}
- There is more human disturbance in Scotland compared to elsewhere. ^{2, 3, 4}
- There is nowhere in the Cairngorms without disturbance — is this the same elsewhere where lynx are present? ^{2, 3, 4}
- The cost of managing a small population of lynx would outweigh any economic benefits. *
- A lot more research is needed. Forest connectivity changes fast in Scotland. ^{3, 4}
- It needs the right infrastructure, and to be funded by the government. [†]
- Roe deer have moved near villages since the culling. [†]
- Cairngorms is too busy and there is too much disturbance for lynx. ^{2, 3}
- We don't need extra tourism. ²
- Is the habitat stable enough for lynx (with consistent felling and replanting)? [†]
- We can't know how lynx will behave. ^{2, 4}
- We need to address the plight of endangered species we already have (eg, the wildcat). ^{2, 4}
- Why not focus on habitats? ^{2, 4}
- There could be a net benefit of lynx if they reduce pine martens and badgers, benefiting prey species. But we don't know. ^{1, 3, 5}
- It would be irresponsible to introduce another predator when caper are doing so badly. ²
- Would lynx increase afforestation in Cairngorms, as most browsing is by red deer? *
- Lynx wiped out mouflon in the Hartz Mountains. *
- Next big storm. The last one knocked out a lot of trees and changed the relative abundance of red and roe deer. *

Reintroduction process

- How many lynx would be required for a sustainable population?
- Inform stakeholders with correct information — education is required. ^{1, 5}
- Are we trying to look back, or create a new ecosystem?
- We need informed, balanced education. ^{1, 3, 4, 5}
- Needs more meetings like this one, at a bigger scale. ^{1, 3, 4}
- Lynx UK Trust has harmed the process — this is right way to do it. [†]
- There is a lack of continuity of conservationists in the area. ^{2, 4}
- Need to have NGOs working together — talk and listen, share knowledge. ^{1, 2, 3, 4, 5}
- Be ambitious, get on with it > collect more data to better inform. ¹
- There is a fear of change. Need to demonstrate alternatives (coexistence with lynx) from lived examples in Europe. ^{1, 3, 5}
- Government buy in is needed — are they involved?
- Would a trial reintroduction be beneficial?
- Any trial that involved fencing would contravene the zoo act. ^{*}
- I have concerns about the impacts of radio collars on the lynx's health. ^{*}
- Will a national park be ready for lynx? How will they manage all the different landowners and managers, and policy changes? ^{3, 4}
- It must be done to the benefit of local communities. ^{3, 5}
- How can we do rewilding without negatively affecting communities and jobs?
Eg, the Brewdog land purchase and subsequent eviction of keepers.
- Perceptions towards rewilding affect perceptions of lynx reintroduction. It's hard to disentangle the two. ³
- Is lynx reintroduction needed now? Why the urgency? ^{2, 3, 4}
- An exit strategy is critical. ^{2, 3, 4}
- I think it would be very hard to have a cull/hunting quota for lynx in Scotland (like in Norway), politically and publicly ^{1, 2, 3, 4}
- Would non-lethal relocation be an option?
- People in this country wouldn't accept lethal control — most people are detached from the countryside. ^{2, 4}
- Would initial releases be a pilot?
- Need to think about the timelines to execute the plan. [†]
- A lack of informed tertiary education is slowing down the process. ¹
- I am surprised that some people disagree with the statement about moral obligations to restore native species. ^{*}

Tourism

- I am not convinced it will increase tourism. [†]
- We don't need tourism here — tourists always come here. But lynx could diversify it. ^{1, 2, 3, 5}
- Is increased tourism sustainable/desirable? We don't have the infrastructure. ²

Potential impact on farming and rural communities

- We need to consider the stress for farmers in relation to loss of livestock. ^{1, 2, 4}
- Loss of sheep – consider the effect of a loss of ‘sheep culture’ in the landscape. ^{2, 4}
- Consider importance of farmers to the rural economy. ^{2, 4}
- I have a concern over whether compensation would be adequate. ^{2, 4}
- Difficult to calculate the valuation of compensation for sheep that are acclimatised and hefted; it takes generations to acclimatise and heft a flock. ²
- Changing in shepherding practices? Could alter the lambing season? Farming practices work with natural cycles. European practices not applicable in the unique Scottish context. ^{2, 4}
- Farming practices are centuries old > difficult to change, if possible at all. ²
- Government financial commitment – is it there? [†]
- Currently undergoing subtle changes in farming to accommodate wildlife. ^{3, 4}
- I am worried about the loss of rural traditions and populations of people. ²
- Are the Highland clearances a factor in people’s psyche?
- Intergenerational equity – ecosystem restoration is crucial. ^{1, 3, 4, 5}
- We must consider sheep farmers’ livelihoods. ^{1, 2, 3, 4}
- We need to reduce our meat consumption. ¹
- Farmers need adequate compensation – not enough currently, eg, with white-tailed eagles. ^{1, 2, 3, 4, 5}
- Comprehensive compensation would not happen in Scotland. ²
- Our farmers are not valued. ^{2, 4}
- Farmers distrust environmental organisations. ^{1, 2, 3, 4, 5}
- Farmers are not fully compensated for loss of lambs. ^{2, 4}
- Sheep are the only option in the west – crops don’t grow. [†]
- Sheep and cattle are reared in an environmentally friendly way around here. ^{*}
- There are no shepherding practices here – unprepared. ²
- Too many people for lynx. ^{2, 3, 4}
- It’s not impossible that lynx could take a young child. ^{*}
- Young families might be apprehensive about using the woods, eg, for picnics. [†]
- Small dogs occasionally run off > concern, owners becoming hesitant. ⁴
- We’re not used to having these animals around. ^{2, 4}
- We’ve had a long break from large carnivores in this country – we’re not similar to Europe. ^{2, 3, 4}
- Why should we believe other European examples? ^{2, 4}
- There is a suite of enlightened landowners in Scotland now, but the concern is that if there is not ^{*}
- 100% support it will be blocked – it would be a shame if that was the case. ¹
- The farming community is a key element in this. [†]
- There are some problem birds (white-tailed eagles). We’ve backed away from lethal control, but farmers need adequate compensation. ^{1, 2, 3, 4, 5}
- Other countries with large predators haven’t had a prolonged period without these animals as we have with our top predators. ^{2, 4}
- If lynx predate red foxes then that will benefit farmers. ^{1, 5}
- Who will be affected?
- It would be interesting to hear the opinions of deer stalkers.
- Access issues – areas with lynx might become exclusive. ^{*}
- I would like to go lynx spotting – but we’re not the ones affected. [†]
- NatureScot are constantly dealing with farmers. ^{*}

Biodiversity/reintroductions

- Climate change mitigation > reintroducing a predator will be counter-productive. It would be better to prioritise cultivating unity between stakeholders in mitigating climate change. *
- Wildlife corridors — we need to better connect our woodlands. ³
- If there is conflict, it could derail addressing more pressing issues. ^{3, 4}
- Consider the role of wildlife in shaping the landscape for the better > beavers on Tayside. ^{1, 5}
- Too much focus on ‘charismatic’ predators. There are more pressing conservation priorities, eg, curlew. ^{2, 4}
- We must consider ecosystem balance and the role of the lynx. Intra-guild predation will change the behaviour of prey species. ^{1, 3}
- Scotland is a managed landscape. ^{2, 3, 4, 5}
- Roe deer densities are the biggest challenge at the moment — lynx could be positive for woodland recovery. ^{1, 3, 4, 5}
- Lynx will contribute to making smaller predators more wary. ^{1, 3}
- We have problems with deer that are over-familiar with people. *
- Lynx would predate foxes, which is desirable. ^{1, 2, 3, 4}
- Debatably, there are too many sheep in the landscape. [†]
- Returning the lynx is positive in itself. ^{1, 5}
- Lynx will contribute to a better environment. ^{1, 3, 5}
- For most people, lynx reintroduction does not cross their minds. [†]
- Climate change — there is more we can do than reintroduce the lynx. ^{2, 4}
- Would be great to see happen — I’d love to see them. ^{1, 5}
- Beavers are creating habitat for other species. *
- Rabbits — not as many as there used to be, and not as many buzzards (an indicator of a lack of prey). *
- Is there enough prey?
- A moral imperative is essential. Because we are an island, there is no prospect of natural recovery. [†]
- Sympathy with **Scotland is not Ready** > not sure if Scotland is ready, but that is very sad. ³
- We’re not pulling our weight in improving biodiversity. ¹
- We’re running out of time to reverse biodiversity loss.
- Biodiversity — re-establishing natural processes is important. Lynx could be part of this; but consider effects on others, eg, farmers. ^{1, 3, 5}
- How can we tell other countries that they must live alongside, ie, tigers, but not do it ourselves? ¹
- Is the carrying capacity enough to maintain sufficient genetic diversity?
- Could captive animals be used to acclimatise people to the idea of lynx?
- We need more information on lynx behaviour. ^{1, 2, 4}
- Have people got used to the beavers?
- Illegal killing of lynx a risk — there will always be people who want to do this. ^{3, 4, 5}
- Wildlife are killed all the time, such as badgers. ^{3, 4, 5}
- There could be trophy hunting, as there was with wildcat. [†]
- We could promote the animals on Springwatch. *
- The legacy of white-tailed eagle is sheep predation. ^{2, 4}

- White-tailed eagle (WTE) predation is a problem — I fear the same happening with lynx. ^{2, 4}
- Is sheep farming viable anymore? Hill farming possibly. It's an uncertain future. ^{2, 4}
- Alternative lifestyles need to be considered — tourism must make farming easier. ⁵
- Norway lynx are being pushed into sheep ground by other large predators. *
- Our concern over animal welfare (livestock) is not captured in the perspective summaries. [†]
- Scotland — sheep are free range throughout the year, not just spring/summer.
- The Norwegian figures are just for six months. *
- It's very costly to lamb inside. Also, the humid atmosphere here leads to disease when animals are confined. *
- Will a new subsidy system help farming?
- Farmers are under a lot of pressure. Another predator would be the last straw. ²
- Crofting is on the margins — there is no wiggle room. ²
- The risk to calves and small breeds such as Dexters has been overlooked. We are increasingly encouraged to use smaller breeds for conservation grazing. *
- Has lynx territory size decreased in sheep areas? Do lynx cache prey?
- If lynx predate young lambs, there is a knock-on effect to lactating ewes (eg, mastitis). ²

Lynx ecology and habitat suitability

- We've been altering nature for a long time. ^{2, 3, 4}
- Not enough territory for lynx. ³
- Lynx was here before; but it was extirpated for a reason. ²
- We have to ask, what kind of an environment do we want to live in?
- Our country has the most degraded biodiversity. ¹
- Scotland is heavily populated. ^{3, 2}
- Areas are being zoned for tree planting > will be a blanket of conifers in the future. *
- On a larger scale, reintroductions are part of the restoration jigsaw. We need to work from the top to the bottom, eg, lynx reintroduction AND carbon sequestration. ^{1, 3, 5}
- There are not high levels of roe deer around farms in Argyll — would this translate into greater impact on sheep in absence of roe?
- Lynx will keep deer moving by increasing their fear — better for vegetation. ^{1, 5}
- Lynx will create fear zones, reducing over-grazing. ^{1, 5}
- Foxes — we can shoot them, keeping numbers sustainable. ^{2, 4}
- There is widespread mismanagement of woodland, forestry and deer. ^{2, 3, 4}
- We can't stay on top of red deer. ¹
- We need to think about the bigger picture or everyone will lose: tourism possibility; too many trees; needs balance. ¹
- Lynx breeding capacity is high in productive areas — 5-8 kittens a year. Good survival rate leads to a rapid population increase. *
- Are lynx a top predator? Not everywhere — they are also prey. *
- 90% of their diet is deer — what is the other 10%?
- There is too much competition over too little prey currently — we need to increase the prey base. *
- An increasing number of people in rural areas is leading to more dog attacks. Lynx would be too much extra. ²
- You'll end up with an over-population of lynx, with spill-over predation on livestock. [†]
- Lots of woodland restoration but also plantations in Argyll — what would the impact of harvesting be on lynx?
- Conifer plantations — currently ideal for roe deer. Felled coupes provide a bloom in fresh shoots/vegetation, while denser coupes provide cover and shelter.
- Forest Land Scotland aims to keep deer density below 10 deer per km².

Mitigation and management of wildlife

- White-tailed eagle (WTE) reintroduction was, and remains, badly managed. ^{2, 4}
- Practitioners must be accountable, and action should be instantaneous — not after years. ^{2, 4}
- There needs to be justice if lynx are released illegally, but also if there is illegal killing of legitimately released lynx. ^{1, 2, 3, 4, 5}
- An exit strategy is important. ^{2, 3, 4}
- There wouldn't be any public appetite for lethal control. ^{2, 3, 4}
- In Aberdeen, roe deer were culled due an increase in road traffic accidents — there was a public backlash.
- White-tailed eagles are pushing golden eagles out.
- Golden eagles filled the WTE niche; golden eagles scavenged carcasses.
- A big problem is that lynx would be shot. ^{3, 4, 5}
- Nothing has been done about the impact of WTEs. ^{2, 4}
- How do you control an ultimate predator?
- We can't control species that have been reintroduced so far. ^{2, 4} (response: why do we need to?).

Trust/communities

- The benefits must reach everyone. ^{1, 4}
- There is a lack of trust in Scottish Government to take adequate steps for protecting people — NatureScot treads the middle ground.
- I think this — talking and communicating with each other — is the most important thing. ^{1, 2, 3, 4}
- Our perspectives have changed tonight on speaking to others.
- Groups need clear positions and need to address conflicts, not shy away from them. ^{1, 2, 3, 4}
- National representatives are not trusted > organisations have agendas. We need a stronger local voice. ^{2, 3}
- Low trust between everyone is an issue. ^{1, 2, 3, 4, 5}
- If a successful case is made for lynx, then a case might be made for wolves. [†]
- Challenging topics can progress fast — look at veganism*
- My alignment with the Perspectives was between 2, 3 and 1.
- Lynx reintroduction is likely to happen regardless of what we think. ²
- Human safety is a concern. [†]
- The whole system is economically broken.
- There is a moral obligation — it was humans who eradicated lynx. ¹
- Ferries, hotels, shops, etc, can't cope with increasing tourism. ²
- Lynx will add something that will attract more people. ^{2, 3, 5}
- The government won't fund mitigation or compensation. ^{2, 4}

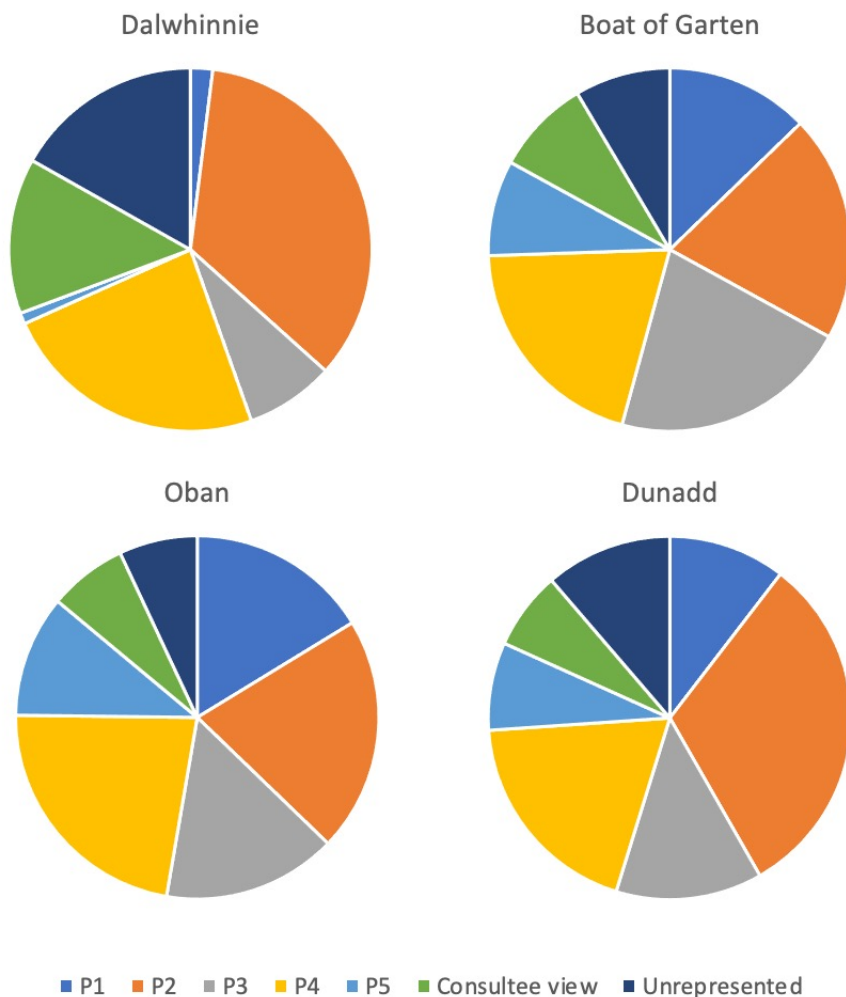


Figure 6 Comparison of the proportion (percentage) of attendee views that were captured by one or more of the five emergent Perspectives from the Q-Method investigation, between the community group events.

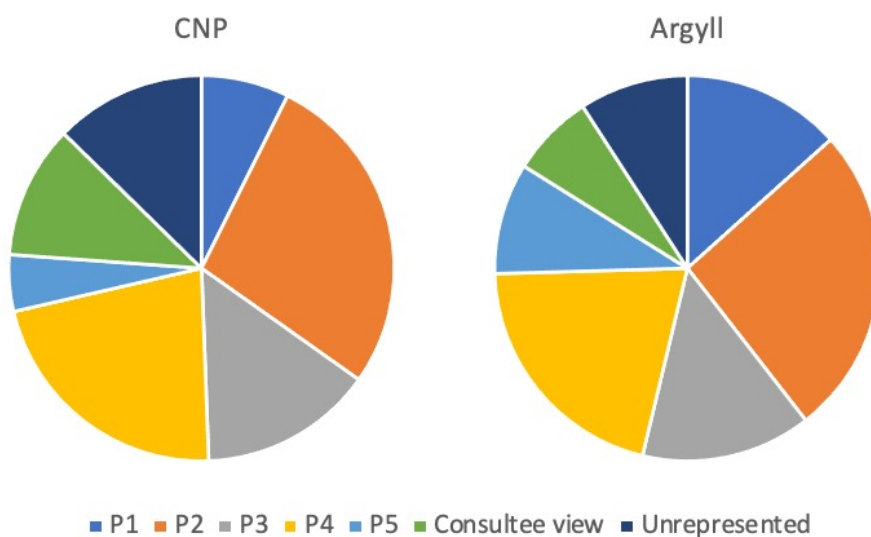


Figure 7 Comparison of the mean percentage of attendee views across the events in Cairngorms National Park and Argyll that were captured by one or more of the five emergent Perspectives from the Q-Method investigation.

The five Perspectives derived from the Q-Method investigation and additional views from the stakeholder interviews captured the majority of points raised by attendees to the community group sessions. **Perspectives 1-5** captured, on average, 80% of the views expressed by community group attendees (Min = 69%, Max 86%), which increased to 89% (Min = 83%, Max = 93%) with the inclusion of the views from the stakeholder interviews. This was reflected during feedback at the end of the sessions, where most attendees felt that their views had been covered by one or more of the five Perspectives. The majority of the views unrepresented by the Perspectives related to local contextual issues and experiences of the attendees, or specific events. There was little difference overall in the proportional distribution of Perspective alignment between community groups in the CNP and Argyll; **Lynx for Change** and **Lynx for Economy** were more prevalent in the Argyll sessions compared to CNP, whilst more information that came from the CNP was not captured by the stakeholder consultation and Q-Method exercise. **Lynx for Change** was more prevalent in the Boat of Garten and Oban sessions compared to Dalwhinnie and Dunadd. **No to Lynx** was strongly represented in the Dalwhinnie and Dunadd sessions. **Lynx for Change** was less prevalent amongst attendees of the community events compared to the Q-Method investigation with stakeholders – **No to Lynx** more so – whilst **Scotland is not Ready** and **We are not Convinced** became more prominent at the community events.



Discussion

The Lynx to Scotland project sought to assess the social feasibility of potential lynx reintroduction to Scotland, focusing primarily on the views of stakeholders within Cairngorms National Park (CNP) and Argyll. Regardless of their motivation or focus, reintroductions of charismatic animals such as the lynx are ambitious conservation interventions, which are often perceived as presenting a radical change to the status quo, sometimes provoking vehement controversy. This was not our overall experience during this study, however.

Whilst the content of discussion sometimes evoked passionate response, and robust debates were had during some of the webinar and community events, the participants that engaged over the course of the project were respectful and open in contributing their views, knowledge, and experience to the consultation. They were reassured that engagement did not equate to endorsement.

We identified five distinct stakeholder Perspectives towards the potential for lynx reintroduction in Scotland using Q-Methodology, where ***Lynx for Change and Lynx for Economy*** support the prospect of lynx reintroduction, ***No to Lynx*** is strongly opposed, and ***Scotland is not Ready and We are not Convinced*** have distinct reservations but are open to discussing the future potential. These Perspectives form the backbone of the Lynx to Scotland study, which are further fleshed out and contextualised with the information derived from the 116 stakeholder interviews, the stakeholder organisation webinar events, and the community group events.

In disclosing the key perspectives, and incorporating information from the wider stakeholder and community consultation, we elucidate the perceived challenges, opportunities, aspirations and underlying contextual influences associated with potential lynx reintroduction to Scotland, and provide a foundation for dialogue between stakeholders in future discussions of the topic.

The potential for lynx reintroduction to Scotland is contested and opposed by stakeholders and community members aligning with ***No to Lynx***, but has appreciable support from those aligning with ***Lynx for Change and Lynx for Economy***. Stakeholders and community members aligning with ***Scotland is not Ready and We are not Convinced*** are open to further discussion of the case, but do not currently support the enactment of a reintroduction process. ***Scotland is not Ready*** feels the environment, in terms of habitat quality and inter-stakeholder relations, is not suitable currently, whilst ***We are not Convinced*** does not feel the justifications made in support of lynx reintroduction have been sufficiently expounded. In the event that lynx reintroduction continues to be explored, all five Perspectives support an inclusive approach, where cross-sectoral interests are engaged to collaboratively appraise the science, incorporate local knowledge, identify and discuss perceived knowledge gaps and contested areas, and proactively address existing and potentially emergent areas of conflict.

4.1 Q-Method

The Q-Method investigation constituted the scientifically derived framework around which our assessment of the social feasibility of lynx reintroduction to Scotland is constructed. The Q-Method sorting process was necessarily conducted using an online platform due to the COVID-19 pandemic, which was not optimal, but following the process of data interrogation was appraised to have been effective, whilst the information derived from the original semi-structure interviews with participating stakeholders, as part of the consultative process, enabled participants' choices of statement positioning to be contextualised.

Lynx for Change and ***No to Lynx*** accounted for the majority of explained variance amongst the five Perspectives, and their oppositional positions over the prospect of lynx reintroduction arguably reflects the environmental zeitgeist in Scotland and Britain. They represent the two most divergent value orientations towards nature on an anthropocentric/ecocentric spectrum between which the other three Perspectives are distributed. Values define what are important to us – how we think about ourselves and others, and how we fit into broader society, and they have broad empirical support as predictors of policy attitudes (Schwartz, 2010; Schwartz *et al.*, 2010). Anthropocentric values are associated with a primary concern for people – for oneself and for others – where nature is typically ascribed utility value to people. Ecocentric values on the other hand, tend to be associated with a more mutualistic orientation to nature, where concern is extended to non-human species which are perceived as having intrinsic value and equivalent rights to people (Hiroyasu *et al.*, 2019). The foundational difference between the largely ecocentric values of ***Lynx for Change***, and the largely anthropocentric values of ***No to Lynx***, underpins their divergence over the desirability and feasibility of potential lynx reintroduction in Scotland. Importantly, we disclosed three Perspectives distributed between ***Lynx for Change*** and ***No to Lynx*** which align with them to varying extents over specific issues. In disclosing this spectrum of Perspectives we have highlighted a greater level of diversity and nuance amongst stakeholder views towards lynx reintroduction than has been presented in the typically binary public and media discourse to date (eg, [Rewilding: should we bring the lynx back to Britain? Weston, The Guardian, 2021](#)). The discussion now focuses on the findings from the consultation, synthesising information from the different strands of investigation.

4.2 Key themes

Habitat suitability

The stakeholders diverged in their perception of habitat suitability for lynx in the Cairngorms and Argyll. Stakeholders aligning with ***Lynx for Change*** and ***We are not Convinced*** to a lesser degree, felt there was sufficient habitat, which they anticipated improving over time with increasing afforestation objectives. Much of the discussion relating to habitat concerned the quality of woodland. Two experts in lynx ecology felt that lynx primarily required ambush cover, prey availability, and secure denning sites, which they felt were adequately provided for in the CNP and Argyll, even in relatively simply structured conifer plantations. A forest manager highlighted that although at a coarse level, commercial conifer plantations seem homogenous, they actually constitute a mosaic of varying coupe stages, from recently cleared and newly planted coupes, through to thicket, pole stage, and mature coupes, with windblow and rocky outcrops for shelter. Analogy was made to pine martens, which are also generally assumed to be forest dependent and whose Scottish population is in recovery largely due to the extent of commercial conifer plantations. Comparison was made by ecologists between the native pine forests in the Cairngorms and the native conifer forests of northern Norway, both being in the Boreal zone, and the latter able to support a lynx population, albeit at low density. Supportive stakeholders anticipated that the extent and quality of habitat will increase over time as government policy, NGO objectives, and private interests synergise in their objectives to plant trees. Broadly, it was perceived that Argyll was more suitable for lynx in terms of woodland cover, though it was frequently mentioned by stakeholders in Argyll aligning with ***No to Lynx*** that the great extent of Argyll's woodland was Sitka spruce plantation, and not optimal for lynx, whilst sheep are typically grazed adjacent to woodland. During the community event with Dunadd Community Council in Kilmartin, two thirds of the farmers attending stated (with a show of hands) that they had forest boundaries on three sides of their farm, whilst every farmer had at least one forest boundary.

Contributors to ***No to Lynx*** did not disagree that lynx could survive in the Cairngorms, but drew comparison with European countries that have lynx, particularly Norway, which they perceived to have a much greater extent of relatively undisturbed forest available to lynx compared to Scotland, and the CNP specifically. It was felt that the forests in CNP are highly fragmented, and the simple

structure of even-age plantations would render it difficult for lynx to ambush prey, whilst it was questioned how suitable short-term rotation clear fell regimes were for accommodating lynx; these forests might not provide enough durability and sanctuary for lynx, whilst the presence of lynx might impede some forest operations. Stakeholders aligning with **Scotland is not Ready** shared this concern in perceiving that the majority of woodland in the CNP was poor quality conifer plantation with little connectivity. A woodland grants coordinator suggested that in twenty years the habitat would, to their understanding, be much more suitable for lynx, but the extent and connectivity was currently questionable. There was uncertainty about how lynx might use commercial plantations in Scotland; whether they might adapt novel behavioural strategies not experienced elsewhere. With regard to this, pine martens were again cited, as were goshawk. Both species are considered to be forest dwelling, but more than one gamekeeper, and a field ecologist, highlighted that both species have adapted to the comparatively simple conifer forests in Scotland by utilising the forest edge, and making forays onto open ground seeking prey. It was felt that lynx might adapt in a similar way, learning to use more fragmented habitat which could result in the increased frequency of interactions with people, livestock, and novel prey species.

There was divergence amongst the stakeholders over the legitimacy of inferring lynx behaviour from European countries with lynx populations. Stakeholders aligning with **Lynx for Change** and **Lynx for Economy** felt that lynx behaviour is to a great extent predictable, irrespective of habitat, whilst stakeholders aligning with **No to Lynx**, **Scotland is not Ready** and **We are not Convinced** felt that comparisons could not be made – that the Scottish context is too different.

A number of stakeholders, particularly those aligning with **No to Lynx** and **Scotland is not Ready**, were concerned about the level of human disturbance in the CNP. The native pine woods in particular, which were perceived by **No to Lynx** as being the most optimal for lynx, were felt to be too busy with tourist activity to accommodate lynx. They cited the current conflict of interest regarding capercaillie and outdoor recreation, where disturbance of leks and incubating hens is thought to be a contributing factor to their poor fortunes. **Scotland is not Ready** shares this concern, whilst numerous stakeholders from across the spectrum of support/opposition perceived an increase in tourist presence in the CNP over the last few years, throughout the seasons, and even in the most remote parts of the national park. For a lynx ecologist interviewed, the presence of people was not anticipated to be an issue, citing situations in Europe where lynx live in relatively close proximity to people without either being detected or causing any problems. A major concern for some stakeholders was the lack of infrastructure to protect lynx when moving around the landscape. Again, this was perceived to be more of an issue in the Cairngorms, particularly in reference to the dualling of the A9.

Though the stakeholders' perceptions of habitat suitability were in part related to the actual quality and extent of woodland, the main area of contention revolved around the lynx's perceived compatibility (or incompatibility) with existing stakeholder interests, and the potential for causing or exacerbating conflicts. Stakeholders aligning with **Lynx for Change** and **Lynx for Economy** felt that large carnivore recovery in comparatively densely populated parts of western Europe demonstrates the lynx's ability to live alongside people. **No to Lynx**, **Scotland is not Ready** and **We are not Convinced** on the other hand perceive the Scottish land use context to be very different from, and incomparable with countries in Europe; the Scottish landscape is not perceived to be wild, but almost entirely influenced by people. Previous research of the discourse around beaver reintroduction, and exploration of local people's perceptions of the Cairngorms landscape, revealed this same divergence in people's views over the extent to which Scotland can be considered 'wild', and the perceived appropriateness of the landscape for wildlife reintroductions (Fischer & Young 2007; Coz & Young 2020). Stakeholders aligning with **No to Lynx**, **Scotland is not Ready** and **We are not Convinced** perceive that the CNP is intensively used for natural resource management, farming, conservation, sporting interest, and tourism, and believe it would be a challenge currently to incorporate lynx into such a complex cultural landscape. For stakeholders opposing lynx reintroduction, it is not thought possible. However, an environmental policy researcher felt that the

CNP was a good testing ground, given the concentrated diversity of stakeholder interests. **Scotland is not Ready** perceived the CNP as a patchwork of oft competing stakeholder interests which they feel translates into a landscape of high risk to lynx. They think it likely that reintroduced lynx could be illegally killed, a perception shared to a lesser degree by adherents to **We are not Convinced and Lynx for Economy**, and acknowledged as a possibility by stakeholders aligning with **Lynx for Change**. This is primarily informed by the highly contentious, ongoing conflict between stakeholders over the persecution of protected raptors on moorland managed for grouse shooting in Scotland, whilst contributors to **Lynx for Economy** referred to the widely reported illegal killing of beavers on the Tay catchment. One rewilding advocate and conservationist expressed that the CNP would appear on the surface to be suitable for lynx reintroduction, but in reality was a ‘paper park’ that afforded little protection to wildlife. Stakeholders aligning with **No to Lynx**, however, question the asserted ubiquity of illegal persecution, and do not think that illegal killing of reintroduced lynx would be an issue. It was generally perceived that Argyll had a simpler suite of stakeholder interests; an absence of grouse moors, no capercaillie, and less pressure from recreational land use. However, it was perceived by stakeholders that there is significantly more sheep farming in Argyll which was anticipated to be a barrier, whilst the purported issues associated with white-tailed eagle reintroduction (discussed further on) had created a febrile atmosphere and fraught relations between farming and conservation organisations.



The role of lynx within ecosystems

The degree to which wildlife and the environment should be managed by people or increasingly encouraged to self-regulate, or rewild, provided an important theme around which the views of the five Perspectives and consultees orientated towards lynx reintroduction, and within which a number of points were nested. Stakeholders that align with *Lynx for Change* and *Lynx for Economy* perceived that a transition towards increasingly self-regulating ecosystems is progressive and desirable for the restoration of biodiversity in Scotland, and that lynx reintroduction could, and should, be a facilitatory component of this shift through their trophic interactions with other species. This related mainly to woodland deer and trees, but also smaller predators and their prey. These dynamics represent the overarching ecological argument in favour of lynx reintroduction communicated by supportive stakeholders. *Scotland is not Ready* is sceptical of entirely transitioning towards non-interventive ecosystems, but supports developing a more holistic approach towards managing land in which lynx could play a role in the future, representing a position of compromise between the other Perspectives.

The role of lynx within ecosystems: deer

Supporters of lynx reintroduction desire the restoration of complexity within Scottish ecosystems, which are viewed to have been impoverished by the eradication of formerly native species, such as lynx; species which enacted processes thought crucial to the healthy, sustainable functioning of ecosystems. **It is anticipated that in predating woodland deer, lynx will contribute to nutrient cycling, vegetation and tree regeneration, and carcass provision for other species.** Predation of woodland deer by lynx, and the anticipated disruptive influence on deer behaviour from lynx presence, is part of the core narrative amongst stakeholders aligning with *Lynx for Change*, and *Lynx for Economy* to a lesser extent. *Lynx for Change*, *Scotland is not Ready*, *We are not Convinced* and *Lynx for Economy* perceive that expanding deer populations are problematic for afforestation efforts and wider conservation objectives, a view generally prevalent amongst conservation and forestry stakeholders, and land managers not deriving their main income from stalking. The influence of media discourse has been influential in shaping the views of some supporters, with one contributor to *Lynx for Economy* specifically citing the example of wolf reintroduction to Yellowstone National Park, which, despite being contested, was widely reported in the media as having enacted a trophic cascade that ultimately restored degraded river systems (Monbiot, 2014; ‘How wolves change rivers’).

None of the Perspectives and very few of the stakeholders interviewed anticipated lynx providing a ‘silver bullet’ for the perceived problems with deer in Scotland, but rather represent a more ‘natural’ mechanism of deer control that will contribute to culling effort by people, reducing the financial cost to the public of culling. In being ‘natural’, it is anticipated to be more palatable to the Scottish public than culling by people, and perhaps less resisted in the areas where culling is contentious. A consistent point made by landowners and foresters who are growing trees commercially or for native woodland regeneration was that deer are currently an impediment to this, which is eroding the value of commercially grown trees and undermining overarching objectives to combat climate change – objectives which are financially incentivised by various woodland grant schemes. It was felt by many of the land managers that commercial forestry and woodland regeneration cannot be achieved in some places currently without deer fencing, which is very expensive to install and maintain, of limited efficacy following heavy snowfall, and unpopular with walkers and tourists.

A number of the deer managers and foresters interviewed expressed how difficult it is to cull deer in dense woodland, with one forest manager describing how deer quickly learned which areas to avoid in relation to risk from human hunters. It was highlighted that in Britain, high standards of animal welfare can sometimes prohibit efficient culling. Deer must be shot from a stationary position using a rifle, compared to Norway for example, where hunters can use dogs to flush deer at close range, are allowed to use shotguns, and to shoot a moving target. It was felt that in the Scottish

context, lynx could be beneficial in applying predation pressure on deer in the dense forest coupes where deer are inaccessible to hunters. Stakeholders aligning with ***Lynx for Change, Scotland is not Ready*** and ***Lynx for Economy*** perceived that roe deer were generally increasing in abundance throughout Scotland, though there was some divergence over whether culling by people was effective or not; it purportedly is in some places, but not in others, a feeling expressed, amongst others, by a regional coordinator of deer management. It was highlighted by a deer ecologist that climate change is resulting in greater primary productivity, which is generally translating into better conditions for deer growth and reproduction, and that lynx could potentially be part of an integrated approach towards managing this burgeoning issue.

Stakeholders aligning with ***No to Lynx, Scotland is not Ready*** and ***We are not Convinced*** feel that the contemporary Scottish landscape is highly anthropogenic in nature, and that aspirations for self-regulating ecosystems in such a highly altered, managed landscape are unrealistic. ***No to Lynx*** and ***We are not Convinced*** believe that the purportedly absent trophic dynamics associated with large carnivores are adequately carried out by people, including deer culling, though ***We are not Convinced*** recognises that lynx could be beneficial if they facilitate afforestation. The ubiquity of the 'deer problem' is questionable for ***No to Lynx***, whilst one contributor to ***Scotland is not Ready*** expressed that deer are problematic in some places, but not all – that for red deer, culling and stalking moves the herds around, diluting their impact in any one location. This was supported by a deer ecologist, who perceived that the densities and impacts of deer were heterogeneous, and not ubiquitously negative – positive in some places. Deer stalking/managing stakeholders diverged in their perceptions of deer abundance. Roe deer are purportedly increasing in the east and the lowlands, but are perceived to be either stable at low density or declining in the uplands of the CNP and parts of Argyll – for Argyll, this was hypothesised to be due to increased rainfall. It was perceived by some of the estate owners and stalkers in the uplands of the CNP that roe deer are scarce and lynx would therefore either switch to an alternative prey source, which could be livestock, birds and lagomorphs, or move out of the areas desirable for their establishment into areas where there are more woodland deer, but also greater potential for conflict with people. This latter point was made with specific reference to land managed for conservation or with rewilding objectives. Whilst these areas are perceived as the most desirable places for lynx to establish, they are also thought to have lower deer densities as a result of their objectives to achieve natural regeneration, rendering them less attractive to lynx compared to neighbouring land where higher deer densities are maintained for commercial stalking.

Suppression of deer by lynx was not desirable for some estates. Roe deer were cited to be worth approximately £400 each to one estate in the CNP (and as much as £1,500 for a medal head buck), who felt lynx reintroduction could jeopardise their business. Stakeholders within the shooting and game management fraternities perceived that the market for roe deer stalking was growing, as wealthier clients from Europe and America increasingly value stalking roe deer in woodland. It was stated that the number of roe stalking syndicates in Scotland is also increasing, fuelled by a growth in the number of recreational stalkers, particularly in northern England. For some landowners, renting out woodland to syndicates purportedly constitutes a significant amount of their annual income. However, it was also perceived by some hunters that the presence of lynx would prove an additional attraction for people seeking a more authentic, wild experience, though there was some concern over the risk to hunting dogs. The sentiment of one field sportsman was that there are plenty enough deer for everyone, whilst a conservation policy maker with experience of working on lynx reintroductions in other countries, stated that in Europe, hunters have been managing game species alongside lynx for decades, and do not consider there to be a conflict of interest. The potential for lynx to predate sika deer was perceived as broadly positive, whilst there was not much concern expressed over the potential impacts on red deer stalking, the reasons given being that red deer are predominantly kept to the open hill and, in the presence of roe deer, represent a riskier, less attractive target for lynx. For some though, this latter point brought the central case for lynx reintroduction into question, as it was perceived that red deer are more abundant and problematic than other species, but would not be targeted by lynx.

What is clear is that perceptions of the abundance and distribution of woodland deer, particularly roe deer, are highly variable and contested (Kirkland *et al.*, 2021), and given the importance of roe deer to the ecology of lynx, more spatially explicit information is required. A deer management consultant highlighted that there is good data on red deer because hunting bags are recorded, collated, and used for flexible management decision making by the deer management groups. Roe deer bags however are rarely reported and perceptions of population change are usually anecdotal, based on encounter rates and *ad-hoc* appraisal of tree damage. The desirability of suppression of woodland deer by lynx amongst stakeholders was broadly predictable based on the predominant focus of land use. Landowners and managers prioritising commercial forestry, native woodland regeneration and conservation, generally viewed the potential for lynx to control deer as favourable, whereas those who are dependent on the income from commercial stalking viewed a negative impact on deer as undesirable and incompatible with their model of land use, potentially threatening the jobs of stalkers, gamekeepers, and subsidiary businesses reliant on stalking.

Stakeholders diverged over their perceptions of whether lynx could achieve the top-down regulation of woodland deer that some proponents anticipate and espouse. Stakeholders aligning with **No to Lynx** and **We are not Convinced** are sceptical that lynx, with such large home ranges, could achieve a level of deer predation comparable to culling by people, and feel the discourse around lynx in the media has painted a rosy, idealistic picture of this potential. One gamekeeper stated that on the estate he worked, deer densities were effectively kept below three per km² by five full time gamekeepers – something he felt could not be achieved by lynx. Another stakeholder, an estate manager, stated (in March) that his stalkers had killed 260 red deer since Christmas, which he believed negated the need for a large carnivore, whilst a forest manager estimated that a lynx might only be able to kill a quarter of the deer culled annually in his forests. There was also some concern that lynx presence might make deer more wary, and less easy to shoot. As previously mentioned, very few of the supportive stakeholders perceived that lynx would provide a complete solution to regulating populations of woodland deer. Stakeholders aligning with **Lynx for Change**, **Scotland is not Ready**, **Lynx for Economy** and **We are not Convinced** to some extent, perceived that lynx would act in synergy with human culling to achieve suppression of woodland deer. Proponents perceived that compared to human hunters, lynx would be present all year round, in hard to access areas, and would become an integrated component of woodland ecosystems, stimulating subtle, complex, largely intangible processes that would positively effect biodiversity, and which could not be replicated by the inconsistency of human intervention.



The role of lynx within ecosystems: biodiversity

The other predominant ecological dynamic discussed by stakeholders was the perceived relationship between lynx and the smaller carnivores. Supporters of lynx reintroduction perceived that lynx would exert top down pressure on foxes, pine martens, feral cats, and potentially badgers, through direct predation and intimidatory presence – the creation of a landscape of fear. **A number of conservation stakeholders perceived that lynx could represent a potentially sustainable, long-term solution to perceived predation issues associated with rare woodland birds, such as capercaillie**, which are currently complex, controversial, and difficult to manage because they involve interactions between numerous protected species. It was suggested by an ecological researcher that lynx could also benefit wildcat conservation by exerting pressure on foxes and feral cats, whilst a lynx ecologist highlighted the strong, well evidenced relationship between lynx and fox, where in some regions of Europe predation by lynx is purportedly capable of suppressing fox populations. Stakeholders aligning with *Lynx for Change*, particularly those concerned with animal welfare and supportive of rewilding, perceived that lynx could provide a more humane, ‘natural’ method of predator control. It was perceived that predator control on sporting estates is indiscriminate, inhumane, and increasingly untenable amongst the public, and that lynx would constitute a nature-based solution to the issue.

Support for the purportedly desirable impact on smaller predators was comparatively muted amongst the other Perspectives of the Q-Method study. Whilst it was perceived by *No to Lynx* and *Scotland is not Ready* that lynx would likely kill some smaller predators, there was uncertainty over whether this would translate into an impact at the population level. One contributor to *We are not Convinced*, a gamekeeper, stated that on his estate they had killed approximately 20 foxes per year for the last two decades, and 30-40 feral cats per year, a level of control beyond what they perceived lynx could achieve. Another contributor to *We are not Convinced*, a sporting operations manager, perceived that lynx might impede the use of hunting dogs, and preclude the use of snares for foxes around sensitive sites managed for capercaillie and black grouse. However, some of the farmers interviewed suggested it would be advantageous if lynx could exert pressure on foxes, which were perceived to be inaccessible in conifer plantations adjacent to lambing ground, and badgers, which are protected. The majority of farming stakeholders interviewed were sceptical that lynx would reduce predation of lambs, on balance, given their general perception that lynx would pose a significantly greater risk to sheep than other predators.

For stakeholders aligning with *No to Lynx*, the addition of another predator is anticipated to compound biodiversity loss, whilst they asserted that the lynx is not in itself a conservation priority for Scotland. For adherents to *No to Lynx*, the focus should be on extant species in need of intervention, and on restoring biodiversity from the bottom up – this view was frequently expressed. Lynx reintroduction was perceived by opposition stakeholders to be a distraction, and a waste of finite resources, whilst management of wildlife by people was perceived to be a more than adequate surrogate for the processes purportedly missing in the absence of large carnivores. The main concern for *No to Lynx* and *We are not Convinced* in terms of biodiversity was the potential impact on vulnerable species such as capercaillie, wildcat, and black grouse (whilst a few stakeholders had concerns for ground nesting birds generally, and red squirrels). Capercaillie conservation in particular was frequently cited by interviewees, and anticipated by supporters of lynx to be a potential barrier to their reintroduction. Stakeholders opposing lynx reintroduction perceived that the risk to capercaillie from the addition of another predator was too great; that not only were capercaillie populations too small to absorb any additional predation (even if predation events were rare), but efforts towards their conservation had received millions of pounds of public money which would be undermined by a lynx reintroduction. In the same way, it was thought that wildcat conservation would be jeopardised by lynx. The potential for lynx to alleviate pressure on these species through their interactions with other predators was not perceived to justify the risk. For *No to Lynx*, the perceived increase in the abundance of formerly rare predators, by virtue of their protection, is a major problem for conservation, sporting management and farming, and the proposed addition of another predator was thought nonsensical. They perceive that biodiversity recovery could

be better achieved by empowering land managers to regulate balance as they subjectively perceive it, ostensibly through lethal control, a view with which **We are not Convinced** aligned.

Stakeholders aligning with **Lynx for Change**, **Scotland is not Ready** and **Lynx for Economy** did not think that lynx would have an adverse impact on other protected species of conservation concern. A reintroduction biologist, contributing to **Lynx for Change**, asserted that lynx are not an issue for wildcat conservation in Europe, where the two species coexist in a number of countries, whilst captive breeding efforts in the Cairngorms could potentially result in a much more robust population of wildcats in a decade's time. For capercaillie, the prevailing view was that their decline is more strongly associated with climate change and poor habitat management, whilst a couple of stakeholders (a field ecologist and lynx ecologist) cited the very low prevalence of capercaillie in the diet of lynx in Europe, particularly in the Swiss Jura mountains, parts of which were purported to be capercaillie strongholds. Predation by smaller predators was felt by some to be a contributing factor to capercaillie decline, but not a foundational one, and it was anticipated that lynx could alleviate some of this pressure through their interactions with the smaller predators; it was perceived that this would offset the rare occurrences of capercaillie predation by lynx. **Lynx for Change** and **Scotland is not Ready** are cognisant of **No to Lynx**'s desire for more agency in being able to manage protected predators, but do not feel this represents a sustainable solution, whilst it was perceived that a rescinding of protection for species such as pine marten and badger could potentially result in widespread, unregulated killing.

Overall, the stakeholders in support of lynx reintroduction anticipate that lynx, through their trophic interactions with other species, would contribute to more balanced, biodiverse woodland ecosystems, and constitute a sustainable, nature-based solution to some of the complex and contested issues facing conservation and biodiversity recovery. Stakeholders in opposition feel that the risk posed to extant, vulnerable species, which are currently the focus of considerable conservation effort, is unjustifiable based on the information presented so far by proponents of lynx reintroduction. They perceived that management of wildlife by people is sufficient enough to negate the need for a large carnivore, which would certainly be the case if land managers were further empowered to use lethal control to manage the perceived negative impacts from protected predators. For stakeholders aligning with **Scotland is not Ready** and **We are not Convinced**, an expounding of the ecological and conservation justifications for lynx reintroduction is required. It is felt by adherents to **No to Lynx** that the justifications are weak, and contestable, whilst **We are not Convinced** feels that proponents of lynx reintroduction must be able to demonstrate that their reintroduction would result in a net gain for biodiversity.



Lynx, gamebirds and livestock

Stakeholders were not generally concerned about red grouse, though a couple of the gamekeepers perceived that lynx would make an easy meal of ground nesting birds if they foraged in the open. It was perceived that this would be an easier option for lynx than hunting larger, more dangerous prey such as deer, whilst a lynx ecologist highlighted that young lynx sometimes hone their hunting skills on larger, ground dwelling Galliformes (grouse and partridge species). **The main area of concern for shooting stakeholders was the potential impact on pheasants and red legged partridge raised in woodland.** It was perceived that pheasants, being relatively fat, slow, predator-naïve, and raised *en masse* in woodland pens, would be attractive and vulnerable to lynx, particularly for young, inexperienced lynx and females with kittens. It was pointed out by a conservationist that there are no comparable examples in Europe of the model of mass rearing of exotic gamebirds in woodland, so the risks to pheasants could not be inferred from elsewhere with any confidence. **Supportive stakeholders were cognisant of the potential issue but did not believe that the raising of exotic birds for sport should impede reintroduction of a native species.** Stakeholders with pheasant shooting interest acknowledged that the impact would be hard to predict; pheasant and partridge shoots were generally predominant in the lowlands, not necessarily in the areas posited as potential lynx reintroduction sites, but raising pheasants was increasingly challenging given the perceived increase in abundance of protected predators and frequency of disease outbreaks. Though foxes and most small mustelids can be lethally controlled around pheasant pens, a large, protected cat was anticipated to be a potentially big problem. It was suggested by one field sportsman that protective fencing, which can be made adequate to protect birds from smaller carnivores and raptors, would be little barrier to a lynx. However, one gamekeeper stated that it was not so much the risk to birds in the pens – this could be mitigated – but the potential for lynx to disturb birds at their roost sites, once released, pushing them off the shooting beats and rendering them unavailable to clients. Despite concerns over the potential impacts on pheasant and partridge shooting, this was not cited as a major barrier, but a factor to be considered when conducting a risk assessment.

Lynx and livestock

Predation of sheep is a key point of tension associated with human/lynx coexistence in sheep rearing countries, and was the predominant area of challenge discussed by stakeholders in this study. Though there was generally a consensus across the stakeholders that some sheep predation would likely occur, they diverged in their interpretation of what constitutes ‘significant’ risk or impact to sheep and sheep farming in Scotland, and how much they anticipated this to be a problem for lynx reintroduction. There was little concern for poultry, but some of the farmers interviewed expressed concern for calves and small breeds of cattle such as Dexters. Concern was also expressed for deer farming, which is projected to significantly expand in Scotland over the next decade following a push by the industry and Scottish Government to source home-grown venison, rather than importing from abroad (as outlined in *Beyond the Glen: a strategy for the Scottish venison sector to 2013*). An estate owner, whose predominant income was from farmed venison, was not necessarily concerned about the predation impact – given that the deer are fenced in and are herding red deer – but that if a lynx gained access to the enclosure and panicked the deer, there could be numerous casualties and injuries from collisions with the fence itself.

Stakeholders associated with **Lynx for Change** and **Lynx for Economy** generally interpreted the potential impact on sheep numerically and were influenced by scientific knowledge and experts on lynx ecology. It was felt by supporters of lynx reintroduction that the wider ecosystem and societal benefits from lynx reintroduction would offset, if not justify, the loss of what they anticipate would be an insignificantly small number of sheep relative to the Scottish sheep farming economy. Most supportive stakeholders did not anticipate serious issues but anticipated a furore amongst the farming community in the event of sheep predation during the early stages of lynx reintroduction. It was felt by some stakeholders aligning with **Lynx for Change** and **Lynx for Economy** that increased woodland cover from afforestation efforts, and the perceived abundance of woodland deer, would translate into a negligible risk to sheep, whilst a number of stakeholders perceived sheep to be kept on open ground, not in the forest, and that encounters between sheep and lynx would be very

rare. A scientific researcher suggested that lynx were relatively predictable in their behaviour; that the main issues with sheep arise when they co-occur with the lynx's primary prey, roe deer, and incidental predation occurs when lynx encounter sheep during their search for deer. A lynx ecologist cited European experience, suggesting that predation did not occur more than 400m from the forest, and that there was almost none at 200m from the forest edge. When making inference from European experience, supportive stakeholders weighted comparison towards Sweden, Switzerland and France, where predation of sheep is in the low hundreds each year, compared to figures reported from Norway which are substantially higher. It was felt by supportive stakeholders that these figures from Norway were spurious and though predation rates were indeed higher in Norway, the magnitude of the issue had been exaggerated. It was perceived that the greater levels of sheep predation in Norway compared to other countries related to their unique practice of grazing sheep unsupervised in forest and mountain pasture, where sheep are exposed and vulnerable to large predators. It was felt by supportive stakeholders that the Norwegian experience was being decontextualised and sensationalised by opponents of lynx reintroduction in their media communications, scaremongering amongst the public and farmers. A number of stakeholders contextualised the issue by speculating that any loss of sheep to lynx predation would be negligible compared to losses from inclement weather, accident, disease and black loss.

Stakeholders opposing lynx reintroduction were influenced by the experience of Scottish farmers visiting Norway, as well as peer-to-peer accounts between Scottish and Norwegian farmers, and anticipated significant levels of sheep predation. The Scottish sheep farming context was perceived to be more similar to Norway than other countries, particularly with increasing afforestation objectives. Sheep were reported to be grazed over extensive range, often adjacent to woodland. Those ranges often incorporate transitional ground; scrubby with gorse, bracken, juniper, boulder scree and park woodland, and it was thought that sheep would be vulnerable to predation given the soft edge between woodland and hill. This was particularly the case in Argyll, where most farmers stated that at least one of their boundaries was with forest. In relation to this, a consistent point made was why would lynx hunt hard to catch deer when they could easily hop over a fence and catch sheep or a lamb? Stakeholders aligning with *Scotland is not Ready* felt that lynx reintroduction would be more viable if there was more suitable habitat and less sheep, whilst *No to Lynx* and *We are not Convinced* perceived that the loss of even small numbers of sheep would potentially constitute a significant impact on the livelihoods of individual farmers and estate owners. They were concerned that the loss of just a few individuals from vulnerable flocks could impact the viability of rare breeds and bloodlines, the ability to heft flocks, and to maintain a prescribed number of animals for conservation grazing schemes. *We are not Convinced* expressed that sheep are entwined with the management of grouse moors through grazing and tick mopping, and suggested that if sheep are lost, then so are the grouse, and if the grouse go, so do the sheep; sheep predation was therefore a serious concern for estates deriving income from grouse shooting.

The majority of farmers that were consulted during the study farmed sheep and had serious concerns about their future if a lynx reintroduction was undertaken. Concerned stakeholders stated that upland sheep farming and crofting was under myriad pressures currently, and though some of the farming and policy-making stakeholders did not anticipate levels of predation comparable to Norway, they perceived lynx reintroduction as being an additional drain on an already beleaguered sector. Some farmers perceived lynx as a threat in much stronger terms; the sentiment, '*this will be the nail in the coffin for upland farming*', was expressed more than once. The welfare implications for livestock was an emotive issue, over which stakeholders diverged. For farming stakeholders, the welfare of their animals was a prime concern and it was often expressed how much time and care was invested by farmers in their animals. It was felt to be grossly unfair that farmers adhere to some of the highest standards of animal welfare in the world, but environmentalists could release a large carnivore that would '*rip sheep to pieces*'. Not all the farmers interviewed felt this way, however. One sheep farmer, in reference to an '*eye opening*' experience working on a driven grouse moor, expressed that we needed to restore diversity to recover biodiversity, and like it or not, that included top predators; that he would accept a small number of losses to predators such

as lynx given the wider benefits of their presence. Another farmer expressed that he had spent time researching lynx in response to publicity in the media. He had specific concerns over the vulnerability of his sheep at the time when they are brought down from the hill to lamb in wooded shelters, but felt that he could coexist with lynx – that there were enough deer in the woodlands that livestock predation shouldn't be a problem.

For stakeholders aligning with *No to Lynx* and *We are not Convinced*, sheep predation would not simply represent economic loss and a welfare issue for livestock, but a ratcheting up of pressure on a marginally subsisting culture that is currently facing multiple challenges and an uncertain future. *Lynx for Change*, *Scotland is not Ready* and *Lynx for Economy* were cognisant of this, and there was sympathy with the plight of sheep farmers (though a few stakeholders did feel that sheep farming had been broadly detrimental to the environment in Scotland); there was a feeling however, even amongst some of the farming representatives interviewed, that the extent and number of sheep on the hills was on a trajectory of decline, and that the emphasis on sheep management in the future would be geared towards their incorporation into a more holistic model of environmental use to which farmers must adapt. For farming representatives, the problem was that too much change is occurring simultaneously, and that farmers were struggling to meet the changing demands of society whilst retaining their livelihoods, their sense of community, and cultural identity. For *We are not Convinced*, the future of shepherding was a concern; shepherding in the uplands was perceived to be culturally valuable, deeply important to rural communities, and in practice, akin to an art form. The feeling of being under multiple, compounding pressures, has worn down the reserves of many farmers who as a result have little tolerance for the idea of lynx reintroduction, whilst there was a general feeling amongst the farmers interviewed that they were being pilloried by pro-environmental media and were not supported by society in their roles as custodians of the environment and, more fundamentally, as food producers.

Lynx for Change, *No to Lynx* and *We are not Convinced* felt that the emotional toll on farmers of potentially incurring livestock loss to lynx would need sensitive consideration, and this was perhaps the strongest point made by farming representatives during the consultation. For many farmers, the potential for financial compensation of loss missed the point – the real impact is on their emotional welfare and ways of life. *No to Lynx* and *We are not Convinced*'s concerns echo the experiences of Norwegian farmers who have been reported suffering psychological distress from incurring livestock loss to wolves (Zahl-Thanem *et al.*, 2020), but also by sheep farmers and crofters in the west of Scotland who have purportedly experienced significant loss of livestock to white-tailed eagle predation since their reintroduction in the 1970s. They feel that the pressure of coexisting with the eagles, without adequate protection measures or compensation, has driven some crofters and sheep farmers out of business. *Lynx for Change* and *Lynx for Economy* are cognisant of these concerns but feel that lynx reintroduction represents part of necessary ecosystem rehabilitation to which farmers must adapt. A contributor to *Lynx for Change* highlighted that there is also an emotional consideration for people who feel that lynx reintroduction is entirely feasible and necessary but is being blocked by powerful stakeholder interests defending unsustainable rural industries.

Stakeholders aligning with *Lynx for Change*, *Scotland is not Ready*, *We are not Convinced* and *Lynx for Economy* believe that farmers could adapt their shepherding practices to accommodate lynx given sufficient financial and technical support, with *We are not Convinced* feeling it important that society is supportive of farmers should adaptation be necessary; that the skill and culture of shepherding needs to be recognised and appreciated. At a more fundamental, systemic level, a number of stakeholders from across the spectrum of interest expressed that sheep farmers need to be paid fairly for the meat and wool products they produce, which would reduce the need to keep more livestock than perhaps capacity allows, easing pressure on farmers. Stakeholders aligning with *No to Lynx* felt that the length of time between now and when people last had to consider large carnivores is too great; that re-adaptation is not possible given the development of contemporary shepherding practices. In the Scottish uplands, this is stated to involve extensively grazing flocks over large areas without close shepherding, usually all year-round, lambing on the

hill, and often in close proximity to woodland; a scenario they perceive as similar to Norway where farmers experience comparatively greater levels of sheep predation to lynx than other countries.

Compensation and the mitigation of potential impacts on livestock

Recognising the likelihood that sheep predation could occur, **there was consensus across the Perspectives and most of the stakeholders interviewed, that mitigation should be devised and prioritised early.** It was felt this should include a sustainable compensation mechanism, and for *Lynx for Change*, *Scotland is not Ready* and *Lynx for Economy*, innovative coexistence measures. It was generally felt that compensation would need to be the responsibility of the Scottish Government, as is the case for governments in other European countries. However, there was a general concern, particularly amongst farming and field sports stakeholders, but also conservationists, that Scottish Government would not endorse, or be prepared to pay compensation currently. This was primarily inferred from experience with white-tailed eagles, where coexistence measures are funded through the White-Tailed Eagle Management Scheme. The emphasis of the scheme is on improving sheep health and reducing black loss, but direct compensation for losses is not paid. The ethos behind this being that compensation of loss has not been scientifically demonstrated to engender greater tolerance, is potentially open to abuse, and can create friction between neighbouring landowners/farming tenants. This approach was applauded by a number of stakeholders who felt it to be evidence-based and fair, whilst a number of farming stakeholders in Argyll appreciated the role of the on-call contractors who visit farms following the report of issues, to explore the situation and offer guidance to farmers in how to best mitigate impacts. This face-to-face response, and advice from people with expertise in both the ecology of white-tailed eagles and sheep husbandry, was valued, and some of the solutions implemented (such as diversionary feeding) appeared to have been successful in reducing tensions. It was expressed by one agricultural policy advisor, however, that some crofters would refuse compensation or coexistence payments out of principle, perceiving it as ‘blood money’; that crofters were not prepared to be paid to raise sheep simply to feed eagles, and by inference, lynx. It was also expressed that a compensation/coexistence payments scheme would require a long-term guarantee; that the funding of the white-tailed eagle management scheme was subject to short-term government funding cycles, which was a cause of concern.

Some of the stakeholders felt that compensation could be derived from private means. An agricultural policy advisor suggested that a privately funded compensation pot could be administered by a board of trustees with cross-sectoral interest, whilst one estate owner thought that in the areas where lynx were released and established, up-front payments from a private fund could be made to farmers based on anticipated levels of loss. This would be a similar model to one administered by the Swedish government for Saami reindeer herders, where herders are paid for the number of successful breeding events by large carnivores in proximity to their herds, using empirical data on predation rates by each carnivore species to forecast predicted losses associated with each carnivore born. It was also thought by a number of stakeholders that lynx coexistence could be incorporated into an environmental payments scheme, whilst an estate owner contributing to *Scotland is not Ready* suggested that there were various pots available for ‘re-naturalising’, which could support or encourage landowners to live alongside lynx. It was suggested by an ecotourism operator that there was branding potential for sheep farmers coexisting with lynx, whereby a premium was attached to ‘lynx friendly lamb’. However, there was muted support for coexistence measures from stakeholders aligning with *No to Lynx*. On the one hand, coexistence was thought to be necessary should lynx be reintroduced, but on the other, it was preferable that lynx are simply not reintroduced in the first place.

There was little support from any of the stakeholders for the two most effective mitigations against livestock loss to large carnivores; fencing and guardian animals (Lozano *et al.*, 2019; Khorozyn & Waltert, 2021). Fencing was generally not thought economically or logistically practical to protect sheep grazed extensively over rough, scrubby terrain, whilst it was anticipated that electric fencing would be considered aesthetically undesirable for the CNP. It was also perceived

that the ‘right to roam’, whereby the Scottish public can theoretically access the majority of the landscape, would be a barrier to additional protective fencing. Some stakeholders felt there was potential for electric fencing of sheep pasture on lower ground, where sheep are kept at higher densities on improved pasture. Conservation stakeholders familiar with the WTE Management Scheme perceived that funding protective shelters for lambing could be useful in protecting ewes and dependent lambs, improving their survivorship at their most vulnerable early stage, but it was acknowledged that this would only provide security for a limited period of time.

The use of guardian animals received mixed response from stakeholders. It was generally felt that guardian dogs would be problematic, given the public’s right to roam, and the extensive areas grazed by sheep. It was suggested by a lynx ecologist that dogs could be habituated from an early age to be familiar with, and non-threatening to people, but the reference point for most stakeholders was to the large, aggressive dogs used in the Carpathians and central Europe. One farmer highlighted a point around liability, should a member of the public, or their pet dog be attacked by a guard dog. A farming representative expressed that some farmers might consider guardian dogs but would need to be financially covered for their training, upkeep and vets bills. Some stakeholders felt that llamas and donkeys had potential, though specific consideration would need to be made for their husbandry and welfare – donkeys were purported to be prone to hoof problems on wet ground. Most of the farmers interviewed were sceptical about accommodating animals that would require specific extra husbandry considerations, and that potentially represented biosecurity challenges from the novel diseases and pathogens they might harbour. However, one estate owner enthused about the potential branding of ‘hero’ llamas, perceiving that they would be very popular with visitors to the estate, whilst providing protection for livestock and potentially, novel wool products. A number of stakeholders felt that the best mitigation would be to fund additional shepherds, and to revitalise the practice of close shepherding that is used in countries where sheep are reared alongside large carnivores. Farming stakeholders felt that there was not enough appetite amongst young people to undertake the hard work of shepherding however, or to dedicate the requisite time to becoming skilled in the practice whilst there was little economic incentive to becoming a shepherd. Supportive stakeholders felt that seasonal shepherding roles could be attractive to people who wanted an escape from the demands of contemporary work life, urbanity, and who sought a closer, simpler relationship with the land. It was thought that this could be made additionally attractive if framed as contributing to the coexistence of farmers and lynx, though the cost burden of training and accommodating additional shepherds should not fall on the farmer.

Lethal control, which has unreliable effects in reducing livestock loss to carnivores (Lozano *et al.*, 2019), had more support within the Scottish context than the other methods. Stakeholders aligning with **No to Lynx** and **We are not Convinced** feel it absolutely necessary to include lethal control in a mix of mitigations. The fear of loss of control and a breakdown in order are recurrent themes in discourses opposing wildlife reintroductions, and for **No to Lynx** and **We are not Convinced**, the need for agency in being able to manage the perceived risks posed by lynx to people’s wellbeing and livelihoods, or to game and wildlife species perceived to be under their protection, underpins their strong support for lethal control. Whilst this is unpalatable for adherents to **Lynx for Change** and **Scotland is not Ready**, they acknowledge that support, or acceptance of lynx reintroduction will probably be contingent on the inclusion of lethal control as an option. This is conflicting for stakeholders aligning with **Lynx for Change**, for which some of the contributors felt strongly that the welfare of reintroduced lynx should be prioritised, which would preclude lethal intervention. **Lynx for Economy** does not trust that lethal control could be effectively managed without being influenced by powerful stakeholder interests, a view informed by what they perceive as the over-zealous use of licenced control of beavers in the lower Tay catchment in response to lobbying from the agricultural sector. A lynx expert expressed that lethal control of ‘problem’ animals would only provide a short-term fix; that rather than it being a case of problematic individuals, the evidence from Europe suggests that there are problematic locations and contexts – particular configurations of woodland and pasture where lynx and sheep are forced into proximity. They suggested that

lethally controlling a lynx associated with sheep predation tended to result in another lynx occupying the newly available territory, and a resumption of the problem. The five Perspectives all anticipate some level of public backlash should a lynx need to be killed under licence, which is anticipated to be a potential barrier to its implementation. This was a view generally shared by all the stakeholders interviewed, with the field sports and gamekeeping stakeholders in particular feeling that the public were increasingly unsupportive of what they perceived as the necessary lethal management of some wildlife. There was suggestion by some stakeholders that lynx could become a trophy species when their population had become established, which would purportedly act as a population management tool, but also engender greater tolerance of lynx amongst stakeholders most likely to experience negative impacts from their presence. Stakeholders aligning with **No to Lynx** frequently asked what controls lynx populations in Europe? And what would prevent a reintroduced lynx population exploding in numbers in Scotland?

The potential impacts on sheep represented the most challenging and contested aspect of lynx reintroduction discussed by stakeholders. There was strong divergence over the magnitude of anticipated impacts, and a great deal of uncertainty over the potential relationship between lynx and sheep in a Scottish context. Whilst supporters felt reasonably confident that lynx behaviour, and their likely interactions with sheep could be inferred from the science and experience of experts in Europe, those in opposition felt that the sheep farming context in Scotland was unique, and derived their interpretation of the potential impacts predominantly from the lived experiences of Norwegian farmers. There was consensus that some level of sheep predation was likely, and that mitigating the impacts was a top priority. What appears necessary is an integration of the science and local knowledge – particularly in relation to how and where sheep are kept in relation to potential lynx habitat, and the subsequent level of risk to sheep. A comprehensive risk analysis is required, ideally with collaboration from people with expertise in lynx behaviour and spatial ecology, and farming representatives/agricultural researchers, to gain a better understanding of the potential spatio-temporal dynamics of lynx-sheep interactions. This could predict areas of potential high risk to livestock, whilst quantifying as best as possible the risk and cost of lynx-sheep coexistence.

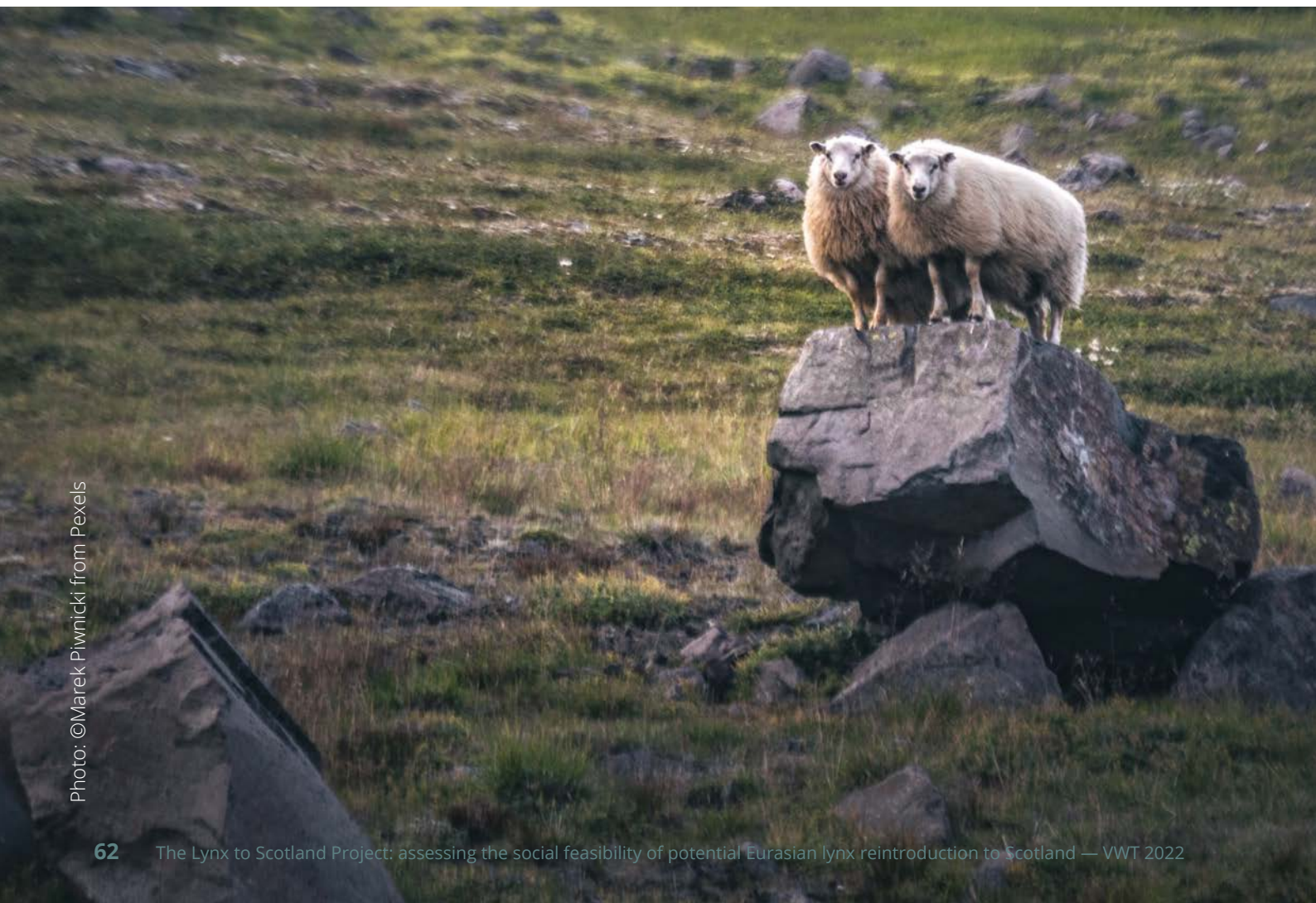


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Lynx, the economy and society

Ecotourism opportunities are often cited as potential benefits of wildlife reintroductions, and lynx reintroduction is no exception. There was consensus amongst the Perspectives from the Q-Method investigation that lynx reintroduction would likely benefit local economies, primarily through increased tourism, though for stakeholders aligning with *No to Lynx* and *We are not Convinced* this should not be equated to desirability. Stakeholders aligning with *Lynx for Change* felt that lynx would engender a sense of wildness to Scottish landscapes which would be attractive and spiritually enriching for people with pro-environmental values. In reference to what supporters of lynx reintroduction in the Lake District, England, thought lynx could bring to the landscape, Nielson observed that ‘the veneer of spirituality that the lynx conjures, therefore, is a product of how it is juxtaposed against the banality of an overly managed, rationalised landscape’ – a sentiment reflected within the views of *Lynx for Change*. It was generally acknowledged that few tourists would actually see a lynx, but for *Lynx for Change*, *Scotland is not Ready* and *We are not Convinced*, it was not perceived that this would limit the appeal of areas with lynx presence. An ecotourism operator and rewilding advocate stated that it was not necessarily about wildlife watching, but the nuanced products and storytelling that could be developed around lynx reintroduction, whilst another supportive stakeholder cited the Hartz mountains as an area where tourism associated with lynx was bringing in millions of euros to the local economy – despite lynx not actually being present. In the Scottish context, a wildlife tourism operator expressed that the Knapdale beavers were the primary reason for a significant increase in visitors to the area, benefiting local businesses, whilst conservation stakeholders drew attention to the reported benefits to the economy of Mull from tourists visiting to see white-tailed sea eagles.

One of the contributors to *Lynx for Economy*, a Public Servant, viewed tourism to be the largest and most important industry in the CNP, and felt there was great opportunity for branding associated with lynx in the national park, in the same way that the wildcat – the Highland Tiger – has become an iconic brand. It was perceived that many farmers and landowners in the CNP incorporate tourism as part of their diversified income streams, and lynx presence could be packaged to be attractive rather than burdensome to landowners; **there was consensus across the Perspectives that some landowners would consider lynx presence to be an attractive marketing opportunity.** In addition to the potential benefits from ecotourism, it was suggested by supportive stakeholders that in taking up a proportion of the deer cull, lynx could save the public money, whilst in reducing damage to trees from deer, lynx could mitigate the erosion in value of commercial timber. It was also suggested that lynx could reduce the incidences of road traffic collisions with deer by contributing to reducing their numbers. In the long term, it was perceived by some supportive stakeholders that the anticipated improvements to woodland health and biodiversity from hosting a carnivore at the top trophic level would create future opportunities for people and communities that were as yet unrecognised. For one stakeholder working in policy research, and stakeholders advocating rewilding, lynx reintroduction represents a facilitatory component of the aspiration to transition rural economies away from unsustainable extractive use and widespread sporting management, toward smaller scale sustainable industries reliant on, for example, continuous cover forestry. However, one stakeholder in a role of oversight for the tourism sector in CNP felt that wildlife tourism was niche, and lynx would have limited appeal. It was stated that most tourists visiting CNP came for the grandeur of the landscape, and in a comprehensive survey of the reasons people visit CNP, wildlife was not prominent; highland cows and red squirrels were the only animals cited with any regularity. There was very little concern across the stakeholders that lynx would pose a danger to people. However, two stakeholders had some concern that the presence of lynx might leave parents reticent to let their children play in the woods unsupervised, or for tourists to picnic in the woods. There was some concern over the potential for lynx to attack dogs being walked off the lead, or to attack pets at the fringes of human settlements, but this was generally not anticipated to be a problem.

Stakeholders aligning with *No to Lynx* and *We are not Convinced* were less enthusiastic about the

potential for ecotourism associated with lynx. **We are not Convinced** perceived tourism to be a fickle industry, which they felt was made starkly clear during the COVID pandemic, and not a sound economic justification for lynx reintroduction. They also questioned whether any additional money derived from lynx tourism would trickle down to local people who had to coexist with lynx on a daily basis, or whether it would simply stay in the pockets of ecotourism operators and hospitality businesses. In the same vein, they were concerned that landowners might benefit from some additional income, but it was unlikely that this would filter down to their tenant farmers and estate workers. For stakeholders aligning with **No to Lynx**, visitor pressure in the CNP was already an issue, and they questioned whether there was the infrastructure to accommodate more – the North Coast 500 was frequently referred to as a scheme that fundamentally failed to consider infrastructure constraints. This was also a concern for stakeholders in Argyll. Whilst tourism was not perceived to be as important an industry in Argyll as in the CNP, it was expressed that there had been a marked increase in tourism over the last few years, and the ferries, roads and local amenities were buckling under the pressure. **No to Lynx** and **Scotland is not Ready** referred to the disturbance of species such as capercaillie from tourists, with **No to Lynx** feeling that there were no areas within the national park that were not accessible to hikers, cyclists and dog walkers, who they did not think were particularly responsive to signage drawing attention to sensitive wildlife. Some of the gamekeepers interviewed were concerned that people looking for lynx would interfere with their legitimate operations, whilst more than one farmer feared that there would be people with cameras and film makers accessing his farm at all hours, trying to find lynx. Aside from these specific points, **opposing stakeholders felt that the argument for ecotourism had been overblown**; stakeholders aligning with **No to Lynx** felt it ironic that proponents of lynx reintroduction espoused ecotourism benefits on the one hand, whilst on the other assured people that lynx were shy, elusive, and unlikely to ever be seen. A point was made by farming stakeholders in Argyll that yes, white-tailed eagles brought some money in, but none of it reached the crofters who were bearing the brunt of the purportedly negative impacts from living with the eagles.

For many of the stakeholders aligning with **Lynx for Change** and **Lynx for Economy**, lynx are **intrinsically valuable**. They perceived that lynx reintroduction will be symbolic of society demonstrating a more enlightened relationship with nature, in contrast to a history of dominion and degradation of the environment. It was felt by some supporters to be hypocritical that people in Britain espouse tolerance for large carnivores in other countries but have been unwilling to redress a legacy of wildlife extermination in Britain that has left the country with none of its native large carnivores. **Lynx for Change** feels that lynx reintroduction represents an opportunity to demonstrate to the rest of the world that Scotland is ready to stand up and take responsibility in tackling biodiversity loss, and that lynx reintroduction will become a source of pride and inspiration for the Scottish people, at a time when many are suffering anxiety and despair in the face of a climate change emergency and biodiversity decline. For some supportive stakeholders, the phenomenon of solastalgia was apparent – the emotional pain, frustration and trauma of loss; the loss of Scotland’s natural heritage, the loss of experience and wonder for themselves, and for future generations. For them, lynx reintroduction represents hope. **Lynx for Change** was the only Perspective to consider that there is a moral imperative to reintroduce lynx, though this was mediated in the Q-Method output by their recognition that moral issues are inherently complex, and the social justice implications of reintroducing a large carnivore also needed careful consideration. It was felt however that there was a moral argument in favour of reintroducing, where possible, species that had been extirpated by humans, and that there was a duty to future generations to undertake this, especially given what was perceived to be societies’ enlightened understanding of the crucial ecological roles these species contribute to ecosystems.

Stakeholders aligning with **No to Lynx**, **Scotland is not Ready** and **We are not Convinced** did not agree that reintroducing lynx would be symbolic of society demonstrating a more enlightened relationship with nature, and **No to Lynx** and **We are not Convinced** did not perceive that the wider context of climate change and biodiversity decline justified the proposal. Stakeholders aligning with these two Perspectives, and **Lynx for Economy** in fact, felt that obscene amounts of

money were spent on charismatic, sexy species. For *Lynx for Economy*, this was directly connected to capercaillie, and the purported millions spent on their conservation. For *No to Lynx*, and *We are not Convinced* to a lesser extent, lynx reintroduction was perceived as an idealistic aspiration, and not grounded in their subjective experience of reality. With regards a moral obligation, one agricultural policy researcher stated that if proponents' main argument in favour of lynx reintroduction is a moral one, then '*they're walking on thin ice*' – that it was the '*nuts and bolts*' considerations that mattered to farmers and landowners.

Stakeholders aligning with *Lynx for Change* and *Scotland is not Ready* perceived that a trajectory of increasing community empowerment in Scotland will make the prospect of lynx reintroduction more likely in the future. This reflects the perception of *Lynx for Change* that the public are becoming increasingly aware and concerned about environmental issues. A policy advisor in the environmental sector expressed that the system of land ownership in Scotland, and CNP specifically, was feudal, but that communities were becoming increasingly empowered to collectively purchase land and take agency in determining how the surrounding environment was used. This was also the perception of a policy researcher and supporter of rewilding, who felt that community empowerment was central to facilitating a shift in the rural economy to one orientated around regenerative land use, in which wildlife reintroductions have a role in providing nature-based solutions. *Lynx for Economy* disagreed that community empowerment would increase the likelihood of lynx reintroduction. It was perceived that community empowerment was at the fledgling stages of being explored, and that private investment in land for ecological restoration and rewilding was more likely to facilitate lynx reintroduction. *No to Lynx* and *We are not Convinced* did not agree that community empowerment would facilitate lynx reintroduction; they perceived that rural communities with strong links to farming and sporting culture would have serious concerns. It was anticipated by a Public Servant contributing to *Lynx for Economy* that there would be an urban/rural split for support of lynx reintroduction, characterised as '*the fields vote one way, the houses vote the other*'.

This perception was frequently referenced by stakeholders, and was a source of concern for stakeholders aligning with *No to Lynx* and *We are not Convinced*. They felt that initiatives such as wildlife reintroductions were popular with the urban populace who do not understand the reality of living and working in the countryside, and that decision making is biased towards an urban support base, resulting in initiatives being forced/imposed on rural communities by external agencies who do not fully understand the consequences of their decisions, or have to bear the costs. A farming representative expressed the perceived injustice of a proposed lynx reintroduction in Kielder Forest, where it was felt that the Lynx UK Trust used majority support from a national, online survey to leverage pressure on local communities who largely opposed the proposal. The question of who should have a say in deciding whether to reintroduce lynx came up frequently with stakeholders. Opinion on this was generally split; Stakeholders aligning with *Lynx for Change* and *Lynx for Economy* felt that lynx reintroduction was of national importance and in the interests of Scottish society, so ultimately, it should be put to public vote. For stakeholders aligning with *No to Lynx* and *We are not Convinced*, this would be a major concern. It was felt that decision making should be weighted towards the opinion of people within affected communities, and that the opinions of a proportionately larger urban population inevitably disempowered the voice of rural communities. It was generally agreed by most stakeholders interviewed that, currently, the public do not have enough information about lynx to make an informed decision on whether to reintroduce them; it was perceived by the majority of stakeholders that there is a low level of ecological knowledge amongst the public generally, which becomes manifestly problematic with regards to environmentally-orientated decision making. It was perceived, particularly by *No to Lynx* and *We are not Convinced*, that public opinion is too often based on popular, ill-informed media discourse and narratives perpetuated by powerful, influential individuals and groups.

A deeper current that contextualised people's contested views over lynx reintroduction is the ongoing, divergent shift in western societal values towards nature (Mace, 2014; Manfredo *et al.*,

2017). The trajectory of this shift is characterised by a move away from historically prevalent values of dominion over nature, towards increased mutualism – nature with people rather than nature for people. The space between these divergent paradigms is fertile ground for conflict, where views over land use, biodiversity recovery, wildlife management, food production, and wildlife reintroductions are hotly contested. The growth in ecocentric values societally, and aspirations for a more mutualistic relationship with nature, are most obviously manifest in Britain in the burgeoning rewilding movement. Rewilding is perceived as a broadly positive new paradigm of environmental use and conservation by stakeholders aligning with **Lynx for Change** and **Lynx for Economy**. **Lynx for Economy** believes that private investment by aspirant landowners seeking to purchase land for rewilding will make lynx reintroduction more feasible, as more land comes under the ownership of people who are likely to be sympathetic towards lynx reintroduction. **Scotland is not Ready**, however, anticipates conflict if lynx reintroduction is framed within a rewilding context, perceiving existing and emergent tensions between landowners with divergent objectives for land use and management (over deer culling quotas and predator control for example). The emergent phenomenon of ‘green lairds’ investing in Scottish land to rewild is perceived by some as spurious and threatening, which is reflected in **No to Lynx**’s feeling that lynx reintroduction is part of a broader rewilding movement that threatens the culture, livelihoods and ways of life of rural people. **We are not Convinced** does not necessarily perceive lynx reintroduction as being part of a broader cultural threat in the same way as **No to Lynx**, but they do feel under pressure from what is perceived to be a sanctimonious environmentalism within public discourse and pro-environment media, that challenges the value and necessity of their ways of life. Nielson, in writing about lynx reintroduction in the Lake District, postulates that in reintroduction efforts, especially for charismatic species, ‘*The animal and its wild nature can be seen as the bringer of wilderness, juxtaposed against humans, who are often seen as the destroyers of wilderness.*’ (Neilson, 2019). This dynamic appears reflected by the Perspectives where, for **Lynx for Change** and **Lynx for Economy**, the restoration of lynx as a top predator is linked to, and symbolic of, aspirations for reduced human control of nature in favour of restoring natural processes, but for stakeholders aligning with **No to Lynx**, and to lesser extent **We are not Convinced**, the ‘bringing of wilderness’



as symbolised by lynx is perceived as an existential threat.

Trust

A key point of consensus across the Perspectives and stakeholders interviewed during the consultation was the perception that there is a lack of trust between groups in Scotland. Of greatest relevance to lynx reintroduction were stakeholders' perceptions and experiences of protected species management, and the recovery of historically rare or extirpated species in Scotland. This related primarily to the white-tailed eagle reintroductions in the 1970s with subsequent reinforcements, and the now legally protected beavers on the Tay catchment that established following initial illicit releases. Stakeholders aligning with **No to Lynx** and **We are not Convinced** felt that white-tailed eagles were reintroduced without sufficient consultation or provision of effective mitigations to ensure the equitable resolution of negative impacts. Farming stakeholders in particular perceived that predation of lambs by white-tailed eagles had been downplayed by conservationists who failed to initially acknowledge or take seriously the reports of crofters and farmers, and only did so eventually due to the consistent pressure applied by farming and crofting representatives. Other stakeholders, though recognising that lamb predation occurred, felt that the magnitude of the issue had been exaggerated and perpetuated by individuals unrepresentative of the broader views of farmers and crofters. The situation remains tense and fractious as white-tailed eagles expand their range, with numerous farming stakeholders interviewed in Argyll citing anecdotal accounts of substantial loss of lambs, whilst voices within the crofting community are calling for lethal control to manage the perceived impacts. A farming representative felt that the initial clandestine nature of the reintroduction, and the perceived denial of negative impacts in the early stages, has left a legacy of distrust which will be very hard to overcome, despite increasing levels of collaboration between conservationists, farmers and crofters, and statutory bodies.

The illicit release and establishment of beavers on the Tay catchment has also damaged trust between stakeholders in the reintroduction process, despite the release of beavers being illicit, and outside any official process. The perceived inaction by statutory bodies in dealing with their initial presence has resulted in stakeholders aligning with **No to Lynx** to feel that there is one set of rules for conservationists, and another set for everyone else. This precedent, whereby beavers were illicitly released, established, and subsequently became legally protected, has led oppositional stakeholders to feel that there is a back door option to reintroducing wildlife, without reprisal. This was frustrating for conservation stakeholders, who strongly felt that the illicit releases of wildlife undermined official reintroduction processes that adhere to the rigorous guidance and protocol developed by the IUCN and in Scotland, by NatureScot in the form of the Scottish Code for Conservation Translocations. Though the perceived likelihood of lynx being released illicitly was a relatively low concern for stakeholders, inference was drawn from beavers with regards the potential coexistence issues associated with species re-establishing after prolonged absence. It was felt by a number of landowning stakeholders that impacts were often contextually specific and novel, mitigations were costly, and some of the more nuanced ramifications were hard to anticipate. For example, one forest manager cited the impacts of beavers on grant-funded riparian woodland for which he was contractually bound to maintain at the density and extent of first planting. This had been undermined by beaver activity, and it was not clear whether he would be penalised in response to this natural phenomenon – there was no precedent, and no consideration of this in the contract. He advised that it's these unprecedented aspects of human wildlife coexistence that need careful thought prior to reintroduction proposals. The Tay beaver situation has also damaged **Lynx for Economy's** trust in statutory bodies, but because they perceive them as being unable to uphold the beaver's protection in the face of lobbying from agricultural stakeholders. It was felt by a number of stakeholders that there had been an over reliance on lethal control as a quick fix to mitigating beaver impacts, whilst landowning and farming stakeholders tended to support lethal intervention, citing lethal control and hunting quotas as routine measures for countries with beaver populations.

Tensions over recovering wildlife also related to the management of protected predators, particularly those that were historically rare but are recovering following legal protection. **No**

to Lynx and *We are not Convinced* perceived that the populations of badgers and pine martens were continually increasing, by virtue of their protected status, and resulting in places in negative impacts on vulnerable wildlife. *No to Lynx* and *We are not Convinced* believe that the experiences of land managers, with regards predator impacts, needed greater weighting in decision making by policy makers. They felt that greater empowerment and autonomy for landowners is required to manage perceived predation impacts. Stakeholders aligning with *Lynx for Change* felt these assertions to be unevidenced and anecdotal, and were suspicious that calls for increased powers of lethal intervention were being driven by spurious stakeholder interests, whilst the ongoing issues associated with the illegal persecution of raptors on some grouse moors in Scotland underpins their feeling that changes to the licensing of protected species would result in a subjective interpretation of ‘problem’ wildlife, and unregulated, unsustainable killing. These underlying tensions lead one contributor to *No to Lynx* to state ‘how can we think about reintroducing lynx when we have so many unresolved issues with the predators we have?’.

The Perspectives and stakeholders diverged in how they prioritised the weighting of knowledge and information, which underpinned a number of the contested aspects of potential lynx reintroduction. Stakeholders aligning with *Lynx for Change*, *Scotland is not Ready* and *Lynx for Economy* prioritised information derived from science and relevant scientific expertise, whilst stakeholders aligning with *No to Lynx* and *We are not Convinced* weighted their views towards information derived from experiential knowledge and peer-to-peer information exchange. This divergence was explicitly obvious in, for example, the stakeholders’ understanding and appraisal of the potential impact on livestock, deer populations, wildlife, and the stakeholders’ preferred options for mitigating impacts and managing human-lynx coexistence. Stakeholders aligning with *No to Lynx* expressed that the lived experience and local knowledge of land managers and gamekeepers was not valued by policy makers, who prioritise scientific evidence in decision making, whilst the converse view, particularly amongst the stakeholders involved in scientific research, was that policy decisions need to be evidence based or they are open to subjectivity and biases. Communication between stakeholders was purported to be an issue, which was captured by an agricultural policy expert who stated that there was a problem when ‘*the culturally confident – scientists, PhD students, etc – try to talk to the culturally quiet, like your average west coast crofter*’. A conservationist with experience of lynx reintroductions in Europe stated that what had worked particularly well in Germany was peer-to-peer communication, with specific reference to hunters who supported lynx reintroduction liaising with their wider hunting networks, bridging the communication gap between hunters and conservationists.

The white-tailed eagle and beaver cases, and long-term tensions over managing protected predators, has undermined *No to Lynx*’s, and to a lesser extent *We are not Convinced*’s trust in the competency of conservationists to equitably undertake and manage reintroductions. They feel it an injustice that conservation objectives are, in their view, imposed on local communities by external agencies who do not effectively consult affected people, do not fully understand the long-term implications of their actions and policies, and who do not have to bear any of the direct costs. In France, these same feelings of disenfranchisement amongst farmers and hunters following the reintroduction of lynx in the Vosges mountains resulted in conflict that was ultimately expressed in the illegal killing of lynx. This was also the case in Ireland, following reintroduction of white-tailed eagles. Given the current perception by all Perspectives bar *No to Lynx* that illegal killing of reintroduced lynx would likely occur in Scotland, addressing these trust issues between stakeholders is a priority.

4.2 Views at the community level

Our efforts to consult with community groups, while limited in number, did provide some level of insight into whether the information captured from stakeholders with regards to lynx reintroduction was representative of the views of community members. The views expressed by attendees to the community events were broadly captured by the information derived from the Q-Method

investigation and stakeholder consultation, and the prominence of the themes of discussion also reflected the focus of discourse with stakeholders. The tone of the sessions was at times passionate, but attendees were respectful in expressing their points, engaging in the discussion and listening to each other's views. There was an overall desire to remain informed of the outcomes of the study, and an appetite to remain engaged if the conversation be developed further. A number of attendees expressed increased awareness of the wider issues following the sessions, and on a number of occasions, an empathetic understanding emerged between attendees who held adversarial positions. This was, for the authors, the most valuable outcome. We feel that **this initial, foundational engagement with potentially affected communities should be built upon, with further facilitated sessions to provide a structured forum for discussion and deliberative process, and to continue the exchange of information.**

4.3 Aspirations for process

There was consensus across the Perspectives from the Q-Method investigation that **should lynx reintroduction continue to be explored, it would be desirable to establish a participatory approach with cross-stakeholder input**; the objective being to work collaboratively to identify and discuss existing knowledge gaps, contested areas of knowledge and, importantly, to create new knowledge and build trust between stakeholders by proactively addressing existing and emergent areas of conflict. It was expressed by stakeholders with experience of lynx reintroduction in Europe that it was important to bring in European experiences to this process, whilst for **No to Lynx** and **We are not Convinced**, this should necessarily include insights from farmers and hunters who live alongside lynx. This process was felt to be very important for stakeholders aligning with Lynx for Change, and despite adherents to No to Lynx's opposition to lynx reintroduction, they perceived that inclusivity in proactively addressing conflicts and building trust would be valuable. For stakeholders aligning with **Scotland is not Ready** and **We are not Convinced**, a deliberative process that expounds the case in greater detail is necessary to soundly appraise the proposal and enable responsible decision making. Stakeholders aligning with **We are not Convinced** do not believe the case for lynx reintroduction is strong enough currently, and is ultimately only justifiable if it can be clearly demonstrated that there would be a net gain for biodiversity. Stakeholders aligning with **Scotland is not Ready** feel that there is too much potential currently for exacerbating existing conflicts and potentially creating new ones, and that trust issues need addressing, which they feel could take a long time. This is potentially the case, for whilst there is divergence over technical aspects of the feasibility of lynx reintroduction which might be resolved by further research, there is a deeper divergence over its desirability rooted in people's values, which are deeply held, abstract, and change little over a person's lifetime. It was only **Lynx for Economy** that felt that lynx reintroduction within a five year timeframe was possible, whilst an environmental policy maker with experience of lynx reintroduction in Germany stated that practitioners were only prepared to go ahead with a reintroduction once all stakeholders had come on board – once it was fair. It was expressed that **a considerable amount of effort needed to be invested in engagement and relationship building**. More broadly, the stakeholders engaged throughout the duration of the study expressed a desire that, should the conversation continue, it should be conducted collaboratively to ensure transparency and representation of all interests. It was felt by stakeholders aligning with **No to Lynx** and **We are not Convinced** that the experience and local knowledge of land managers, stalkers, and gamekeepers should be valued and given parity with scientific knowledge; that this locally situated experience would contribute contextually relevant information to the science derived from European experience, which was not perceived to be directly translatable to Scotland.

There was consensus across the Q-Method Perspectives, and amongst stakeholders in general, that **exploring mitigations of the potential impacts on livestock, potentially affected rural industries, and protected species should be a priority**. This should include exploring mechanisms of financial and technical support to promote coexistence, including a sustainable source of compensation, the source of which must be agreeable to all stakeholder groups. Despite the validity and efficacy of compensation payments being contested by stakeholders, it was generally recognised that

compensation for livestock loss is standard practice for countries with recovering or reintroduced lynx populations in western Europe. For **No to Lynx**, their recent experiences of reintroductions inform the strong feeling that practitioners must be accountable; that an exit strategy would be necessary ‘should things go horribly wrong’, ensuring reversibility. For **Lynx for Change**, **We are not Convinced** and **Lynx for Economy**, the ethics and practicality of reversing a reintroduction process for lynx is, however, debatable. A number of stakeholders suggested that a trial reintroduction would be a responsible step, akin to the Scottish Beaver Trial in Knapdale Forest. It was suggested that this could involve releasing and monitoring a small number of neutered animals, or just un-neutered males. However, other stakeholders felt this would not work for lynx; that such intense levels of manipulation was unethical, and that in order to monitor the authentic behaviour of lynx, a founder population with enough animals to reflect the dynamics of a functional population was required. This would essentially represent a reintroduction. Ensuring reversibility was also anticipated by proponents to be problematic; it was anticipated that re-capturing or euthanising reintroduced lynx would be prohibitively unpopular with some stakeholder groups and the public. One stakeholder interviewed for the Q-Method study used the analogy of a pyramid when conceptualising the exploration of the feasibility of lynx reintroduction. At the foundation is the knowledge we have currently, based on existing review of the science and experiences of people living with lynx in Europe. This can be added to with layers of new research to address perceived knowledge gaps. Ultimately, it was felt that there will be a point at the top of the pyramid when it must be accepted that the limit of what is knowable and reasonably predictable has been reached, and a level of risk must be accepted in undertaking to reintroduce lynx; for the only way to understand the dynamics of lynx in a Scottish context is to release them and monitor what happens.

Some stakeholders questioned whether an isolated Scottish population of lynx – by virtue of Britain being an island – would be genetically viable, or whether it would require long-term investment to mitigate small population dynamics (genetic drift) and inbreeding with continual augmentations from European populations. The potential financial cost was a point of issue for some stakeholders, who perceived that an entire process for lynx reintroduction, including post-release monitoring and a long-term commitment to supporting coexistence and population viability, could be extremely expensive – in the order of tens of millions. It was questioned whether it was right to spend this amount of money on one species, where this money would come from, and whether it was ethical for something with as potentially far-reaching consequences as lynx reintroduction to be privately funded. A number of stakeholders perceived that there were wealthy philanthropists who would consider funding lynx reintroduction, but others feared that this would reinforce a socially unjust power imbalance, where the ambitions of powerful individuals are made manifest by virtue of their wealth, influence, and purchasing power. **Some stakeholders felt philanthropic influence would simply represent a ‘greened up’ version of an historically unjust model of Scottish land dictatorship**, where the wealthy direct the paradigm of land use, and that for a decision to reintroduce lynx to be acceptable it must be derived from a transparent, democratic process.

A number of stakeholders, predominantly those working at a policy level, felt it was important to engage with Scottish Government early on to explore, in the hypothetical event of a well-supported licence application for lynx reintroduction being submitted, whether Scottish Government would endorse and fund mitigation and compensation costs – it was felt very important that they are prepared to do so, and adequately. There was scepticism amongst many stakeholders that Scottish Government would be prepared to do this; that lynx reintroduction would not be perceived by Scottish Government as a high enough priority to justify a long-term funding commitment. However, proponents felt that lynx reintroduction was in the best interests of the environment and future generations, and therefore society, and there was a legitimate mandate for Scottish Government to consider their reintroduction, whilst it was expressed that although the UK has left the European Union, Scottish Government still adheres to international treatise on biodiversity recovery, such as the Bern Convention, which recommends the reintroduction of extinct native fauna and flora where feasible.



Conclusion

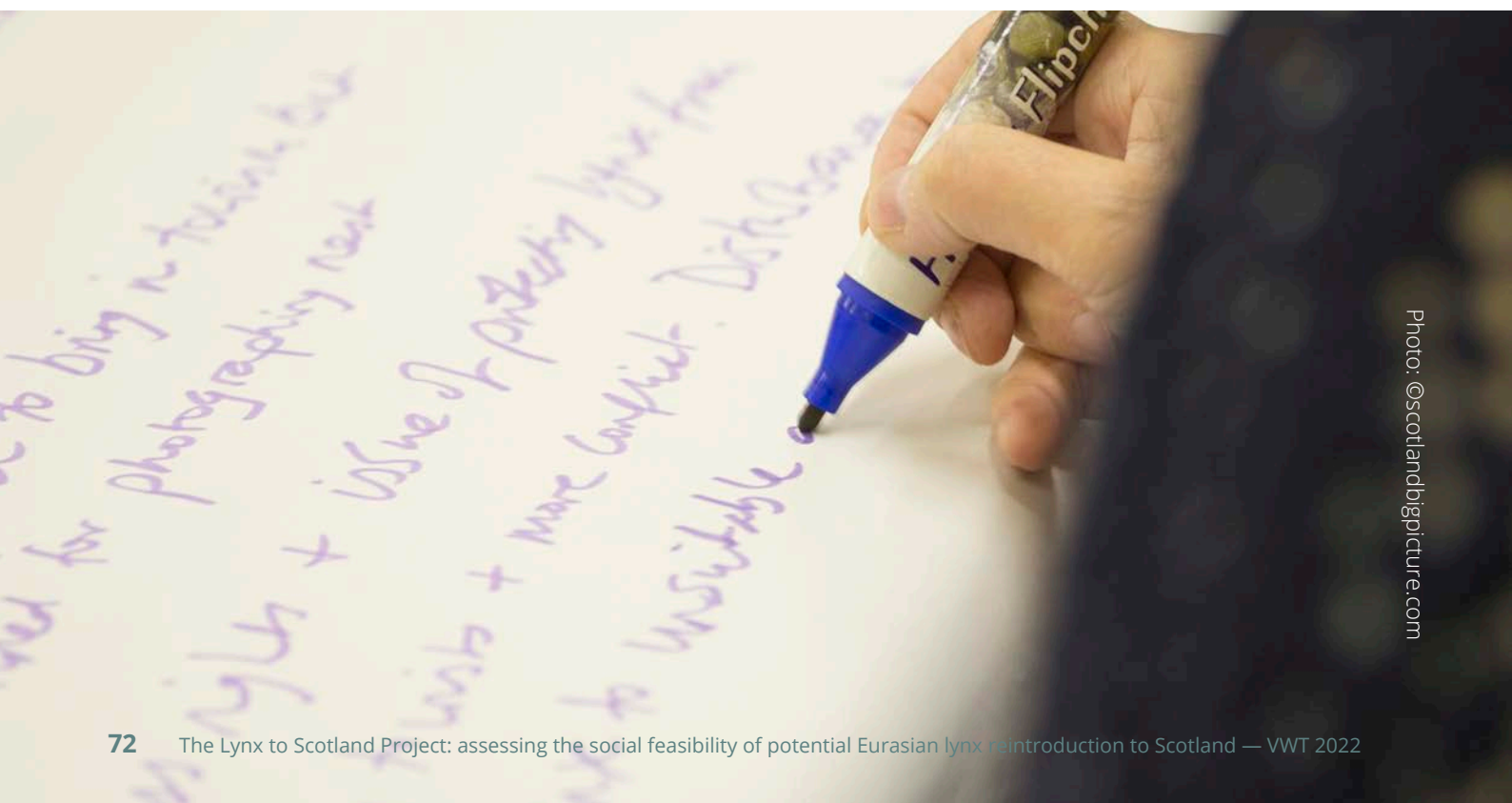
Stakeholders aligning with *Lynx for Change* and *Lynx for Economy* support lynx reintroduction, and when combined, accounted for the greatest proportion of the explained variance across the five Perspectives derived from the Q-Method investigation. Stakeholders aligning with *No to Lynx*, the second most prominent Perspective, oppose lynx reintroduction, whilst *Scotland is not Ready* and *We are not Convinced* do not think lynx should be reintroduced currently, but are open to discussing the future potential. In the view of Vincent Wildlife Trust (VWT), **there was sufficient appetite amongst the stakeholders in this study to develop a more comprehensive understanding of the potential for lynx reintroduction in Scotland to warrant its further exploration.** It is felt by VWT that given the prominent voice of support represented by stakeholders aligning with *Lynx for Change* and *Lynx for Economy*, that the conversation around lynx reintroduction will continue to develop regardless, and would therefore benefit from a structured, inclusive, and informed approach.

Any continuing process will need to be inclusive of the range of stakeholder interests, or risk disaffection of marginalised voices and the further erosion of what are currently perceived as low levels, or outright mistrust between stakeholder organisations. **‘Further process’ should not be interpreted as an inexorable trajectory towards lynx reintroduction**, which will alienate some stakeholders, but a participatory, deliberative process that embraces uncertainty of outcome, and can demonstrate equity in elucidating contested aspects of the case. Coz & Young (2020) describe the reintroduction of beavers in Scotland as a wicked problem; a complex issue stemming from interdependent factors that resists resolution and has led to a conservation conflict. Lynx reintroduction has this potential and this study has disclosed tensions between stakeholders over values, process, contested information and knowledge, and interpersonal/group conflicts. **The consensus over a desire to proactively address these issues is encouraging however, and displays an aspiration amongst stakeholders for a process that allows debate and deliberation of the costs and benefits of lynx reintroduction** – to reach a point where a better-informed decision could be made as to its feasibility and desirability amongst stakeholders, affected communities, and the wider public.

Currently, the conversation around lynx reintroduction, and reintroductions in Britain more generally, is providing a focal point around which divergent values and contested information and knowledge are being expressed. A knowledge integration framework, such as was demonstrated by the Moorland Forum, could be appropriate for addressing this (Ainsworth *et al.*, 2020). Ainsworth *et al.*, used a mixed-methods approach, based on theories of community science, knowledge co-production, knowledge integration and implementation of conflict transformation to address contestation over the management of predators and protected species on grouse moors. By gathering stakeholder perceptions to identify where local and scientific knowledge converged and diverged, the group mutually prioritised knowledge gaps and identified future collaborative actions. A Social-Ecological Systems (SES) approach also has promise. Recent studies suggest that a social ecological perspective, where the human dimension is incorporated alongside ecological knowledge rather than being latterly or peripherally considered, is rapidly gaining traction in informing debates around wildlife reintroductions and coexistence between people and wildlife (Pooley *et al.*, 2016; Dressel *et al.*, 2018; Lischka *et al.*, 2018). SES frameworks have been demonstrated as a useful approach for mapping coexistence and management issues associated with carnivores (Srivathsa *et al.* 2019; Drouilly & Riain, 2021), and an SES framework has been recommended by Drouilly & Riain (2021), in specific reference to lynx reintroduction in Britain, as offering a pathway for integrating the social and ecological feasibility of lynx reintroduction, which has not been adequately achieved by previous proposals in Britain.

Stakeholders aligning with *Lynx for Change* and *Lynx for Economy* ascribe intrinsic value to the lynx, perceiving non-material benefits to their reintroduction and presence in the landscape. In further assessing the feasibility of lynx reintroduction, consideration should be made as to how to effectively weight this perceived intrinsic value within cost-benefit analyses that are traditionally biased towards human interests and, for large carnivores, negative impacts (Gray *et al.*, 2016; Rode *et al.*, 2021). Gray *et al.* suggest that principles of eco-democracy might achieve this re-weighting, citing Gray & Curry (2016) who present a number of implementation mechanisms, and who define eco-democracy as ‘groups and communities using decision-making systems that respect the principles of human democracy while explicitly extending valuation to include the intrinsic value of non-human nature, with the ultimate goal of evaluating human wants equally to those of other species and the living systems that make up the Ecosphere.’ An eco-democracy framework might provide a facilitatory space for two stakeholder voices that are absent from this study: the voice of future generations and the non-human voice. The voice of young farmers was captured through the webinar session with the Scottish Association of Young Farmers Clubs, but this represents limited engagement with a specific interest group. Strides have been made in developing theory for the inclusion of these voices in environmental decision making through, for example, the appointment of trained trustees to represent their interests (Treves *et al.*, 2019). **Given the far reaching, long term implications of lynx reintroduction, it is particularly important for the voice of future generations to be included in the debate**, whilst consideration of the non-human voice might facilitate a contemplation of the dynamics of lynx reintroduction from a non-anthropocentric viewpoint. Conceptually, this will likely challenge some stakeholders and consideration of the non-human voice in particular might consequently be limited to an exploratory exercise, but these voices should be considered in future discussions if the objective in Britain is to ensure equity and the provision of both social and environmental justice in wildlife reintroductions.

This study represents a first step in informing these potential approaches. **We provide insight into the views of stakeholders and affected communities over the perceived costs and benefits, underlying contextual factors, contested areas of information and knowledge, and aspirations for process associated with potential lynx reintroduction in Scotland.** This provides a foundation on which discussion and deliberation can be based. This work specifically addresses lynx reintroduction in Scotland, but has relevance for wildlife reintroductions and species recovery more broadly. In disclosing the underlying contextual factors that inform people’s views on lynx reintroduction, a conversation about lynx might also stimulate some wider reflection amongst stakeholders of the human dimensions of wildlife conservation.





Recommendations

Based on the synthesis of findings in this study, we make the following recommendations:

- It is not currently appropriate for proponents of lynx reintroduction to submit a licence application for reintroduction. At present, there are significant areas of contestation with regards to the feasibility of lynx reintroduction, and if these are not satisfactorily addressed, there is strong potential for the escalation of existing conflicts.
- A group with cross-sectoral representation should be established to appraise the findings of this study. This group should identify for themselves, through a facilitated and participatory process, where the priorities lie in terms of addressing the perceived knowledge gaps and contested areas of information, using the findings of this study as a foundation. The process should seek to integrate local and scientific knowledge in appraising and addressing these areas, and the output from this group should inform the following processes.
- A comprehensive cost/benefit analysis, with consideration and appropriate weighting of non-material, intrinsic factors. This should be conducted in collaboration with stakeholder representatives with expertise in their respective sectors, and the scope of interests should include those of future generations.
- A comprehensive risk assessment for protected species and rural industries is required, in order to address divergent perceptions over the potential impacts, both positive and negative, of lynx reintroduction.
- Given the importance of roe deer to lynx ecology, and divergent perceptions over their abundance, population trends and distribution, an exercise to collate, and perhaps generate new and spatially explicit information on roe deer populations, at an appropriate resolution, is required.
- The above exercises should be coordinated within an overarching social-ecological systems framework, with the objective of integrating social and ecological aspects of potentially co-existing with lynx.

References

- Adams, H. & Proops, J. (eds). (2000) Social discourse and environmental policy: an application of Q-Methodology. Edward Elgar, Cheltenham Spa.
- Ainsworth, G.B., Redpath, S.M., Wilson, M., Wernham, C., Young, J.C. (2020) Integrating scientific and local knowledge to address conservation conflicts: towards a practical framework based on lessons learned from a Scottish case study. *Environmental Science and Policy*, 107, 46-55.
- Armstrong, D.P. & Seddon, P. (2008) Directions in reintroduction biology. *Trends in Ecology & Evolution*, 23, 20-25.
- Arts, K., Fischer, A. & van der Wal, R. (2012) Common stories of reintroduction: a discourse analysis of documents supporting animal reintroductions to Scotland. *Land Use Policy*, 29, 911-920.
- Batson, W.G., Gordon, I.J., Fletcher, D.B., Manning, A.D. (2015) Translocation tactics: a framework to support the IUCN guidelines for wildlife translocations and improve the quality of applied methods. *Journal of Applied Ecology*, 52, 1598-1607.
- Bavin, D., Denman, H., MacPherson, J., Crowley, S.L., McDonald, R.A. (2020) Using Q-Methodology to understand stakeholder perspectives of a carnivore translocation. *People & Nature*, 2, 1117-1130.
- Berger, J., Stacey, P.B., Bellis, L., Johnson, M.P. (2001) A mammalian predator prey imbalance: grizzly bear and wolf extinction affect avian neotropical migrants. *Ecological Applications*, 11, 947-960.
- Berger-Tal, O., Blumstein, S. & Swaisgood, R. (2020) Conservation translocations: a review of common difficulties and promising directions. *Animal Conservation*, 23, 121-131.
- Breitenmoser, U. (1998) Large predators in the Alps: the fall and rise of man's competitors. *Biological Conservation*, 83, 279-289.
- Breitenmoser, U., Breitenmoser-Würsten, C. & Okarma H. (2000) Action plan for the conservation of the lynx (*Lynx lynx*) in Europe. Council of Europe Publishing, Strasbourg.
- British Broadcasting Corporation (2021) Into the wild: could lynx be reintroduced to Scotland? <https://www.bbc.co.uk/news/uk-scotland-highlands-islands-55857070>
- Brown, S.R. (1993) A primer on Q-Methodology. *Operant Subjectivity*, 16, 91-138.
- Cade, T.J. & Burnham, W. (2003) Return of the peregrine. The Peregrine Fund, Boise, Idaho.
- Carrell, S. (2021) Reintroducing wolves to the UK could hit rewilding support, expert says. The Guardian, <https://www.theguardian.com/environment/2021/sep/24/reintroducing-wolves-to-uk-could-hit-rewilding-support-expert-says>
- Chamberlain, E.C., Rutherford, M.B. & Gibeau, M.L. (2012) Human perspectives and conservation of grizzly bears in Banff National Park, Canada. *Conservation Biology*, 26, 420-431.
- Chapron, G., Kaczensky, P., Linnell, J.D.C., von Arx, M., Huber, D., Andren H, *et al.* (2014) Recovery of large carnivores in Europe's modern human-dominated landscapes. *Science*, 346, 1517-1519.
- Convery, I., Smith, D., Brady, D., Hawkins, S., Iversen, S., Mayhew, M., Eagle, A. (2016) Lynx UK Trust consultation brief: Kielder, <https://core.ac.uk/download/pdf/132846897.pdf>
- Coz, D. & Young, J. (2020) Conflicts over wildlife conservation: learning from the reintroduction of beavers in Scotland. *People & Nature*, 2, 406-419.
- Crowley, S.L., Cecchetti, M. & McDonald, R.A. (2020) Diverse perspectives of cat owners indicate barriers to and opportunities for managing cat predation of wildlife. *Frontiers in Ecology and the Environment*, 18, 544-549.
- Dempsey, B. (2021) Understanding conflicting views in conservation: an analysis of England. *Land Use Policy*, 104, 1054362.

- Dickman, A. (2010) Complexities of conflict: the importance of considering social factors for effectively resolving human-wildlife conflict. *Animal Conservation*, 13, 458-466.
- Dickman, A. & Hazzah, I. (2016) Money, myths, and man-eaters: complexities of human wildlife conflict. Pages 339-356 in Angelici FM, editor. *Problematic wildlife*. Springer, London.
- Dressel, S. & Sandström, C. (2018) Mapping social-ecological systems to understand the challenges underlying wildlife management. *Environmental Science and Policy*, 84, 105-112.
- Drouilly, M. (2019) Plan d'actions pour la conservation du Lynx boréal (*Lynx lynx*) en France - Propositions à mettre en œuvre par l'État dans le cadre d'un PNA. Paris, Bourges.
- Drouilly, M. & O'Riain, M.J. (2021) Rewilding the worlds carnivores without neglecting the human dimension. A response to reintroducing the Eurasian lynx to southern Scotland, England and Wales. *Biodiversity and Conservation*, 30, 917-923.
- Estes, J.A., Terborgh, J., Brashares, J.S., Power, M.E., Berger, J., Bond, W.J., Carpenter, S.R., Essington, T.E., Holt, R.D., Jackson, J.B.C., Marquis, R.J., Oksanen, L., Oksanen, T., Paine, R.T., Pikitch, P.K., Ripple, W.J., Sandin, S.A., Scheffer, M., Schoener, T.W., Shurin, J.B., Sinclair, A.R.E., Soulé, M.E., Virtanen, R., Wardle, D.E. (2011) Trophic downgrading of planet earth. *Science*, 333, 301-306.
- Eyvindson, K., Kangas, A., Hujala, T., Leskinen, P. (2015) Likert versus Q-approaches in survey methodologies: discrepancies in results with same respondents. *Quality & Quantity*, 7, 1-14.
- Farrell, J. (2014) *The battle for Yellowstone: morality and the sacred roots of environmental conflict*. Princeton University Press, Princeton, NJ.
- Fischer, A. & Young, J. (2007) Understanding mental constructs of biodiversity: implications for biodiversity management and conservation. *Biological Conservation*, 136, 271-282.
- Gove, M. (2018) Letter from the Secretary of State for Environment, Food, and Rural Affairs to Dr Paul O'Donoghue, Lynx Trust UK, <https://www.gov.uk/government/publications/lynx-reintroduction-in-kielder-forest>
- Gray, J., Brockington, J., Hayward, M., Walmsley, J.D. (2016) How the proposed reintroduction of Eurasian lynx to Britain illustrates competing values and contrasting views associated with humans and the natural world. *Country-side Magazine*, 36 (2).
- Gray, J. & Curry, P. (2016) Ecodemocracy: helping wildlife's right to survive. *ECOS*, 37 (1).
- Griffith, B., Scott, J.M., Carpenter, J.W., Reed, C. (1989) Translocation as a species conservation tool: status and strategy. *Science*, 245, 477-480.
- Halliday, J. & Parveen, N. (2017) Plan to return the lynx splits friends and families in Kielder Forest community. *The Guardian*, <https://www.theguardian.com/uk-news/2017/feb/03/plan-to-introduce-lynx-to-kielder-forest-angers-farmers>
- Hawkins, S., Brady, D., Mayhew, M., Smith, Darrell., Lipscombe, S., White, C., Eagle, A., Convery, I. (2020) Community perspectives on the reintroduction of the Eurasian lynx (*Lynx lynx*) to the UK. *Restoration Ecology*, 28, 1408-1418.
- Hetherington, D. (2006) The lynx in Britain's past, present, and future. *Ecos*, 27, 66-74.
- Hetherington D.A. & Gorman, M.L. (2007) Using prey densities to estimate the potential size of reintroduced populations of Eurasian lynx. *Biological Conservation*, 137, 37-44.
- Hetherington, D.A., Miller, D.R., Macleod, C.D., Gorman, M.L. (2008) A potential habitat network for the Eurasian lynx (*Lynx lynx*) in Scotland. *Mammal Review*, 38, 285-303.
- Hexham Courant (2018) New Argument erupts over lynx reintroduction to Kielder Forest, <https://www.hexham-courant.co.uk/news/16612888.new-argument-erupts-lynx-reintroduction-kielder-forest/>
- Hill, C. (2021) Conflict is integral to human-wildlife coexistence. *Frontiers in Conservation Science*, 2, 1-4.
- Hiroyasu, E.H.T., Miljanich, C.P., Anderson, S.E. (2019) Drivers of support: the case of species reintroductions with an ill-informed public. *Human Dimensions of Wildlife*, 24, 401-417.
- Hodgson, I., Redpath, S.M., Fischer, A., Young, J. (2018) Fighting talk: organisational discourses of the conflict over raptors and grouse moor management in Scotland. *Land Use Policy*, 77, 332-343.

- Inskip, C. & Zimmermann, A. (2009)** Human-felid conflict: a review of patterns and priorities worldwide. *Oryx*, 43, 18-34.
- IUCN/SSC (2013).** Guidelines for Reintroductions and Other Conservation Translocations. Gland, Switzerland: IUCN Species Survival Commission.
- Johnson, R. & Greenwood, S. (2019)** Assessing the ecological feasibility of reintroducing the Eurasian lynx (*Lynx lynx*) to southern Scotland, England and Wales. *Biodiversity & Conservation*, 29, 771-797.
- Kamal, S., Kocór, M., Grodzinska-Jurczak, M. (2014)** Quantifying human subjectivity using Q-Method: when quality meets quantity. *Qualitative Sociology Review*, 10, 60-79.
- Khorozyan, I. & Waltert, M. (2021)** A global view on evidence-based effectiveness of interventions used to protect livestock from wild cats. *Conservation Science and Practise*, 3, 1-13.
- Kirkland, H., Daniels, M., Rao, S., Krofel, M., Blossey, B., Chapman, T., Hare, D. (2021)** Successful deer management in Scotland requires less conflict not more. *Frontiers in Conservation Science*, 2, 1-6.
- Kleiman, D.G. & Mallison, J.J.C. (1998)** Recovery and management committees for golden lion tamarins: partnerships in conservation planning and implementation. *Conservation Biology*, 12, 27-38.
- Knopff, A.A., Knopff, K.H. & St. Clair, C.C. (2016)** Tolerance for cougars diminished by high perception of risk. *Ecology & Society*, 21, 33.
- König, H.J., Kiffner, C., Kramer-Schadt, S., Furst, C., Keuling, O., Ford, A.T. (2020)** Human-wildlife coexistence in a changing world. *Conservation Biology*, 34, 786-794.
- Letty, J., Marchandea, S. & Aubineau, J. (2007)** Problems encountered by individuals in animal translocations: lessons from field studies. *Ecoscience*. 14, 420-431.
- Linnell, J.D.C., Breitenmoser, U., Breitenmoser-Würsten, C., Odden, J., von Arx, M. (2009)** Recovery of Eurasian lynx in Europe: what part has reintroduction played? In: Hayward, M.W. & Somers, M.J. (eds), *Reintroduction of top-order predators*. Wiley-Blackwell.
- Lischka, S.A., Teel, T.L., Johnson, H.E. Reed, S.E., Breck, S., Don Carlos, A., Crooks, K.R. (2018)** A conceptual model for the integration of social and ecological information to understand human-wildlife interactions. *Biological Conservation*, 225, 80-87.
- Loth, A.F. & Newton, A.C. (2018)** Rewilding as a restoration strategy for lowland agricultural landscapes: stakeholder-assisted multi-criteria analysis in Dorset, UK. *Journal for Nature Conservation*, 46, 110-120.
- Lozano, J., Olszanska, A., Morales-Reyes, Z., Castro, A.A., Malo, A.F., Moleón, M., Sánchez-Zapata, J.A., Cortés-Avizanda, A., von Wehden, H., Dorresteijn, I., Kansky, R., Fischer, J., Martín-López, B. (2019)** Human-carnivore relations: a systematic review. *Biological Conservation*, 237, 480-492.
- Mace, G. (2014)** Whose conservation? Changes in the perceptions and goals of nature conservation require a solid scientific basis. *Science*, 345, 1558-1560.
- MacPherson, J. (2018).** Pilot pine marten reinforcement in mid-Wales, UK. *Global Reintroduction Perspectives: 2018. Case studies from around the globe*. Soorae, P.S. (ed). IUCN/SSC Reintroduction Specialist Group, Gland, Switzerland and Environment Agency, Abu Dhabi, UAE. xiv+286pp.
- Madden, F. & McQuinn, B. (2014)** Conservation's blind spot: the case for conflict transformation in wildlife conservation. *Biological Conservation*, 178, 97-106.
- Manfredo, M.J., Teel, T.L. & Bright, A.D. (2003)** Why are public values towards wildlife changing? *Human Dimensions of Wildlife*, 8, 287-306.
- Manfredo, M.J., Teel, T., Sullivan, L., Dietsch, A.M. (2017)** Values, trust, and cultural backlash in conservation governance: the case of wildlife management in the United States. *Biological Conservation*, 214, 303-311.
- Martínez-Abraín, A., Jiménez, J., Jiménez, I., Ferrer, X., Llana, L., Ferrer, M., Palomero, G., Ballesteros, F., Galán, P., Oro, D. (2020)** Ecological consequences of human depopulation of rural areas on wildlife: a unifying perspective. *Biological Conservation*, 252.
- McKeown, B. & Thomas, D. (2013)** *Q-Methodology*. Sage Publications Ltd, London.
- Melovski, D., Von Arx, M. & Avukatov, V. (2020)** Using questionnaire surveys and occupancy modelling to identify conservation priorities for the Critically Endangered Balkan lynx (*Lynx lynx*) *balcanicus*. *Oryx*, 54, 706-714.

- Milner, J. & Irvine, J.** (2015) The potential for reintroduction of Eurasian lynx to Great Britain: a summary of the evidence. British Deer Society Commissioned Report.
- Monbiot, G.** (2014) Feral: Rewilding the land, sea, and human life. Penguin Books, London.
- Monbiot, G.** (2014) How wolves change rivers. TedBlog, <https://blog.ted.com/video-how-wolves-can-alter-the-course-of-rivers/> [NB Video no longer available]
- Naughton-Treves, L. & Treves, A.** (2005). Socio-ecological factors shaping local support for wildlife: crop-raiding by elephants and other wildlife in Africa. Pp 252-277. In: Woodroffe, R., Thirgood, S. & Rabinowitz, A. (eds). People and wildlife: conflict or coexistence? Cambridge University Press, Cambridge.
- Neilson, A.** (2019) Disenchanted natures: a critical analysis of the contested plan to reintroduce the Eurasian lynx into the Lake District National Park. Capitalism, Nature, Socialism, 1-19.
- Ockwell, D.G.** (2008) "Opening up" policy to reflexive appraisal: a role for Q-Methodology? A case study of fire management in Cape York, Australia. Policy Sciences, 41, 263-292.
- Oldfield, T.E.E., Smith, R.J., Harrop, S.R., Leader-Williams, N.** (2003) Field sports and conservation in the United Kingdom. Nature, 423, 531-533.
- O'Rourke, E.** (2014). The reintroduction of the white-tailed sea eagle to Ireland: people and wildlife. Land Use Policy, 38, 129-137.
- Ovenden, T.S., Palmer, S.C.F., Travis, J.M.J., Healey, J.R.** (2019) Improving reintroduction success in large carnivores through individual-based modelling: how to reintroduce Eurasian lynx (*Lynx lynx*) to Scotland. Biological Conservation, 234, 140-153.
- Payne, B.L. & Bro-Jørgensen, J.** (2016) A framework for prioritizing conservations translocations to mimic natural ecological processes under climate change: a case study with African antelopes. Biological Conservation, 201, 230-236.
- Peterson, N.M., Birkhead, J.L., Leong, K., Peterson, M.J., Peterson, T.R.** (2010) Rearticulating the myth of human-wildlife conflict. Conservation Letters, 3, 74-82.
- Pheby, C.** (2020) Which animals do Britons support reintroducing to the UK? YouGov survey results of 2083 adults in GB, <https://yougov.co.uk/topics/science/articles-reports/2020/01/28/third-brits-would-reintroduce-wolves-and-lynxes-uk>
- Pooley, S., Barua, M., Beinart, W., Dickman, A., Holmes, G., Lorimer, J., Loveridge, J.A., Macdonald, D.W., Marvin, G., Redpath, S.M., Zimmermann, A.** (2016) An interdisciplinary review of current and future approaches to improving human - predator relations. 31, 513-523.
- Prokop, P., Fancovicova, J. & Kubiato, M.** (2009) Vampires are still alive: Slovakian students' attitudes toward bats. Anthrozoös, 22, 19-30.
- Ray, J.C., Redford, K.H., Steneck, R.S., Berger J. (eds)** (2005) Large carnivores and the conservation of biodiversity. Island Press, Washington, DC.
- Redpath, S., Young, J., Evely, A., Adams, M.W., Sutherland, W.J., Whitehouse, A.A., Amar, A., Lambert, R.A., Linnell, J.D.C., Watt, A., Gutiérrez, R.J.** (2013) Understanding and managing conservation conflicts. Trends in Ecology & Evolution, 28, 100-109.
- Ripple, W. & Beschta, R.L.** (2006) Linking a cougar decline, trophic cascade, and catastrophic regime shift in Zion National Park. Biological Conservation, 133, 397-408.
- Ripple, W., Estes, J.A., Beschta, R.L., Wilmers, C.C., Ritchie, E.G., Hebblewhite, M., Berger, J., Elmhagen, B., Letnic, M., Nelson, M.P., Schmitz, O.J., Smith, D.W., Wallach, A.D., Wirsing, A.J.** (2014) Status and ecological effects of the world's largest carnivores. Science, 343, 1241484.
- Rode, J., Flinzberger, L., Karutz, R., Berghöfer, J., Schröter-Schlaack, C.** (2021) Why so negative? Exploring the socio-economic impacts of large carnivores from a European perspective. Biological Conservation, 255.
- Sampson, L., Riley, J.V. & Carpenter, A.I.** (2020) Applying IUCN reintroduction guidelines: an effective medium for raising public support prior to conducting a reintroduction project. Journal for Nature Conservation, 58, 125914, <https://doi.org/10.1016/j.jnc.2020.125914>

- Schwartz, S.H.** (2010) Basic values: how they motivate and inhibit prosocial behaviour. In: Mikulincer, M. & Shavers, P. R. (eds), *Prosocial motives, emotions, and behaviour: the better angels of our nature* (pp 221-241). American Psychological Association, Washington, DC.
- Schwartz, S.H., Caprara, G.V. & Vecchione, M.** (2010) Basic personal values, core political values, and voting: longitudinal analysis. *Political Psychology*, 31, 421-452.
- Seddon, P.J., Soorae, P.S. & Launay, F.** (2005) Taxonomic bias in reintroduction projects. *Animal Conservation*, 8, 51-58.
- Seddon, P.J., Armstrong, D. & Maloney, R.** (2007) Developing the science of reintroduction biology. *Conservation Biology*, 21, 303-312.
- Seddon, P.J., Strauss, W.M. & Innes, J.** (2012) *Animal Translocations: what are they and why do we do them?* Pp 1-32, *Reintroduction Biology: Integrating Science and Management*, Blackwell Publishing Ltd.
- Sergio, F., Caro, T., Brown, D., Clucas, B., Hunter, J., Ketchum, J., McHugh, K., Hiraldo, F.** (2008) Top predators as conservation tools: ecological rationale, assumptions, and efficacy. *Annual Review of Ecology, Evolution, and Systematics*, 39, 1-19.
- Simberloff, D.** (1998) Flagships, umbrellas, and keystones: is single-species management passé in the landscape era? *Biological Conservation*, 83, 247-257.
- Skogen, K., Mauz, I. & Krange, O.** (2008). Cry wolf! Narratives of wolf recovery in France and Norway. *Rural Sociology*, 73, 105-123.
- Starr, C.** (1969). Social benefits vs. technological risks. *Science*, 165, 1232-1238.
- Stephenson, W.** (1935) Technique of factor analysis. *Nature*, 136, 297.
- Stringer, A.P., MacPherson, J., Carter, S., Gill, R., Ambrose-Oji, B., Wilson, R., Kelsall, P., Feirn, W.G., Galbraith, L.C., Hilário, C.M., Parry, G., Taylor, A.** (2018) The feasibility of reintroducing pine martens (*Martes martes*) to the Forest of Dean and lower Wye Valley, <https://www.researchgate.net/publication/337604680>
[The feasibility of reintroducing pine martens to the Forest of Dean and lower Wye Valley](https://www.researchgate.net/publication/337604680)
- Srivathsa, A., Puri, M., Karanth, K.K., Patel, I., Samba, K.N.** (2019) Examining human – Carnivore interactions using a socio-ecological framework: sympatric wild canids in India as a case study. *Royal Society Open Science*, 6, 5.
- Svenning, J., Pederson, C., Donlan, C., Ejrnaes, R., Soren, F.** (2016) Science for a wilder Anthropocene: synthesis and future directions for trophic rewilding research. *Proceedings of the National Academy of Sciences of the United States of America*, 113, 898-906.
- Swedeen, P.** (2006) Post-normal science in practice: a Q study for the potential of sustainable forestry in Washington State, USA. *Ecological Economics*, 57, 190-208.
- Terborgh, J., Lopez, L., Nuñez, P.V., Rao, M., Shahabuddin, G., Oriheula, G., Riveros, M., Ascanio, R., Adler, G.H., Lambert, T.D., Balbas, L.** (2001) Ecological meltdown in predator-free forest fragments. *Science*, 294, 1923-1925.
- Thulin, C-G. & Röcklinsberg, H.** (2020) Ethical considerations for wildlife reintroductions and rewilding. *Frontiers in Veterinary Science*, 7, 163.
- Treves, A., Chapron, G., López-Bao, J.V., Shoemaker, C., Goeckner, A.R., Bruskotter, J.T.** (2017) Predators and the public trust. *Biological Reviews*, 92, 248-270.
- Treves, A., Santiago-Ávila, F. & Lynn, W.** (2019) Just preservation. *Biological Conservation*, 229, 134-141.
- Trouwborst, A., Krofel, M. & Linnell, J.** (2015) Recovery of large carnivores in Europe's human-dominated landscapes. *Biodiversity & Conservation*, 24, 1517-1519.
- Van Wieren, S.E.** (2012) Reintroductions: learning from successes and failures. Pp 87-100 in: Van Andel, J. & Aronson, J. (eds) *Restoration ecology: the new frontier*. John Wiley & Sons, Hoboken, NJ.
- Watts, S. & Stenner, P.** (2012) *Doing Q-Methodological Research*. Sage Publications Ltd, London.
- Webler, T., Danielson, S. & Tuler, S.** (2009) Using Q-Method to reveal social perspectives in environmental research. *Social and Environmental Research Institute*, Greenfield, MA.

- Weeks, A.R., Sgro, A.M., Young, A.G., Frankham, R., Mitchell, N.J., Miller, K.A., Byrne, M., Coates, D.J., Eldridge, M.D.B., Sunnucks, P., Breed, M.F., James, E.A., Hoffmann, A.A. (2011) Assessing the benefits and risks of translocations in changing environments: a genetic perspective. *Evolutionary Applications*, 4, 709-725.
- Weston, P. (2021) Rewilding: should we bring the lynx back to Britain? *The Guardian*, <https://www.theguardian.com/environment/2021/aug/16/rewilding-should-we-bring-the-lynx-back-to-britain-aoe>
- Wilson, M. (1997) The wolf in Yellowstone: science, symbol, or politics? Deconstructing the conflict between environmentalism and wise use. *Society & Natural Resources*, 10, 453-468.
- Wilson, C.J. (2004) Could we live with reintroduced large carnivores in the UK? *Mammal Review*, 34, 211-232.
- Wolf, C.M., Garland Jr B.T. & Griffith, B. (1998) Predictors of avian and mammalian translocation success: reanalysis with phylogenetically independent contrasts. *Biological Conservation*, 86, 243-255.
- Zabala, A. (2014) Qmethod: a package to explore human perspectives using Q-Methodology. *R Journal*, 6, 163-173.
- Zabala, A., Sandbrook, C. & Mukherjee, N. (2018) When and how to use Q-Methodology to understand perspectives in conservation research. *Conservation Biology*, 32, 1185-1194.
- Zahl-Thanem, A., Burton, R.J.F., Blekesaune, A., Haugen, M.S., Ronningen, K. (2020) The impact of wolves on psychological distress among farmers in Norway. *Journal of Rural Studies*, 78, 1-11.

Ethics statement

The authors considered the ethical implications of participants engaging in what is seen by many to be a contentious conversation, and were aware of the potential for the Lynx to Scotland project to become a focal point of contentious discussion amongst stakeholders and the wider public. All contributors were assured that they would not be identifiable in reporting and published work and that they had a right to withdraw at any time prior to publication. Interviewees provided written consent, and Q-sort participants provided verbal, informed consent. Given that the discussion of potential lynx reintroduction is live, and likely to be further explored, the authors and project partners perceived that the opportunity to provide some illumination of the topic would be to the benefit of the discourse around lynx reintroduction, predator conservation and reintroductions more broadly.

Appendix

Full accounts of the five Q-Method Perspectives.

Lynx for Change

We are ready for lynx, and lynx is part of the change we need. 21.4% explained variance.

Twelve participants significantly loaded on **Lynx for Change**, representing sorts from a Countryside Ranger, Animal Welfare Campaigner, Rewilding Advocate, Environmental Justice Campaigner, Conservation Ecologist, Research Ecologist, Nature Reserve Manager, Woodland Manager, Policy Researcher, Conservation Practitioner, Outdoor Recreationist, and Estate Factor.

Perspective 1 supports reintroducing the lynx in Scotland (51, 5). It is perceived that the justifications provided by proponents are clear and congruent (42, -4), and that the conversation is necessary within a wider context of climate change and global biodiversity decline (52, 4). It is strongly felt that lynx reintroduction represents an opportunity to demonstrate a more enlightened relationship between society and nature (25, 5), transitioning away from a legacy of dominance and control (*'Reintroducing lynx is symbolic of asking for a degree of relinquishment of control.'*, Interview B). There is, however, neutrality over whether there is a moral imperative to reintroduce lynx, which is a distinguishing statement for **Lynx for Change** (*24, -1). Their neutrality contrasts the other four Perspectives' disagreement with the statement, and reflects **Lynx for Change's** perception that *'... moral decisions are inherently complex and shouldn't often be reduced to simple statements like this.'* (Animal Welfare Campaigner). **Lynx for Change** is also neutral over whether lynx reintroduction is perceived by some people as being part of a threatening environmental movement (22, 0); it is threatening for some people, but not everyone. **Lynx for Change** disagrees that lynx reintroduction is being driven by those who do not have to bear the costs (23, -2; *'It's planetary health. It's bigger than Scottish ecosystems, it's our role as a planet player*

and it affects us all.', Policy Researcher), and the assertion that people spend 'obsценely large amounts of money on individual species which are attractive' is rejected (26, -2; *'I agree that prioritising attractive and popular species can be problematic. In this case however, I don't think that is the dominant reason for most people who support reintroduction'*, Nature Reserve Manager).

Given that other countries with more dense human populations have large predators, Perspective 1 feels there is no reason why Scotland couldn't support lynx (18, 5). There is certainly sufficient habitat and connectivity for lynx (*17, -5), which is anticipated to increase over time (*'The timing for this is good because there is lot of woodland expansion going on.'*, Interview H). Lynx behaviour can be reasonably well predicted from European research, though it is recognised that the British context will need specific consideration, which mutes agreement with the statement (19, 1; *'We must be careful to ensure that that all relevant factors are considered when making comparisons'*, Animal Welfare Campaigner).

A defining theme for **Lynx for Change** is the ambition to transition towards more 'self-regulating' ecosystems (*16, -3; *'Personally, I am a big proponent of lynx and reintroductions, which are part of restoring self-regulating ecosystems.'*, Policy Researcher). The trophic interactions and processes associated with a top predator should facilitate the transition to, and maintenance of, increasingly self-regulating ecosystems (*'Fundamentally, at an ecological level, large predators are a vital part of any functional living system'*, Interview B). Lynx will restore trophic processes that are currently perceived to be absent in Scottish woodlands (14, 3; *'We need to encourage reinstatement of trophic processes instead of widespread predator control.'*, Rewilding Advocate), facilitating woodland restoration and contributing to more robust, sustainable woodland ecosystems (*15, 6), principally through their interactions with woodland deer (2, -3; *'Lynx could complement herbivore management.'*, Woodland Manager). This is perceived as necessary (*'Generally,*

we need a significant large scale reduction in deer across the landscape.’, Field Ecologist), and will be welcomed by some (though not all) land managers (1, 2). **Lynx for Change** perceives that predation of deer by lynx would constitute a more natural method of deer control, which will be more palatable for the public compared to culling by humans (*‘People will prefer that natural predation replaces human culling of deer.’*, Interview H). Although restoring trophic processes is important for **Lynx for Change**, lynx reintroduction is not perceived as a forerunner for the reintroduction of wolves (39, -4).

The risk from lynx to other protected species is felt to be tolerable; lynx are recognised as being capable of predating capercaillie and wildcat, but the occurrence would be very rare and of negligible significance to their conservation (11, -4; 12, -3; *‘I understand this would be a rare enough occurrence that it does not need to be taken into consideration.’*, Animal Welfare Campaigner). This is influenced by the perception that lynx could in fact benefit conservation efforts for species such as capercaillie by reducing predation pressure from smaller, more abundant predators (13, 1; *‘Intraguild predation – particularly of pine martens and foxes – might benefit capercaillie and black grouse.’*, Field Ecologist).

It is strongly agreed that lynx reintroduction would be positive for local economies, primarily through increased ecotourism opportunities (50, -6; *‘It’s not just about wildlife watching, but all kinds of nuanced products.’*, Interview B), and some estates will see lynx presence as an attractive marketing opportunity (46, 3). Lynx will engender the landscape with a sense of wildness, and although tourists might not actually see lynx, they will still be inspired to visit areas where lynx are present (48, 4). Lynx pose no threat to people (47, -6), nor to people’s pets (40, -5; *‘Like all wild animals, lynx avoid unnecessary conflict.’*, Research Ecologist).

Lynx for Change perceives the potential for some impact on field sports, though this is anticipated to be small (9, -1), and pertains to gamebirds reared within woodlands (*‘Impacts on pheasants in woodlands might be a barrier.’*, Field Ecologist). However, it is not thought that gamekeepers will perceive lynx as a major problem (10, -2), and weakly disagreed that landowners will find the presence of lynx as burdensome (45, -1). Illegal killing of reintroduced lynx is perceived to be a possibility, but unlikely, given that they would be closely monitored. However, predator persecution is generally thought to be

‘rampant and widespread’ (Countryside Ranger), and may be an issue for future generations of lynx which might not be as closely monitored; this results in an apparently neutral stance on the issue (35, 0).

Lynx for Change does not anticipate that lynx will have a significant impact on sheep and sheep farming (3, -4). They are neutral over whether lynx reintroduction contributes to a cumulative pressure on farmers (6, 0); this results from an awareness that farmers are indeed under multiple pressures, weighed against the belief that environmental reform, of which lynx reintroduction could be part, is necessary, and farmers need to play their part (*‘Environmentally, farming needs to step up to the plate.’*, Interview A). The risk to the sheep farming economy is perceived to be low. It is anticipated that over time there will be a reduction in the number of sheep in areas where lynx might be reintroduced, reducing the potential for conflict (*‘We are becoming more conscious of our environmental impact. We are eating less meat, and that’s the trajectory – there will be less sheep in potential conflict areas.’*, Policy Researcher). It is weakly disagreed that afforestation will increase the risk to sheep (8, -1). This is also linked to the anticipated reduction in the number of sheep in areas where forest expansion is a priority. It is perceived that sheep farming will become incorporated into a more holistic land management approach that will also include wildlife reintroduction objectives (*‘Upland sheep farming will diminish, and become part of an integrated land management approach.’*, Estate Factor).

Lynx for Change believes that farmers are capable of adapting to coexisting with lynx (5, -5). Farmers might consider livestock protection animals, but guardian animals, particularly dogs, are perceived as potentially dangerous to people (31, 1; *‘If guardian dogs are not properly trained and handled then they are dangerous.’*, Interview D). Fencing may protect sheep to some extent (29, 1), but the risk to sheep is thought to be low (*‘Lynx don’t predate sheep more than 400m from the forest edge, and almost none beyond 200m.’*, Interview D). **Lynx for Change** is aware of the potential emotional toll on farmers should they incur loss of livestock to predation (7, 2). But it was also expressed that there is an emotional consideration for those who feel that urgent, bold action is required to address biodiversity loss in Scotland, but that this is being stymied by powerful, conservative stakeholder interests defending unsustainable rural industries (*‘Nature is being suppressed in Scotland, it could be so much more.’*, Rewilding Advocate).

Lynx for Change perceives that the risk to the overall sheep farming economy is negligible. However, it is thought that some level of sheep predation is likely, and **Lynx for Change** agrees that an initial priority is to design a mitigation strategy, including a long term, sustainable compensation scheme (4, 4; 27, 2). This should be supported by ambitious and creative initiatives to facilitate coexistence, which could include a natural capital approach to support farmers and landowners who coexist with lynx (34, 3; *'I agree that there would have to be some way of compensating farmers' losses, but think we can and should remain open to different frameworks and possibly fresh ideas for achieving that.'*, Rewilding Advocate; 33, 3; *'If there is an agri-environment/ climate scheme in the future where you can say you are part of the lynx conservation scheme, which gets you extra points on your application, then that might help people.'*, Interview K). There is however an ethical consideration regarding the source of finance for a compensation/coexistence scheme should it be derived from private interests (28, -1; *'I am concerned about billionaire monopoly ownership and funding.'*, Policy Researcher).

The welfare of lynx is an important consideration for management objectives (*'This needs to be done with individual welfare prioritised.'*, Animal Rights Campaigner). Lethal control is not perceived as appropriate for reintroduced lynx (32, -2), but it *'... may be necessary as an absolute last resort.'* (Nature Reserve Manager). **Lynx for Change** is neutral over whether managing 'problem' wildlife can be unpopular with the public. This reflects the view that it can be, yes, but the terminology and framing of 'problem individuals' is itself problematic (*'I disagree with the premise of 'problem animals.'*, Environmental Justice Campaigner). There is weak agreement that potential problems associated with wildlife reintroductions can take time to emerge (37, 1); **Lynx for Change** recognises that unforeseen consequences have arisen from previous species reintroductions (legal and illicit) that have undermined the trust of some stakeholders in the reintroduction process (*'There were no farmers or gamekeepers on the steering group, which in hindsight was a mistake.'*, Interview J). There is neutrality over whether an exit strategy should be designed should lynx reintroduction go 'terribly wrong' (43, 0); this results from a feeling that developing an exit strategy is a responsible step, but that reversing lynx reintroduction once it has been undertaken would be ethically questionable and logistically challenging. It is not thought realistic that lynx could be illicitly reintroduced (36, -2).

Lynx for Change perceives that lack of information on lynx is a barrier currently (20, 2; *'Education is key.'*, Nature Reserve Manager), and the process of working towards a point where a just, informed decision can be made on whether to reintroduce lynx could take a long time (*'I think we're looking at generational timespans for lynx.'*, Estate Factor). However, **Lynx for Change** anticipates that a growing trend towards empowering local communities will improve the likelihood of lynx reintroduction (21, 4), whilst an increase in society's appetite and support for ecosystem restoration will influence political will. This trade-off in views result in neutrality on whether reintroduction of lynx within five years is possible (44, 0).

An inclusive process for exploring lynx reintroduction is important for **Lynx for Change**. There are long standing trust issues between stakeholders, associated with the perceived impacts and management of protected predators (38, 2; *'Crofters are on the edge with white-tailed eagles.'*, Woodland Manager, and *'We're a long way from tolerance for predators. There are entrenched attitudes from decades of mistrust.'*, Estate Factor). Whilst it is recognised that previous reintroductions have been contentious, **Lynx for Change** perceives that there is an opportunity to learn from these experiences and improve the process (49, -3; *'Conservationists should own up to the fact that in the past we've not done these things as well as we should have'*, Interview J). The establishment of a cross-sectoral working group to identify and address research priorities and work through conflicts is therefore a top priority (41, 6).

No to Lynx

There is no need for lynx, and we don't want them back. 18.5% explained variance.

Ten sorts significantly loaded on **No to Lynx** representing sorts from an Estate Manager, Uplands Scientist, Field Sports Representative, Rural Policy Advisor, Gamekeeper, Head Gamekeeper, Sheep Farmer, Estate Biodiversity Manager, Deer Manager, and Sheep Farming Representative.

Perspective 2 does not think lynx should be reintroduced to Scotland (51 -5), and reintroduction within five years is not possible (44, -6). The justifications provided by proponents of lynx reintroduction are understood, but thought to be weak or inappropriate (42, -1; *'There is a wide spectrum of what is feasible; there is too much*

speculation.’, Farmer B, and *‘The reality is that no one has put forward data to substantiate what the broader impact of lynx will be in woodland and upland ecosystems.’*, Interview L). The wider context of biodiversity decline does not justify aspirations for lynx reintroduction (52, -2), and it is disagreed that lynx reintroduction would be symbolic of developing of a ‘better relationship with nature’ than we have currently (25, -4). It is strongly disagreed that there is a moral imperative to reintroduce lynx (24, -6); it is in fact perceived as the opposite, where **No to Lynx** believes there is a moral imperative to protect rural livelihoods (*‘The local experience of the white-tailed eagle reintroduction was that there was a willingness to destroy people’s livelihoods, forcing them to leave or do something else. That was the stark reality for a lot of people.’*, Interview C). Lynx reintroduction is not perceived to be a gateway for the reintroduction of wolves (39, -2).

No to Lynx perceives that the ecosystem processes purportedly missing in the absence of a large carnivore are in fact managed and implemented by people (14, -4; *‘The lynx is hypothetical land management, whereas gamekeepers have a century’s worth of experience.’*, Interviewee A), and that aspirations for self-governing ecosystems are naïve (16, 4; *‘At some stage things get out of kilter and need management.’*, Estate Warden). It is not thought that lynx would contribute to healthier, multi-functioning woodlands (15, -2). In fact, the presence of lynx is anticipated to be burdensome for land managers, for whom estate management represents a complex balance of management interventions (45, 1; *‘We already have numerous schedule 1 protected birds and designated habitats to manage.’*, Estate Manager).

This perception that land managers will consider lynx presence as burdensome is linked to the strong feeling that gamebirds (particularly pheasants reared in woodlands), woodland grouse, and ground nesting birds will be threatened by lynx (9, -5; *‘They are not going to overlook an easy meal like the eggs of ground nesting birds.’*, Gamekeeper B, and *‘Pheasants are just in shelters, usually made of corrugated iron. There is no areal cover.’*, Uplands Scientist).

Though there might be sufficient habitat for lynx, human disturbance of wildlife in the Cairngorms is perceived as an issue (17, -1; *‘There is no peace and quiet in the Cairngorms. People are everywhere.’*, Gamekeeper), whilst limited inference can be made from European experience (19, 1). The environmental

context in Scotland, and the development of land uses during centuries of large carnivore absence, mean few comparisons can be made with other European countries that have top predators (18, -4). **No to Lynx** does not perceive that lynx *‘... are an at risk species’* (Farmer B), and that money would be better spent on extant species at risk (26, 4; *‘Better to look after what we have.’*, Field Sports Representative). Lynx reintroduction is anticipated to threaten and undermine the conservation of capercaillie (*Tetrao urogallus*) and wildcat (*Felis silvestris*) (11, 1 and *12, 2; *‘I’m not sure about trying to recover the wildcat and then bringing in lynx, which will threaten the wildcat.’*, Estate Warden). Although **No to Lynx** perceives that predation of capercaillie would be a rare occurrence, their population is too precariously small to absorb any additional mortality. Also, capercaillie conservation has received significant financial investment which would be jeopardised by lynx reintroduction (*‘There’s millions of public and private money going towards capercaillie.’*, Rural Policy Advisor). It is weakly agreed that lynx might kill some smaller predators, but unlikely that this will translate into a regulatory effect on their populations (13, 1).

The potential for lynx to provide an alternative method of deer control is rejected on the premise that that people are able to control deer numbers through culling, which is distinguishing for **No to Lynx** (*2, 5; *‘Deer are under control over vast tracts of land; they are effectively controlled here with five full time stalkers.’*, Gamekeeper A), whilst the assertion that there is a universal deer problem in Scotland is questioned (*‘I personally do not believe there is an issue with deer numbers.’*, Interview C). Predation of roe deer is not necessarily desirable, as it could potentially impact commercial stalking opportunities on some estates (*‘On this estate each roe deer is potentially worth £400 to us with our European clients.’*, Estate Warden), whilst deer might become more vigilant and wary in the presence of lynx, and therefore harder to stalk or control. These factors informs **No to Lynx**’s disagreement that land managers would be pleased to share their deer management responsibilities with lynx (1, -3; *‘Lynx will eat some roe deer, but not many. It will make the remaining deer harder to manage.’*, Sheep Farmer).

No to Lynx perceives that lynx would contribute to mounting pressure on gamekeepers and land managers (*10, 5; *‘What we don’t need in farming and gamekeeping is another pressure.’*, Interview A), who must deliver sporting results, conservation

outcomes, and produce food (*'We are under pressure to deliver as a results based sporting enterprise.'*, Estate Warden). A particular point of tension is with conservationists over the management of predators that are perceived to have increased in range and abundance by virtue of their protection, with consequent impacts on livestock, game, and wildlife (*'You used to be able to control these species – there was more balance then.'*, Gamekeeper A). **No to Lynx** feels vilified by environmental groups and the public over the lethal control of wildlife (30, 2; *'I don't want my ears ringing each time I have to shoot a fox.'*, Gamekeeper A, and *'Society needs to accept that day-to-day management of wildlife is a reality.'*, Interview K). This feeling of being unjustly vilified influences **No to Lynx's** view that lynx reintroduction is part of an environmental movement that challenges and threatens their culture and traditional ways of life, which is distinct and distinguishing for **No to Lynx** (*22, 2; *'You can see a situation here where there is no more production – we stop farming altogether – and turn the whole of the Scottish Highlands into a de-populated tourism destination with bears, wolves and wilderness.'*, Interviewee C). The purported ubiquity of illegal persecution of wildlife is questioned by **No to Lynx**, who do not think that illegal killing would be an issue for reintroduced lynx (*35, -3; *'Persecution is not as bad as it used to be. Estates are under pressure from public scrutiny.'*, Upland Researcher).

No to Lynx's feeling of being unfairly vilified by a burgeoning pro-environmental voice combines with their perception that conservationists have failed to competently resolve coexistence issues with protected species, and results in a feeling of distrust towards environmental groups (38, 4; *'Farmers are always told that x, y and z will happen. Then when there are problems, we're not listened to by the office dwellers in Edinburgh.'*, Farmer A, and *'There was a sense that for years people were reporting eagles predating lambs but just not being given any credibility.'*, Interview C). **No to Lynx's** perception of whether 'experience of previous reintroductions have not been helpful' appears neutral however (49, 0). This is a result of the statement structure – participants disagreed with the premise of the first half of the statement; *'... there's a bit of me that would really like to see this kind of wildlife in Scotland.'*, but agreed with the second half, that *'... our recent experience of reintroductions have not been helpful.'* Distrust of environmentalists, and the precedent set by illicitly released beavers, results in weak concern that if advocates of lynx

reintroduction become frustrated they might go ahead and release lynx anyway (36, 1). These factors all contribute to a sense of injustice around wildlife reintroductions which is a defining feature of **No to Lynx**. **No to Lynx** feels that reintroductions, and conservation objectives more generally, are imposed on local people by external agencies who do not have to bear the costs of their actions and who move on before any negative impacts become manifest (*23, 4; *37, 5). This feeling is strongly informed by the purportedly negative impacts of reintroduced white-tailed eagles on sheep farming on the west coast of Scotland (*'It was only after eagle numbers built up, when everybody had walked away from it, that they became a problem.'*, Interviewee F).

No to Lynx is concerned for lambs and sheep (3, 2), but more emphasis is given to the potential emotional toll on individual farmers that incur livestock loss to predation (7, 3; *'The issues go beyond livestock. It's not just the financial implications but the emotional impact.'*, Farmer A). The apparent neutrality on whether lynx will constitute part of a cumulative pressure on farmers reflects the perception that sheep farmers are indeed under multiple pressures, but that change is inevitable (6, 0; *'We're getting it from all angles.'*, Sheep Farming Representative; *'Some farmers have their heads in the sand. Change is coming.'*, Rural Policy Advisor). It is not thought that sheep can be adequately protected with fencing (29, -3), nor is fencing practical (*'The size of land holdings in Scotland doesn't allow for protective fencing.'*, Interview E), whilst it's thought unlikely that farmers would adopt livestock protection animals (31, -2; *'Farmers would be concerned over the cost, husbandry, and disease transmission risk of protection animals.'*, Interviewee F). There is weak disagreement that widespread afforestation will increase the risk to sheep (8, -1). Overall, it is not thought that farmers will be able to adapt to living alongside lynx, given that contemporary shepherding practices have developed over many human generations in the absence of any large carnivores (*5, 2; *'A major challenge is that we have not had to shepherd with large predators for literally hundreds of years.'*, Interviewee A).

No to Lynx believes that a mitigation of sheep predation should be devised at the earliest stage (4, 3). This should include a long term, sustainable mechanism of compensation (27, 3), but there is some concern over the source of this should it be privately funded (28, -1). Support for developing inventive coexistence measures appears neutral

due to a conflicted stance; it would be potentially desirable should lynx be reintroduced, but it would be preferable if they were not reintroduced in the first place (34, 0; *'There's always potential to support people coexisting with lynx.'*, Interviewee F, and *'It is really unfair to suggest supporting every shepherd to prevent a sporadic attack. Better not to have lynx.'*, Farmer B).

No to Lynx weakly disagrees that lynx could contribute to farm and estate economies through a natural capital set up (33, -1), and is neutral over whether some estates will see lynx presence as an attractive marketing bonus – some will, some won't, depending on their specific economy (*46, 0). There is neutrality on whether tourists will find the idea of lynx presence attractive – some tourists might, but the lynx's allure is limited by the likelihood that they will not be seen (48, 0). It is perceived, however, that local communities would probably benefit from lynx reintroduction (50, -3; *'If it's funded in the long term, with some sustainable mechanism of funding and adequate compensation, then I think part of the country would reap a benefit from lynx reintroduction.'*, Interviewee K). The lynx is not perceived as being a threat to people or their pets (47, -5; 40, -2).

No to Lynx agrees that there is a general lack of knowledge about lynx, but it is felt that even if more information was provided, there are too many assumptions and questionable inferences. This results in neutrality on whether a lack of information is a barrier (20, 0; *'The estate owners would be pretty negative. A lot of evidence would be required to change their opinion.'*, Estate Manager). The integrity of the information provided by proponents of lynx reintroduction, and a perceived disparity between the scientific information and local, experiential knowledge, is an issue for Factor 2 (*'We need a neutral source of information.'*, Gamekeeper B, and *'The certainty of scientific knowledge is questionable. The reality we experience is often different.'*, Farmer A). It is disagreed that community empowerment will make lynx reintroduction more likely (21, -4).

No to Lynx's lack of trust in the competency and accountability of environmental groups, and their perceptions of unresolved conflict associated with reintroduced and protected species, contributes to the perception that if lynx were to be reintroduced then development of an exit strategy should be a priority (*43, 6; *'The process would have to be*

step by step with regular appraisal. There would need to be thresholds so that lynx do not become a burden.', Deer Manager). It is strongly felt that lethal control must be included as a mitigation option (32, 6; *'We would need an effective policy in terms of culling or lethally controlling problem animals.'*, Estate Warden). Though lynx reintroduction is not supported, it is agreed that any process that continues to investigate feasibility should include the establishment of a working group with cross-sectoral representation, to direct research and work through conflicts (41, 3).

Scotland is not Ready

We support the conversation, but Scotland isn't ready. 10% explained variance.

Three sorts contribute to Scotland is not Ready, representing a Reintroduction Biologist, Community Woodlands Advocate, and Estate Owner.

Scotland is not Ready recognise the justifications provided by advocates of lynx reintroduction (42, -2). It is not thought however that lynx should be reintroduced to Scotland at this time (51, -3), and unlikely that reintroduction within five years is possible (44, -4; *'I think short time frames for lynx reintroduction are challenging.'*, interview E). There is neutrality on whether this conversation is appropriate and justifiable within a wider context of biodiversity decline (52, 0), and a moral basis for lynx reintroduction is rejected (24, -5). It is not necessarily perceived that lynx reintroduction will be symbolic of society developing a better relationship with nature (*25, -2).

There is some potential to infer how lynx might behave in Scotland from European experience (19, 2), but the landscape context in Scotland is not necessarily perceived as comparable with other European countries (*18, -1). The available habitat in the Cairngorms is not thought to be of sufficient quality compared to habitat across the lynx's European range (17, 3; *'The woodlands up here are single aged stands, which don't seem suitable.'*, Community Woodlands Advocate, and *'The habitat here is poorly connected compared to the extensive forests across their European range.'*, Ecologist), though the trajectory of afforestation will result in more suitable habitat in the future (*'In twenty years we will have the habitat to support lynx.'*, Interview J). **Scotland is not Ready** perceives that

there is a high level of human disturbance within the available habitat in the Cairngorms (*'There are horse riders, hikers, and bikers everywhere.'*, Community Woodlands Advocate, and *'The sad reality is we are too numerous, and we have too much appetite, to be able to have areas of wilderness.'*, Ecologist). It is not thought that people or their pets are at risk from lynx (47, -6; 40, -4).

The risk of persecution, and conflict around this, is a strong contributor to the perception that the environment is currently unsuitable for lynx (35, 5; *'Lynx would wander into hostile environments. There is co-ordinated persecution over hundreds of square kilometres'*, Ecologist, and *'I think there might be some flashpoints around illegal killing.'*, Interview A), as is the potential for conflict with farmers over sheep predation (*'Lynx reintroduction would make much more sense if there was more woodland and less sheep.'*, Estate Owner). The potential impact on other species also needs careful consideration (*'We need to assess the potential impact on capercaillie, blue hare, and grouse species.'*, Community Woodlands Advocate). It is not thought however that lynx will endanger capercaillie (11, -5), and weakly disagreed that they will negatively impact wildcats (12, -1; *'There's nothing borne out anywhere that would suggest there will be any problems between lynx and wildcats.'*, Ecologist). There is weak agreement that lynx may have a negative impact on smaller predators (13, 1). This could benefit wildcat conservation if lynx *'reduce the feral cat population'*, (Ecologist).

The appropriateness of deer control as an argument supporting lynx reintroduction is received neutrally (2, 0). Whilst predation of deer by lynx is desirable, deer are not perceived to be a problem everywhere (*'Yes there are deer problems, but not everywhere. Shooting moves the herds around.'*, Community Woodlands Advocate). The ambition to achieve entirely self-regulating ecosystems in a contemporary Scottish landscape is thought to be unrealistic (16, 5), and there is weak disagreement that the ecosystem processes associated with top predators are completely absent at the moment (*14, -1). This results from the perception that lynx might *'naturally'* contribute to healthier woodland ecosystems through their trophic interactions with other species (15, 2), but the Scottish landscape is perceived as being highly managed. **Scotland is not Ready** feels, however, that some landowners will be happy to share their deer management responsibilities with lynx (1, 3; *'We are all about a holistic approach on our estate, encouraging natural processes where we can.'*,

Estate Owner), particularly if they contribute to the sustainable management of productive woodlands (*'Woodlands need to be profitable – a woodland that pays is a woodland that stays.'*, Community Woodland Advocate).

Factor 3 disagrees that gamekeepers will perceive lynx as problematic (10, -3), and are neutral on whether lynx pose a threat to gamebirds (9, 0). There is concern that sheep predation will be an issue (3, 2), though there is weak disagreement that farmers suffer an emotional toll from stock predation (7, -1). It is not thought that fencing will be effective in reducing risk to sheep (29, -1), and farmers are unlikely to consider using livestock guardian animals (31, -1; *'... there are not the right breeds in the UK to protect livestock.'*, Community Woodlands Advocate). This also pertains to the perceived risk to people from guardian dogs in a landscape where the public have the right to access private land (*'... guard dogs would be problematic due to the ramblers' right to roam.'*, Community Woodlands Advocate). There is weak agreement that lynx would contribute to pressure on farmers (6, 1), but it is disagreed that farmers are unable to adapt to coexisting with a large carnivore (5, -4). **Scotland is not Ready** believes that farmers are able to adapt, and are indeed adapting, to meet emergent environmental objectives (*'On estates with tenant farms there are now pots of money to re-naturalise. So things are changing.'*, Estate Owner). It is strongly rejected that the risk to sheep will increase with widespread afforestation (8, -6), which **Scotland is not Ready** feels will reduce the potential for encounters between lynx and sheep (*'Lynxes will go into the open, but if they've got the option of going around through forest they'll do that.'*, Interview D). It is not perceived that lynx is part of a movement that threatens people's belief systems, ways of life, culture and heritage (22, -2).

Scotland is not Ready strongly agrees that lynx reintroduction will benefit local economies through ecotourism opportunities (50, -5), even if the lynx are never seen (48, 4), and some estates will see lynx presence as an attractive marketing opportunity (46, 4). Trade-offs between the anticipated threat to sheep, the heterogenous nature of the impacts from deer, and a perceived trajectory towards more holistic land management, result in neutrality on whether land-owners will perceive the presence of lynx as either burdensome or an opportunity (45, 0).

Scotland is not Ready perceives that a lack of trust between farmers, crofters and environmental

agencies is an issue (38, 4; *'Crofters feel disconnected from the larger NGOs.'*, Community Woodlands Advocate, and *'There is a mismatch, where the culturally confident – scientists, PhD students etc – try to talk to the culturally quiet, like your average west coast crofter.'*, Interview K). They also perceive tension between landowners with divergent management practices and objectives, namely traditionally managed sporting estates and estates that are increasingly adopting management principles associated with rewilding, which might prove an important contextual factor for lynx reintroduction (*'It needs to be framed as recovery – of a species, habitats, etc, – rather than rewilding'*, Ecologist).

Community buy in perceived to be 'essential' (Estate Owner), and community empowerment is anticipated to make lynx reintroduction more feasible (21, 4; *'It's been a feudal system in the Highlands, but the public are increasingly seeking more agency in how the land around them is run.'*, Ecologist). The potential for unintended consequences, and the perceived need for a significant investment of time in building up trust between stakeholders, requires that proponents of lynx reintroduction take a long-term perspective (Ecologist, *37, 3; *'Building up trust takes a considerable amount of time.'*, Interview E). **Scotland is not Ready** disagrees that 'obscenely large' sums of money are spent on species simply because they are attractive (26, -3), and also that the appetite for lynx reintroduction comes from those who are least likely to be affected (23, -3). There is weak concern that if the process is too slow, lynx enthusiasts might go ahead and release them regardless (36, 1), but it is not thought that lynx reintroduction is a step towards wolves (39, -4).

Experience of previous reintroductions, though sometimes problematic, are perceived by **Scotland is not Ready** to have been informative (49, -2), though **Scotland is not Ready** is neutral on whether a lack of information is a barrier currently (20, 0). It is strongly agreed that an ongoing process would need to be inclusive, and prioritise working through unresolved and emergent conflicts (41, 6). It is agreed that there would need to be a clear exit strategy (43, 3), and there should be an acceptance that sheep predation will occur, for which management should be devised at an early stage, (4, 5). This should include a sustainable mechanism for compensating loss of livestock (27, 2). Lynx presence could possibly contribute to a natural capital set up, adding value to farming (33, 1), which is in line with the anticipation of increased funding becoming available for

environmentally orientated outputs. **Scotland is not Ready** is neutral on whether private funding might be an issue (28, 0); there is perhaps opportunity, but it would have to be carefully thought out to ensure pragmatism and equitability (*'You could have a board with a farmer on it, forester, etc, who oversee the management of a sustainable fund – it's practical things like that which will show that proponents are willing to be pragmatic.'*, Interview J). xxx

Coexistence measures should be imaginative and proactive (34, 2). Lethal control, though not necessarily very palatable, would probably need to be included in a suite of mitigations (*32, 1; *'We had a licence to kill problematic beavers, which worked well in places.'*, Estate Owner, and *'Many conservationists accept that lethal control of wildlife is potentially legitimate.'*, Interview D). However, **Scotland is not Ready** anticipates that lethal control of lynx would be incredibly unpopular with the public (30, 6; *'The idea of a beautiful cat being lethally controlled will cause a public outcry.'*, Interview G), and public opposition to lethal control, based on the experience of the Tay beavers, is seen as a major barrier to developing mitigation (30, 6; *'The government understood that some beavers needed to be culled, but there was so much vitriol online from the public.'*, Estate Owner).

We are not Convinced

We are open to discussing lynx reintroduction, but it must be better justified. 7.1% explained variance.

Three sorts contribute to **We are not Convinced**, representing a Gamekeeper, Sporting Operations Manager (SOM), and Farmer (cattle and sheep).

We are not Convinced is conservative but open to discussing the potential for lynx reintroduction, and is neutral over the possibility that it could happen within five years (44, 0; 51, 1; *'In an ideal world, great.'*, and *'If we had the right reassurances, then maybe.'*, SOM). They are neutral over whether the objectives of what lynx advocates are trying to achieve are clearly understood by people (42, 0) – they are by some, but not everyone. The framing of lynx reintroduction within a wider context of climate change and biodiversity decline does not justify the conversation, whilst spending money on a lynx reintroduction is currently questionable (52, -4; 26, 2; *'The country is in turmoil. Is it right to invest money in a lynx reintroduction?'*, SOM). **We are not**

Convinced does not feel that lynx reintroduction will be symbolic of society developing a better relationship with nature (25, -4). It is felt that better justification for lynx reintroduction is required, whilst it must be demonstrable that there will be a clear biodiversity gain (*'There has to be a net environmental gain from lynx.'*, Interview A).

We are not Convinced feels that management of the environment by people is necessary and it is naïve to think otherwise (16, 3), whilst it is strongly rejected that the ecosystem processes associated with top predators are currently absent in Scotland (14, -6; *'We kill 30-40 feral cats a year – a lynx couldn't do that.'*, Gamekeeper). There may be suitable habitat for lynx in the Cairngorms (17, -2), but it is not thought that much inference on lynx behaviour can be made from European experience (19, -3); the Scottish landscape is perceived as being too different (18, -4; *'Scotland is over-populated and highly managed.'*, SOM, and *'It would be a UK lynx – different dispersal, breeding, and behavioural habits than European lynx.'*, Interview A).

A contribution to deer control is a reasonable component of the narrative advocating lynx reintroduction (2, -2). Deer are perceived as problematic for forestry and native woodland recovery (*'If we want to grow trees here, fencing is essential.'*, Gamekeeper), and there might therefore be some landowners who will be happy to share their deer management responsibilities with lynx (1, 1). However, **We are not Convinced** weakly disagrees that lynx might contribute to more sustainable woodland management; the relationship between lynx and woodland health has not been sufficiently substantiated (15, -1; *'The reality is that no one has put forward data to substantiate what the broader impact of lynx will be in woodland and upland ecosystems.'*, Interview L). This is also influenced by the anticipation that lynx will not stay where their impacts on deer are most desirable (*'Lynx might not stay where they are desirable, but migrate to patches with high densities of economically valuable deer.'*, Gamekeeper).

The presence of lynx in the landscape might make the area more attractive to tourists (48, 2), which would be seen as a marketing bonus for some estates (46, 2). Whether there will be an economic benefit to local communities is perceived neutrally, as tourism is felt to be a fickle economy (50, 0; *'I'm uncomfortable with this idea because the economic basis for it is tourism.'*, Interview C). Lynx are not perceived as

being a threat to people (47, -3), but there may be some small risk to people's pets (40, 1; *'Occasionally a lynx might feel threatened and bump off a domestic dog.'*, Interview D). It is strongly rejected that a conversation around lynx reintroduction is 'one step away from wolves' (39, -6).

We are not Convinced is concerned for sheep farming, and particularly for the potential emotional impact on farmers should sheep predation by lynx be an issue, which is defining for **We are not Convinced** (*7, 6; 3, 3; *'Sheep is a big issue. We would be concerned about sheep predation here.'*, Gamekeeper, and *'I am very concerned about the whole future of shepherding.'*, Interview A). **We are not Convinced** anticipates that widespread afforestation will increase the risk to sheep (8*, 3). This is a distinguishing statement for **We are not Convinced**, and is informed by their knowledge of the experiences of farmers in Norway (*'Small Norwegian farms that are near woodland can't keep their sheep outside anymore.'*, SOM). Disagreement with the statement *'Are farmers worried about one lamb? No, it's the cumulative pressure on farmers and crofters.'* is weakly disagreed with/neutral, due to agreement that farmers are under pressure, but also worry about individual animals (6, -1).

There is weak disagreement that farmers would be willing to try guardian animals (31, -1), whilst fencing is not thought practical in the Scottish context (29, -5; *'We're told about mitigation measures in Europe – like protective fencing and guardian dogs – but most of them are not practical in a Scottish context.'*, Interview M). However, farmers may be able and willing to adapt to living alongside lynx if they are supported to do so by society (5, -2; *'We could coexist with lynx. There are plenty of roe and red deer in the woodlands. Lynx could work well – we're practically giving venison away.'*, Farmer, and *'If shepherds can be shown that they are supported societally, they may be willing to change.'*, Interview A). **We are not Convinced** perceives, however, that a willingness to adapt will not be the view of most farmers (*'I am in the minority. Most people would share the view of my dad, who will dismiss it outright.'*, Farmer), and overall, it is not thought that there are many tangible benefits of lynx reintroduction for sheep farmers (*'If the pros and cons are laid out in black and white then there are not many pros for your average farmer.'*, Farmer).

Sheep farming is perceived to be intertwined with the economy of sporting estates, primarily through

vegetation management and tick mopping (*'If we lose the sheep we lose the grouse, and if we lose the grouse we lose the sheep.'*, Gamekeeper). Devising management and mitigation in anticipation of sheep predation is thus a priority (4, 5), and this should include a sustainable funding and compensation mechanism (27, 4; *'It would be a positive if funding for extra labour and training was provided.'*, Farmer). However, **We are not Convinced** does not think that lynx could form part of a natural capital set up for farms and estates (33, -2), and is neutral/weakly disagrees that coexistence measures need to be imaginative and proactive (34, -1).

The risk to sheep and the role of sheep in grouse moor management contributes to the perception that there is a strong threat to gamebirds and traditional sporting activities (9, -5). This also relates to **We are not Convinced**'s perception that rearing pheasants in woodlands is becoming increasingly difficult due to predation issues (*'Pheasant rearing in the woods is getting more difficult because of predators. If we have to keep them in longer there is increased risk of disease.'*, SOM), whilst it is perceived that lynx will endanger efforts to protect capercaillie (11, 3; *'We monitor capercaillie leks and nests and predation is the biggest problem.'*, Gamekeeper). **We are not Convinced** also perceives that the presence of lynx *'... might prevent the use of snares and hounds to control foxes, which is already difficult enough around capercaillie and black grouse'* (SOM). These potential complications around balancing the conservation requirements of protected species with sporting and production objectives contribute to the perception that estate owners and managers will feel the presence of lynx as a burden (*45, 4; *'There is a lot of concern on the estates.'*, SOM). **We are not Convinced** perceives it very unlikely that lynx will have any appreciable impact on smaller predators (13, -5), including wildcats (12, -4). It is weakly agreed that illegal killing of lynx could be an issue (35, 2), but generally it is not thought that gamekeepers will perceive the lynx as being a major problem (10, -3) – this is somewhat incongruent with **We are not Convinced**'s other statement responses.

We are not Convinced feels that there is strong potential for conflict should lynx be reintroduced without the right assurances and mitigations (*'There would be impacts on other land uses, and strong potential for conflict.'*, SOM), which has been their experience of previous reintroductions (49, 4). It is agreed that the appetite for lynx reintroduction comes from those who do not have to experience any of the

potentially negative impacts, which is distinguishing (*23, 2), and linked to rejection that there is a moral imperative to reintroduce lynx (24, -3).

Previous issues with reintroduced species, in addition to the long standing tension over the perception that protected predators are negatively impacting species of conservation concern, underpins a strong feeling that a lack of trust has built up between different groups in Scotland (38, 5; *'Pine marten predation of capercaillie broods is a problem. It's widely acknowledged, but no one wants to listen to us.'*, Gamekeeper, and *'In terms of emergent conflict because of this? The trenches were already dug.'*, Interview K). However, **We are not Convinced** does not perceive lynx reintroduction as being part of any wider environmental movement threatening people's culture and ways of life in the way that **No to Lynx** does (22, -2).

We are not Convinced's perception that there is significant potential for conflict, combined with the feeling that previous reintroduction efforts have not been equitable, results in strong support for the establishment of a cross-sectoral working group that integrates scientific and local knowledge to guide research, debate contested issues, and work through conflicts (41, 5; *'What worked well in Germany was that it was hunters talking to hunters about lynx; it wasn't seen as conservationists and academics telling people how to run their lives.'*, Interview E). **We are not Convinced** feels that such an approach needs to be slow and steady to build trust (*'If done, it needs to be a slow step-by-step approach. The issues need to be able to be addressed.'*, SOM). **We are not Convinced** is neutral over the assertion that problems do not arise straight away, but emerge beyond the typical lifespan of environmental projects (37, 0), and are not seriously concerned that lynx advocates, potentially frustrated by the necessary slowness of the process, could go ahead and illicitly release lynx (36, -1).

There is muted support for the development of an exit strategy, which is based around the perceived impracticality of reversing lynx reintroduction once it has been undertaken (43, 1; *'Once the genie is out of the bottle, it will be very hard to put back in.'*, Interview I). It is strongly felt that lethal control needs to be a mitigation option given the impracticality of other options (32, 6), which is perceived as potentially problematic, given the perception that the public are increasingly intolerant of the lethal management of wildlife (30, 4; *'In central Europe, everyone hunts, and knowledge of*

wildlife is strong. My concern here is that the public are increasingly ecologically illiterate, and don't understand why we have to control some wildlife.', Gamekeeper). This perception of the public's ecological illiteracy, balanced against the view that there is accessible information available on lynx, results in a neutral perception over whether lack of information is a barrier (20, 0; *'I have read X's book and done some of my own research.'*, Farmer).

Community empowerment will not necessarily increase the feasibility of lynx reintroduction, because though there might be an increase in the level of support for lynx reintroduction amongst the broader public, there will be concerns within potentially affected communities, particularly those that have a close relationship with farming and crofting (21, 0; *'Communities with affinity to farming, if they were more informed about the possible impact on sheep and domestic animals, would be concerned.'*, Interview L).

Lynx for Economy

We should reintroduce the lynx; it will be a boon for local economies. 6.3% explained variance.

Two sorts contribute to **Perspective 5**, representing a Public Servant and an Estate Manager.

Perspective 5 supports the reintroduction of lynx to Scotland (51, 4; *'I am very much in favour of native species reintroductions.'*, Public Servant, and *'Lynx are solitary, with minimal impact on people. At the broadest stroke, we have no negative views towards lynx.'*, Estate Manager) and believe it could be possible within five years (44, 2). It is agreed that reintroducing lynx would be symbolic of society developing a better relationship with nature (25, 4; *'We have lost so many species — why not redress this and reintroduce what species we can?'* Public Servant), though **Lynx for Economy** disagrees that there is a moral imperative to reintroduce lynx (24, -3).

Despite support for lynx reintroduction, there is strong agreement that obscenely large sums of money are spent on individual, attractive species (26, 6). This is directly informed by the situation concerning capercaillie where *'... there is a massive amount of money going into capercaillie, despite it looking terminal.'* (Public Servant). There is weak disagreement that the appetite for lynx reintroduction is from those who do not have the

bear the costs (23, -1), and weak agreement that the reintroduction of lynx is a necessary discussion to be having within the wider context of global biodiversity decline and climate change (52, 1).

The justifications provided by advocates for lynx reintroduction are understood and generally supported (2, -1; 42, -3), though there is concern that the habitat and landscape connectivity might not be optimal (17, 1). Reasonable inference of how lynx will behave can be made from experience in Europe (19, 2); accessing information from a trusted source with knowledge and experience of lynx in Europe has been important in informing the views of Factor 5 (*'We are informed by X, and respect X's solid scientific voice.'*, Estate Manager). A lack of information amongst people in Scotland more widely is perceived as an issue however (20, 4).

Lynx for Economy agrees that countries with more dense human populations than Scotland have large predators, so there is no reason why Scotland could not (18, 4). They perceive that lynx could restore a set of ecological processes which are currently absent (14, 3), contributing to the development and maintenance of healthy, multi-functional woodlands (15, 3; *'Just look at the positive changes from the wolf reintroduction in Yellowstone.'*, Public Servant). However, their support for restoring natural processes is traded off against a recognition that the Cairngorms landscape must be managed to deliver *'... multiple-uses.'* (Public Servant). This results in neutrality over whether it is a naïve ambition to move towards non-interventive ecosystems (16, 0). **Lynx for Economy** believes that deer are problematic for afforestation efforts (*'Commercial forests need to be cleared of deer and fenced to be viable.'* Estate Manager), but does not feel, however, that land managers will be happy to share their deer management responsibilities with lynx (1, -1; *'You won't get much enthusiasm from the stalkers.'*, Public Servant).

Lynx for Economy anticipates that lynx reintroduction would benefit local economies in the Cairngorms, primarily through ecotourism (50, -2; *'Tourism is the biggest industry in the Cairngorms. It would be an attraction to the area — if I saw one I would tell a thousand people.'*, Public Servant), though the fact that tourists will be unlikely to see lynx might limit their appeal (48, 1). In reference to the marketing potential of lynx, comparison is made with the branding of the Scottish wildcat in the Cairngorms (*'The Scottish wildcat has become an icon.'*, Public Servant). It is strongly rejected that people would find

walking in an area with lynx threatening (47, -6), and weakly disagreed that lynx are a threat to people's pets (40, -1).

Lynx for Economy perceives that estates and farms are '*... increasingly incorporating tourism into their businesses.*' (Public Servant), and some estates will certainly feel that lynx presence presents an attractive marketing opportunity (46, 5; '*This is not a billionaire owned estate. Sport, forestry and tourism all need to be in the mix. We offer 70,000 bed nights per year.*', Estate Manager). There is neutrality however over whether lynx could be part of a natural capital set up for farms and estates – **Lynx for Economy** perceives a potential for this, but has some concern that accommodating lynx might compromise other species and habitats which are also considered to constitute natural capital (33, 0; '*It would be a problem if the imposition of lynx's protected status and lynx-related management impacted existing management objectives and economies.*', Estate Manager). This is not anticipated to be a likely scenario however, and it is strongly disagreed that estates will find the presence of lynx burdensome, which is distinguishing for **Lynx for Economy** (*45, -6).

The threat to gamebirds and other traditional sporting activities is perceived to be minimal (9, 3), and gamekeepers are not likely to consider lynx as a problem (10, -5). **Lynx for Economy** does not perceive that lynx will threaten conservation efforts for capercaillie or wildcat (11, -4; 12, -4; '*We have hundreds of black cock and a few capercaillie – we're not worried about a conservation impact*', Estate Manager), but nor do they anticipate lynx having any impact on smaller predators (13, -5). It is perceived that there is a risk of illegal persecution of lynx (35, 3), which is informed by the illegal killing of beavers on the Tay catchment. This links to **Lynx for Economy's** strong agreement that previous reintroduction efforts have not been helpful (49, 6), and their concern that proponents of lynx reintroduction, if frustrated by slow progress, may illicitly release lynx (*36, 5). The perceived issues associated with management of previous reintroductions, and the illicit release of beavers on the river Tay, inform **Lynx for Economy's** perception that there is a level of mistrust between stakeholder groups in Scotland (38, 2).

Rewilding is perceived by **Lynx for Economy** to be growing in popularity in the Cairngorms, demonstrating a different way of managing land for estates, and representing a trajectory away from

traditional sporting management ('*If you look back twenty years, almost all the estates were sporting. Now it's many fewer.*', Public Servant, and '*There's some push back against it, but most people are reasonably comfortable with the way they are managing their land – they're not trying to reap a profit from it.*', Public Servant, in reference to an estate that is rewilding). There is weak disagreement that lynx reintroduction is perceived as a threatening part of this trajectory (22, -1), because the changes, which are felt to be positive, are perceived as already underway on privately owned land ('attitudes are changing', Public Servant, and '*It's about saying okay, we're prepared to have a large predator back and show we can work with nature rather than against it.*', Interview G).

Linked to this dynamic, where private enterprise is driving positive change, is the perception that the potential for private funding of lynx reintroduction is not an issue, which is distinguishing for **Lynx for Economy** (*28, 5). **Lynx for Economy** perceives that it is private investment in rewilding/ecosystem restoration, rather than community empowerment, that will make lynx reintroduction more feasible (21, -5; '*We're still playing with community empowerment.*', and '*X now owns a huge amount of land, but he's not trying to make a profit, he's restoring nature.*', Public Servant). Despite enthusiasm for wildlife reintroductions, **Lynx for Economy** does not perceive lynx as being 'one step away from wolves' (39, -4).

Lynx for Economy does not anticipate that predation of sheep will be a major issue (3, -4; '*I previously thought that lynx would have a massive impact on sheep, but changed my mind on watching some informative webinars.*', Estate Manager). Upland farming is perceived as a '*... precarious living*' (Public Servant), but **Lynx for Economy** disagrees that there is an emotional toll on farmers who suffer stock losses to predators (7, -2; '*It's a bitter reality that sheep health and husbandry is a problem*', Interview A). **Lynx for Economy** also disagrees that lynx reintroduction represents part of a cumulative pressure on farmers (6, -2), or that farmers cannot adapt to living alongside lynx (5, -4). Farmers are unlikely to consider using livestock guardian animals (31, -2), whilst response to the potential use of fencing as a mitigation option is neutral (29, 0). This is informed by **Lynx for Economy's** belief that there would be resistance to any additional fencing in the national park on aesthetic and access grounds ('*A lot of people would object to seeing predator-proof*

fencing going up around the Cairngorms.’, Public Servant).

Lynx for Economy does not agree that afforestation efforts in the Cairngorms will increase the risk to sheep (8, -3; *‘We keep sheep on the hills and open ground, and lynx will be in the forest – there is unlikely to be any interaction.’*, Interview G), whilst it is anticipated that many sheep farmers, if they are not already doing so, will move to beef production in the future, reducing the potential for conflict (*‘Many more farmers are farming beef now in the Cairngorms.’*, Public Servant). However, the Public Servant states that *‘Many of my farming constituents will not be supportive’*, and anticipates a broader division in support for lynx reintroduction along urban/rural lines (*‘We have a saying that the field votes one way, and houses vote the other.’*, Public Servant).

Lynx for Economy is neutral over whether it should be accepted that sheep predation will occur (4, 0), and management devised early on, whilst their agreement that a sustainable mechanism for compensation should be established is muted (27, 1). This reflects a trade-off for **Lynx for Economy** between the desirability for taking responsible action to equitably resolve issues of stock predation, should they occur, with their belief that sheep predation will not be a problem and is therefore not a priority. **Lynx for Economy** agrees that coexistence measures should be proactive and imaginative (34, 2), which is informed by their view that most upland farmers already supplement their incomes with non-farming activities and will thus be amenable to coexistence support (*‘Small farms can’t exist without extra income. Many are incorporating tourism.’*, Public Servant).

It is weakly agreed that a cross-sectoral group should be established to direct research and work through conflicts (41, 1). **Lynx for Economy** is neutral over whether *‘... problems with these things don’t always arise straight away and certainly don’t go away at the end of a project.’* (37, 0), and also neutral on whether an exit strategy should be devised (43, 0). The latter is influenced by the perceived failures of conservationists to adequately protect the Tay beaver population (*‘There was that disgusting carry on with the slaughter of beavers last year.’*, Public Servant), and **Lynx for Economy**’s perception that an exit strategy would include lethal control, which is felt sets the wrong tone for managing reintroductions (*‘There’s strong lobbying for a cull of white-tailed eagles at the moment; it sets a narrative that all reintroduced animals will eventually cause problems and need taking out.’*, Interview G). **Lynx for Economy** is

neutral over whether lethal management of problem wildlife is unpopular with the public (30, 0), which is plausibly linked to **Lynx for Economy**’s perception of a division of views between the urban and rural populace.



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