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# Application to Scottish Natural Heritage for the Trial Reintroduction of Lynx to Scotland

**Lynx UK Trust / Clifford Chance / University of Cumbria**

Prepared by: Darrell Smith (University of Cumbria) and Ian Convery (University of Cumbria)
Reviewed by: Paul O'Donoghue (Lynx UK Trust), Steve Piper (Lynx UK Trust), Adam Eagle (Clifford Chance), Erwin van Maanen (Rewilding Foundation), Chris White (AECOM)

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Photography by: Erwin van Maanen and Neville Buck.

Design and graphics by: Coffee Design.



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## Foreword from Dr Paul O'Donoghue

Scotland contains the most beautiful and wild natural landscapes in the United Kingdom, of which the Scottish public are justifiably proud. A highly controlled and scientific trial reintroduction of Eurasian lynx (*Lynx lynx*) (herein referred to as lynx) to a specifically selected wild area of Scotland is the first step in a process that could see the lynx return to the nation after 1300 years of absence – a vital part of Scotland's natural heritage.

This document represents the first stage in the consultation of the national stakeholders in a trial reintroduction of lynx to Scotland (the "Project"). The Project will bring millions of pounds of economic benefits to the Scottish economy, improve the health of natural environments in Scotland and, above all else, will be a symbol for the pride that the Scottish public have in their nation's wild places. We are keen to understand your thoughts as our proposals develop over the coming months.

We want to ensure that anyone who is affected by, or could affect, the Project will have the chance to find out more, to input their own knowledge, to influence the Project and to voice their views. That means your views count.

Our aim is to address your concerns through a genuine, open, transparent and, crucially, honest dialogue. This will allow us to identify any possible issues with the Project design and mutually agree on suitable options or mitigation of those concerns.

In this document and further areas of this consultation process, we outline our proposals for the Project and provide the opportunity for you to comment through questions relating to the elements of the Project which we believe will require our closest attention. In this way, we can identify where you like our ideas and where you feel there is room for improvement.

I am immensely pleased to have now reached the stage of formal stakeholder consultation and look forward to both receiving your responses to this document and discussing the Project with many of you over the coming months.

**Paul O'Donoghue, Lynx UK Trust**


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# Executive Summary

- The Lynx UK Trust is a not-for-profit community interest company currently looking to secure licences to trial the reintroduction (population restoration) of lynx to Scotland and England.

- This document sets out the details of the proposal for a controlled, scientific and monitored trial reintroduction of lynx to Scotland, which has been designed in line with national and international guidelines with the assistance and advice of Clifford Chance LLP.

- Information regarding the feasibility, benefits and opportunities, risks and impacts, and potential mitigation measures of a lynx reintroduction are summarised. The knowledge and experience gained from mainland European lynx reintroduction projects is also shared.

- National stakeholders views are sought on five specific areas:

1. **Pre-project desirability and feasibility;**
2. **Socio-economic and ecological considerations;**
3. **Location of trial sites;**
4. **Planning, preparation and release stages; and**
5. **Post-release activities**

- The involvement of stakeholders is considered an integral component of the process and will cover the key questions as to whether, as well as how, the project develops.

**Through this document and the associated consultation process an invitation is extended for stakeholders to actively participate in a transparent, accessible, unbiased and constructive process of discussion and collaboration**


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# 1. Introduction

## 1.1 The Lynx UK Trust C.I.C. (the "Trust")

The Trust is a not-for-profit community interest company looking to secure a licence to trial the reintroduction of lynx to Scotland.

The Trust's Project team is a multidisciplinary group which includes ecologists, veterinarians, public consultation experts, public policy experts, PR experts, media advisers, economists, forestry specialists and lawyers.

All of these team members are highly qualified experts in their fields and, as such, the Trust believes that it is perfectly placed to make an application for a licence to trial the reintroduction of lynx to Scotland.


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## 1.2 The Project

**We are planning a trial release of lynx into an as yet unselected site in Scotland for a period of five years (the "Project")**

Our aim is to conduct a highly regulated scientific trial studying the effects of lynx on Scottish environments. We intend to observe, measure and analyse the effects of lynx on various aspects of Scotland's social, economic and natural environments. The ultimate goal of the Project is to enable Scottish Natural Heritage and the Scottish Government to make a final decision as to the desirability of reintroducing lynx to the wild in Scotland on a permanent basis. If such a decision was taken, the trial reintroduction population of lynx would remain in the wild, acting as the founding population for later generations of lynx.

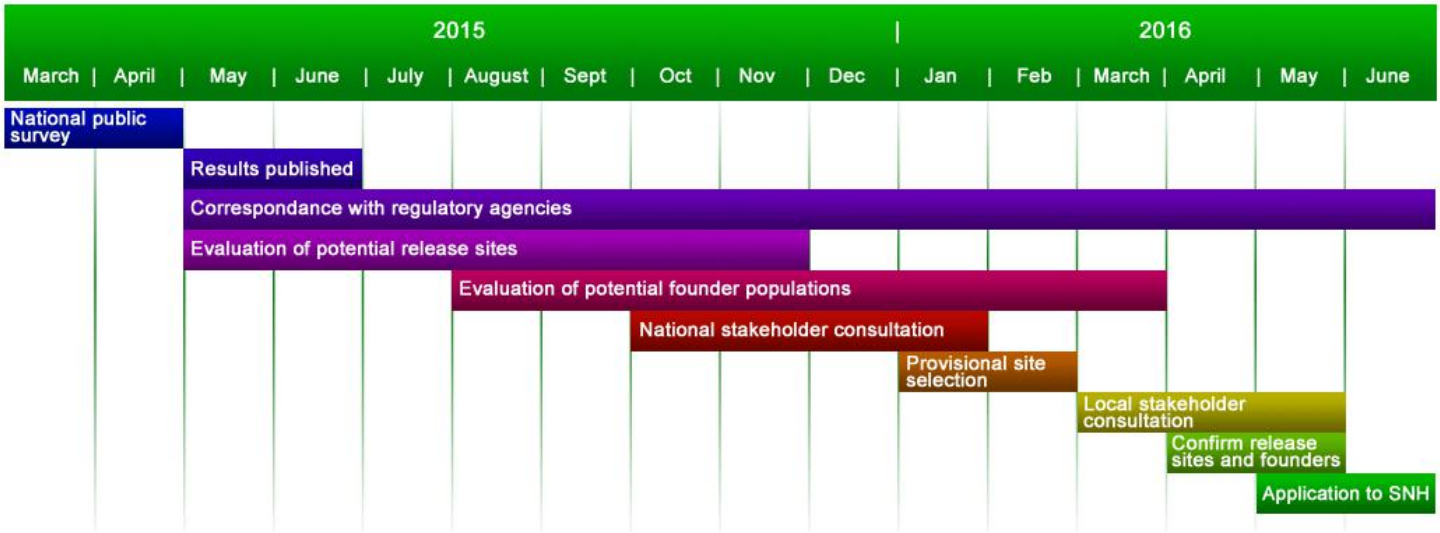


***Figure 1*** *Approximate timeline for the trial lynx reintroduction Project*

We believe that a lynx reintroduction would offer significant ecological benefits, representing the return of a missing keystone species, that has evolved to shape the natural ecology of the landscape to the benefit of native floral and faunal populations. Independent analysis of the monetary costs and benefits associated with the scheme has found a very strong economic case for reintroduction.

We also believe that a trial reintroduction would create little by way of adverse impact, any of which would be negligible in magnitude and easily mitigated. A trial


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reintroduction of lynx to the UK would also contribute to a significant improvement in the wider conservation status of the lynx within Europe, restoring a species which, but for man's interference, would not have become extinct in the UK.

## 1.3 Eurasian lynx (*Lynx lynx*)

The lynx, whilst being no larger than a medium sized dog (18-40 kg), is the largest European felid. It is a solitary species; females establish home ranges based on prey and habitat availability and males occupy areas in close proximity to females.

Lynx densities are typically 1-3 adults per 100 km² across Europe, although higher densities of up to 5/100 km² have been reported from Eastern Europe and parts of Russia. A typical male home range encompasses up to three females. However, the natural population density of lynx varies according to prey abundance and is also limited by the territoriality of individuals. Given the extremely high deer densities found in the UK, we fully expect that the selected UK sites could support lynx at the higher density levels mentioned above.

**Small ungulate species are their most important prey item, with roe deer (*Capreolus capreolus*) the most significant**

Despite occurring across a wide range of elevations and topographies, forest cover is a constant component of lynx habitat throughout its distribution. In Europe, lynx use woodland and scrub as they move through the landscape and are rarely found more than 400–500 metres away from such cover.

**Lynx are benign toward humans and usually shy away from people, avoiding any interaction**

Simply put, the most favourable habitat for lynx consists of large forests that support stable populations of small ungulates.

Once widely distributed, the lynx has suffered a serious decline in numbers throughout Europe from the Middle Ages through to the second half of the previous


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century. Fig 2 shows the current range of the lynx in Europe, which historically would have covered the majority of mainland Europe and the UK. The two primary causes of this decline were deforestation and hunting. It is likely that deforestation, whilst reducing habitat, also acted to fragment and make forests more accessible, thus facilitating hunting of the remaining lynx.

On the European mainland the fragmented lynx population has been able to recover slowly in western parts of Europe of its own accord since the 1970s; for example in some areas of Germany, France and Switzerland. Here the lynx is profiting from rural depopulation, reforestation and recovery of ungulate populations. In other parts the species' return has been facilitated by successful active reintroduction projects, conducted in order to create and consolidate source populations.

**The lynx's return to the UK, and Scotland in particular, has been regularly discussed in recent years**

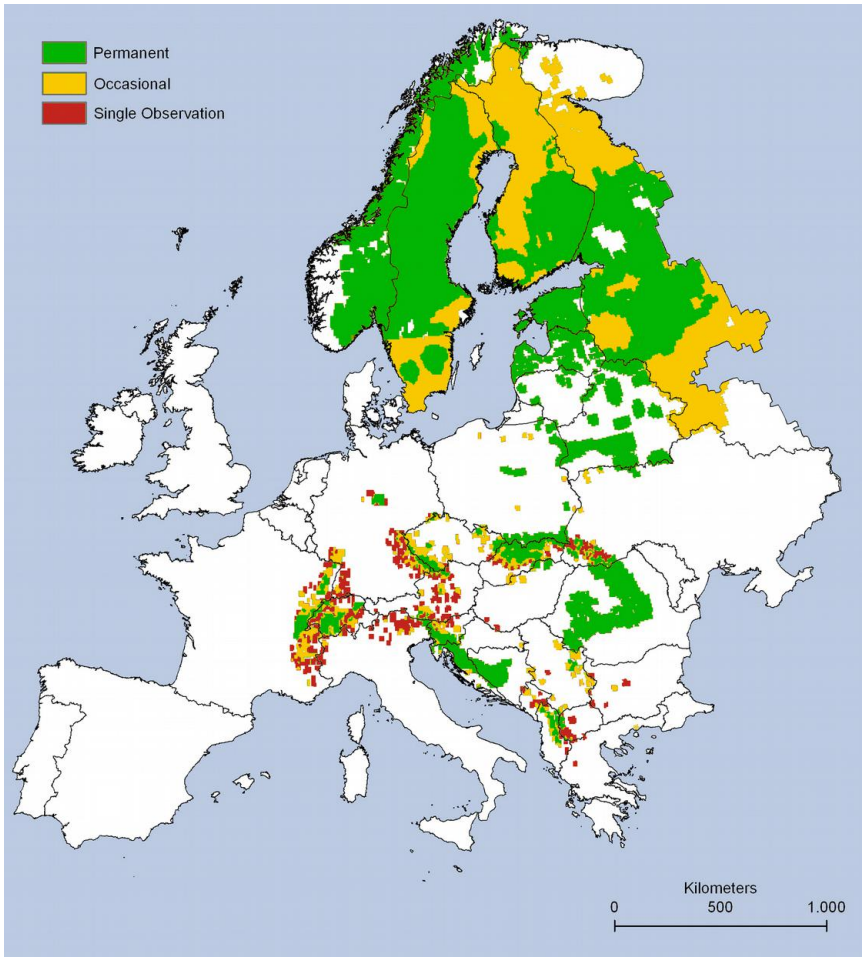


***Figure 2*** *Current European range of Eurasian lynx (Source: EC)*


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## 1.4 The process for approval

Driven by European and, in particular, national targets such as the 2020 Challenge for Scotland's Biodiversity and the UK Post-2010 Biodiversity Framework, the past decade has seen a progressive change in the way Scottish biodiversity has been managed when compared to previous decades. Core protected sites are now increasingly in a healthy state and restoration of natural processes is becoming prevalent in wildlife management policy. Landscape management with a wider environmental focus, securing both short-term restoration targets and long-term management aspirations, has built the foundations of a framework that will support the recovery of a species that has evolved to shape the natural ecology of the landscape.

The Wildlife and Countryside Act 1981 (the "Act") provides the primary legal framework for the reintroduction of species of animal which used to be present in Scotland. The Act provides for a licensing regime under which Scottish Natural Heritage ("SNH") is the licensing authority.

In conjunction with the National Species Reintroduction Forum, SNH has published the Scottish Code and Best Practice Guidelines for Conservation Translocations (the "Translocation Code") in order to provide guidance on what must occur before a licence will be issued to reintroduce a species of animal to the wild in Scotland. With the assistance of advice and guidance of Clifford Chance LLP, we have used the Translocation Code to design the Project and to assist us with developing our proposals whilst undertaking the necessary work prior to submission of an application for a licence. The key steps that we have taken, or will take, include:

- **An initial appraisal of the appropriateness of a reintroduction;**
- **A full feasibility study;**
- **Risk, benefit and impact assessments;**
- **National and local stakeholder consultation and engagement; and**
- **The design of a comprehensive Project plan**

**Do you have any initial comments with regards to the proposed Project?**


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## 1.5 The consultation process

### 1.5.1 The need for consultation

In their role as the licensing authority under the Act, SNH has published the Translocation Code which requires any licence applicant to have conducted a stakeholder consultation appropriate to the scale and nature of their proposal.

As we intend to apply for a licence to reintroduce lynx into the wild for a period of five years and accept that this is a significant step for both conservation and ecological science in Scotland, we intend to conduct a stakeholder consultation exercise on a proportionate scale. This document represents the beginning of the extensive, transparent and fully inclusive process of stakeholder consultation and engagement.

**The term "stakeholder" includes individuals or groups/organisations who live in, work in or enjoy the Scottish countryside or who might otherwise be affected by, or affect, the Project and its future success**

### 1.5.2 The purpose of consultation

The three key purposes of this stakeholder consultation process are:

1. **to allow us to understand how stakeholders view the Project;**
2. **to educate stakeholders and the wider public on the feasibility, benefits, risks and design of the Project; and**
3. **to agree with stakeholders on the most suitable route forward in planning, designing and executing the Project**

With these purposes in mind the consultation will assist SNH in progressing towards an informed decision on licensing the Project and enable the Project to be designed in a way to which stakeholders have contributed and consented.

### 1.5.3 Achieving the purposes of consultation

In order to achieve the purposes mentioned above, we shall ensure that all stakeholders will have the chance to find out more, to input their own knowledge, to


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influence the Project and to voice their views. As the first step in this process, this document asks a series of questions relating to our Project, in order to discover stakeholder groups' initial thoughts on the ideas and issues discussed within. All responses to this document by stakeholder groups at the national level will be reviewed to identify the key areas of concern requiring more detailed discussions with the stakeholders concerned and, wherever possible, to begin the process of accounting for specific concerns in the Project design itself.

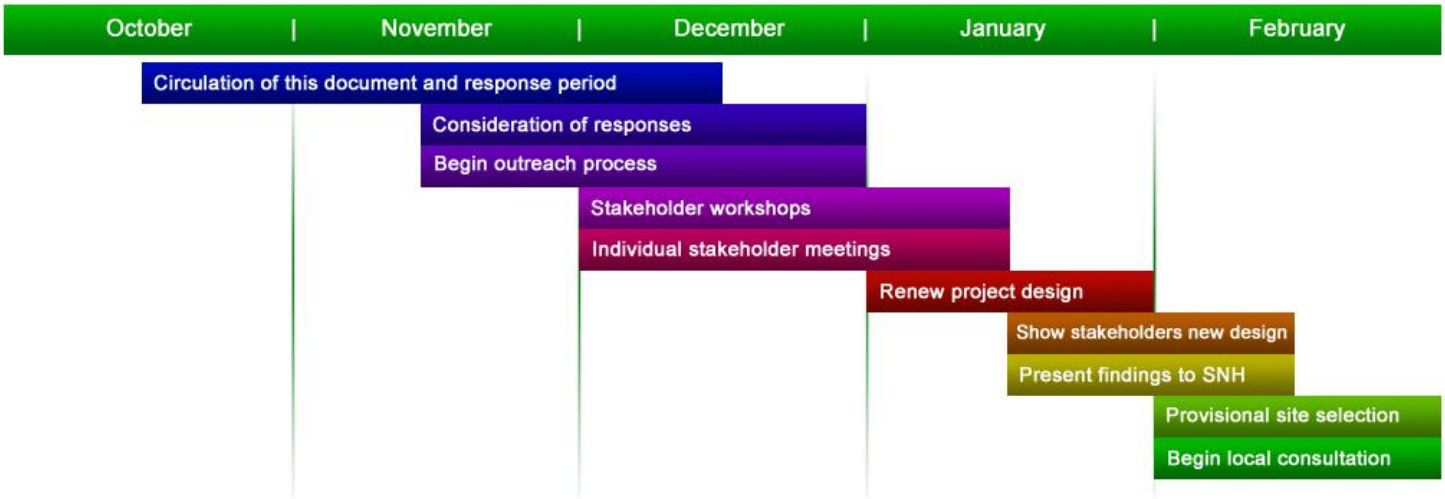


***Figure 3*** *Approximate timeline for national stakeholder consultation process*

After the initial issue of this document to stakeholders, the consultation process will be broadly structured as described in fig 3, and will include:

- **A press release to alert stakeholders to the consultation taking place;**
- **A six week initial period in which responses to this document will be accepted;**
- **Analysis of stakeholder responses to this document;**
- **Stakeholder workshop events to engage on issues which have been deemed to require a more detailed discussion;**
- **Meetings with individual stakeholder group representatives; and**
- **Any further action that is necessary to meet our steps for the resolution of stakeholder concerns (please see section 1.5.4)**


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Once the above process has been completed, the resulting inclusion of stakeholder thoughts, opinions and feedback in an updated Project design will allow us to select the most appropriate site for the Project and therefore move on to the next stage of the consultation process. This will involve a comprehensive process of consultation and engagement with stakeholders and the general public in the selected release area.

At a later date, we expect that all responses to this document and further consultation activities will be brought together and made freely available as a part of the licence application process, providing the evidence base for on-going discussion.

**From this foundation, collaboration with stakeholder representative groups will continue throughout all stages of the Project to gauge any change in opinion and respond appropriately to new concerns**

### 1.5.4 Addressing specific concerns

This document and further consultation activities will seek to address any concerns through a genuine two-way dialogue. As such, wherever we identify a key area of stakeholder concern at any point in the consultation process described at section 1.5.3, we intend to use the following steps to resolve the matter. We will:

- **Provide open, accessible and unbiased evidence that indicates whether any impacts are likely to fall within acceptable bounds;**
- **Identify suitable mutually agreeable Project design options and mitigation strategies for any possible negative impacts;**
- **Develop a working agreement and business model that enables impacted stakeholders to be the recipients of benefits arising from the Project; and**
- **Highlight our acceptance of responsibility and liability for particular possible negative consequences, based on adequate and stable funding that enables all necessary management and compensatory arrangements**


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If a concern still cannot be resolved after the above steps have been taken, and the stakeholder remains unsatisfied with the Project design and proposals, we will adopt the procedure outlined in the Translocation Code which involves escalation of outstanding issues to SNH and the National Species Reintroduction Forum.

### 1.5.5 What happens after I have read the consultation document?

This consultation document is the first step in the process - it provides detailed information about the proposal to stakeholders and primarily asks the sole authorised representatives of national stakeholder groups from whom we have requested responses to convey their views to the Project team in order to move on to the next stages of consultation. It should be noted that we are requesting separate responses to this document and the equivalent document for the English project, for administrative and legal reasons.

As an aid to those who wish to contribute to this consultation process, we have included question prompts throughout the document. Through these key questions we aim to develop conversation and discussion focused on five specific areas:

1. **Pre-Project desirability and feasibility;**
2. **Socio-economic and ecological considerations;**
3. **Location of trial sites;**
4. **Planning, preparation and release stages; and**
5. **Post-release activities**

Responses to this consultation document must be received by the consultation team by **9th December 2015**, unless the stakeholder concerned highlights extenuating circumstances which mean that a response is not possible within this period. Information on how to respond to this document is provided in section 7.

If you believe that a national group, association, or collective which you represent or of which you are a member should have been given the opportunity to comment on this document, but has not been given such an opportunity, please notify us at **consultation@lynxuk.org** (for a list of groups contacted in relation to this stage of consultation, please see our website at **www.lynxuk.org/consultation**).


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More appropriate opportunities for individuals and localised groups to comment will come at a later stage, once a release area has been provisionally selected and the local stakeholder consultation process has begun. However, we will endeavour to consider responses from anyone who takes the time to reply to this document.

### 1.5.6 Consultation materials

There are three types of documents that are, or will shortly be, publicly available as a part of this consultation. Each of these documents provides a different level of detail on the Project or elements of the Project and may be used to guide responses to this consultation document. These are:

1. **The high-level overview – this provides an overview of the Project outlining the likely benefits and risks to UK environments, but with little specific detail;**

2. **The consultation document – this document provides significant detail as to what the Project is likely to look like, the likely benefits and risks to Scottish environments, significant underlying data, full scientific references and offers the opportunity to participate in the consultation process and thereby the Project design process; and**

3. **Various technical reports – these reports are technical documents that have been commissioned by the Trust in order to create this consultation document and develop the foundations of our licence application, these currently include:**

- **A cost benefit analysis;**
- **A cost benefit analysis addendum; and**
- **A UK initial consultation analysis**

**Do you have any comments about the way in which this national consultation is being carried out?**


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## 2. The appropriateness of reintroduction

The following section addresses the question of whether a reintroduction of lynx is, on the face of it, an appropriate thing to do in Scotland and, as such, whether it is worth pursuing the Project in further detail.

It concludes that, due to the history of Scotland, the likely benefits and minimal risks of the Project, public sentiment towards the idea and the legal obligations to which Scotland and the UK are bound, it would be appropriate to proceed with the Project in Scotland.

This is subject to the further analysis provided in the following sections on Feasibility (Section 3), Benefits and Risks (Section 4), and Project execution (Sections 5 and 6) as well as to the stakeholder consultation process of which this document is the beginning.


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## 2.1 The case for reintroduction

In response to European and, more specifically, national targets such as the 2020 Challenge for Scotland's Biodiversity and the UK Post-2010 Biodiversity Framework, the past decade has seen a massive change in public and political attitudes to conservation and the manner in which UK biodiversity is being managed.

Many designated sites are now described as being in a favourable condition, and this positive attitude towards ecologically sustainable landscape management is increasingly prevalent across the wider environment. Linked to progressive agri-environment policies, this approach is securing short-term restoration targets and long-term management aspirations, providing the framework for the recovery of lynx.

The consequences of past fragmentation, isolation and species declines have left a legacy of species gaps across the ecosystems our landscape supports.

**Lynx in the Scottish landscape would represent a return of these missing species, which are integral to the ecological health of our environment and are a key part of Scotland's heritage**

The reintroduction of the lynx offers significant ecological benefits to local populations and to the Scottish people, whilst posing few risks, all of which are negligible or easily mitigated.

Independent analysis of the monetary costs and benefits associated with the scheme has found a very strong economic case for reintroduction. Indeed, the monetary benefits from the expected reductions in deer populations alone are likely to far outweigh the likely costs, even before taking into account potential revenue from recreation and tourism.

Furthermore, independent surveys of public opinion have demonstrated that an overwhelming majority of the population (91%) would be in favour of lynx being reintroduced to the UK (Fig 4).


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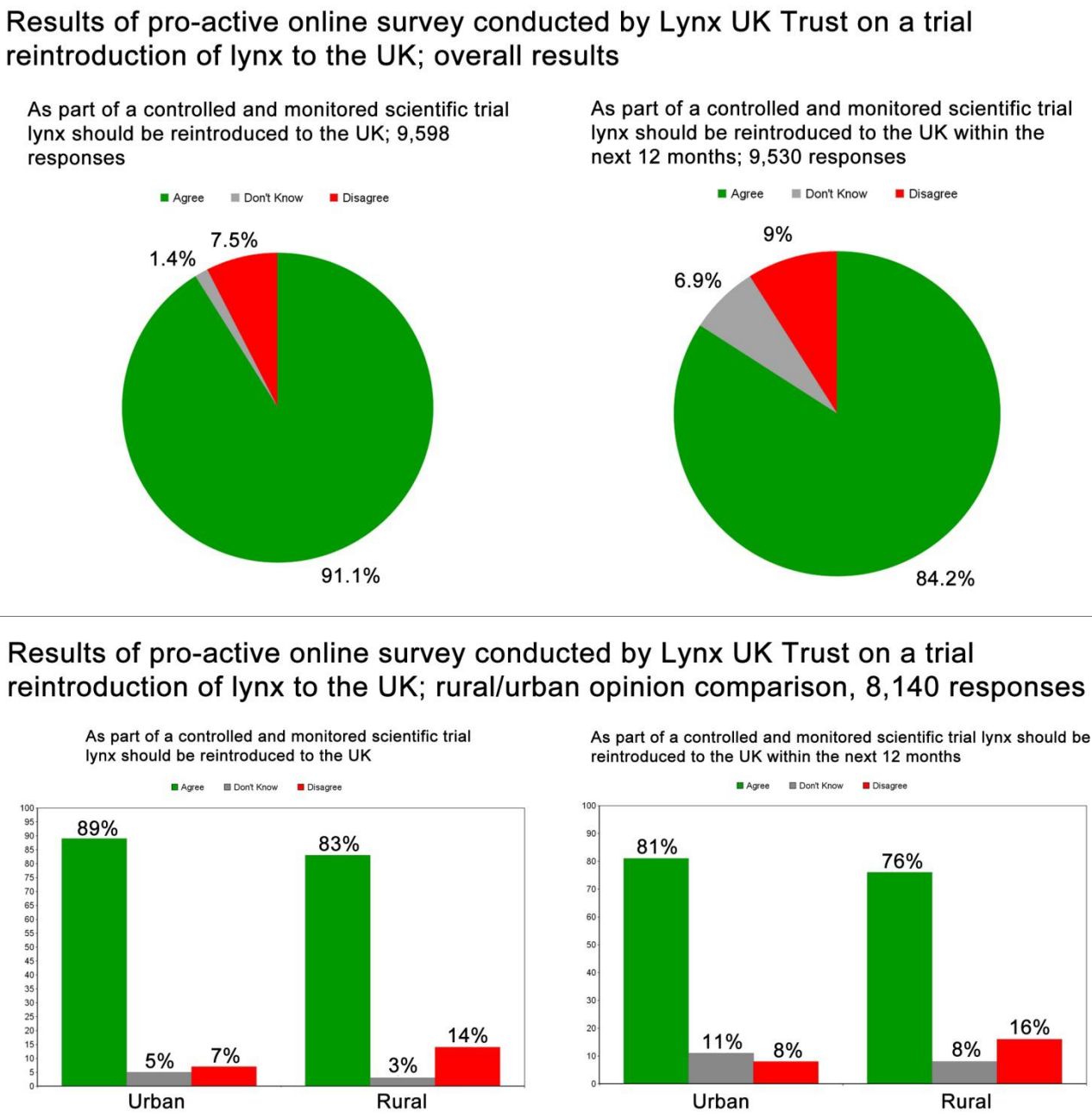


***Figure 4*** *Breakdown of pro-active voice responses to the proposal for a controlled and monitored scientific trial lynx reintroduction to the UK*

This level of public support has attracted an unprecedented level of media attention for a conservation project.

A trial reintroduction of lynx to the UK would also contribute to a significant improvement in the wider conservation status of the lynx within Europe, restoring a species which, but for man's interference, would not have become extinct in the UK.


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The above, combined with the compelling moral and legal arguments in favour of the UK reintroducing lynx, demonstrates that it is appropriate and worthwhile to consider the proposed Project in greater detail.

## 2.2 Lynx in the UK

The remains of lynx have been found in limestone caves throughout the UK, from Dorset to the Scottish Highlands, demonstrating that they once had a widespread distribution across the UK. Carbon dating of these remains further shows that the species survived in North Yorkshire until at least the 6th century AD, whilst cultural evidence suggests that the species was still being hunted during the 7th century AD. Human activities, primarily deforestation, hunting and trapping, led to the extinction of the lynx in the UK.

One of the primary concerns outlined in the Translocation Code is that the original causes of a species' extinction should no longer be present if it is to be considered as appropriate for reintroduction. In the case of the lynx in Scotland and the UK, we believe this criterion is met for the following reasons:

- **The UK witnessed a large-scale process of afforestation during the 20th century which has led to significant expansion of prey species populations and, in particular, woodland deer populations;**
- **Habitat assessment and connectivity analyses provide conclusive evidence that there is now sufficient habitat in the UK for a viable population of lynx to be sustained;**
- **The fur trade in the UK no longer poses a threat to species of wild animal; and**
- **Scotland and the UK have a strong tradition of well regulated hunting, with strict laws in place to control and prohibit hunting where it is deemed undesirable (e.g. those prohibitions under the Wildlife and Countryside Act 1981, the Wild Mammals (Scotland) Act 2002 and the Wild Mammals (Protection) Act 1996, amongst others)**

As such, Scotland now provides plentiful habitat and an appropriate environment for the successful establishment and maintenance of lynx populations in the UK. Multiple


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reintroduction projects on the European mainland have experienced great success in comparable scenarios to that in Scotland and have also demonstrated the many benefits associated with such a project.

## 2.3 International reintroduction law

There are three key articles within international law which are relevant to species reintroductions in the UK and which contribute to the case for the appropriateness of the proposed Project:

- **Article 22(a) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive") under EU Law;**
- **Article 11(2) of the Convention on the conservation of European wildlife and natural habitats (the "Bern Convention") 1979; and**
- **Article 9 of the Convention on Biological Diversity 1992**

Article 22(a) requires that in implementing the provisions of the Habitats Directive, Member States shall "...*study the desirability of re-introducing species in Annex IV that are native to their territory where this might contribute to their conservation, provided that an investigation, also taking into account experience in other Member States or elsewhere, has established that such re-introduction contributes effectively to re-establishing these species at a favourable conservation status and that it takes place only after proper consultation of the public concerned.*"

Article 11 (2) requires that "*each contracting party... encourage the reintroduction of native species of wild flora and fauna when this would contribute to the conservation of an endangered species, provided that a study is first made in the light of the experiences of other Contracting Parties to establish that such reintroduction would be effective and acceptable*".

Article 9 requires that "*each contracting party shall… adopt measures for the recovery and rehabilitation of threatened species and for their reintroduction into their natural habitats under appropriate conditions*".


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Both Articles 9 and 11 create international law obligations in relation to the reintroduction of species, under treaties to which the UK is a party. Any trial reintroduction of the lynx to Scotland and any subsequent approval of a licence to establish a viable population of lynx would assist the UK in meeting its obligations under these articles.

In relation to Article 22(a), the obligation is to study the "desirability" of reintroduction. In order for SNH to come to a decision as to the desirability of a full reintroduction of lynx to Scotland, the Trust appreciates that a comprehensive and wide ranging study of all the possible effects of such a reintroduction must take place.

**An application for a licence by the Trust will be an application for a licence to produce and gather the necessary raw data required for a full and comprehensive study of desirability and feasibility; it is an application for a trial**

**Only once the trial comes to an end, and data is available on all factors which might go to the question of desirability and feasibility, will the Trust apply for a licence to establish a viable population of lynx in Scotland for the long-term**

Therefore, granting this initial licence will assist the Scottish Government in meeting its obligations under Article 22(a).

**Do you have any comments about the appropriateness of the Project?**


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## 3. Feasibility and design

This section provides answers to the questions of whether the Project would be possible, practical and reasonable to execute in Scotland (i.e. whether it is feasible), looking particularly at ecological, economic and social factors.

The section provides evidence that the Project is highly likely to be feasible in all three areas, with the caveat that social feasibility will be assessed after the conclusion of the national and local stakeholder consultation and engagement processes.


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## 3.1 Ecological feasibility

### 3.1.1 Basic ecological knowledge

Lynx densities are typically 1-3 adults per 100 km² across Europe, although higher densities of up to 5/100 km² have been reported from Eastern Europe and parts of Russia. A typical male home range encompasses up to three females. However, the natural population density of lynx varies according to prey abundance and is also limited by the territoriality of individuals. Given the extremely high deer densities found in the UK, we fully expect that the selected UK sites could support lynx at the higher density levels mentioned above.

Small ungulates are their most important prey item, and, when present, roe deer are the most significant prey item. As roe deer are found in both coniferous and broadleaf woodland, as well as in open areas near to the woodland edge, wooded habitats provide lynx with an important food resource and also the cover with which to ambush their prey.

On rare occasions lynx do take livestock up to the size of a sheep, but this behaviour is mainly observed in areas where livestock are herded within forests.

Despite occurring across a wide spectrum of elevations and topographies, forest cover is a constant component of lynx habitat throughout the species' range in Europe, although in areas where suitable prey is abundant, but where forest is less extensive or continuous, they make use of alternative cover and structures such as wood fall, dense scrub or coppices and rocky terrain.

Juvenile lynx disperse from their mother's home range at around 10 months old, often travelling to establish a territory. However compared with wolves, for example, lynx are relatively low dispersers. Dispersal distance depends on the individual tendency, population density and turnover, gender, and landscape features. In the Harz Mountains, for example, the largest dispersal distance of a monitored radio-collared lynx, so far, is just over 100 kilometres.

Males tend to disperse further from their birthplace than females, which need smaller territories. The success of dispersal is determined by suitable habitat in the wider


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area, but dispersal can be constrained by barriers, such as busy highways. Young lynx may linger in the margin of unoccupied territory or near their birthplace for a while, but avoiding residential areas.

### 3.1.2 Habitat

The amount of forest within a typical lynx home range varies across Europe, but habitat always involves a certain amount of forest cover. For example, in Bialowieza Forest, Poland, where there are large areas of contiguous forest, lynx almost exclusively use wooded habitats.

Elsewhere, lynx can exist in a heterogeneous landscape where woodland is more fragmented, similar to that found in France (Jura), Germany and Switzerland. The lowest proportion of woodland and scrub cover identified within a Swiss Alpine lynx home range was 38%, although forest always tended to be the most intensively used part of the home range, while open areas, such as meadows and pasture, were much less used despite being the dominant habitat by area. In the more densely wooded Jura Mountains, at least 60% of an average adult lynx's home range is wooded.

Lynx tend to use woodland and scrub corridors as they move across the landscape and are rarely more than 400–500 metres away from such cover.

They have also been recorded swimming up to 30 metres across rivers and 200 metres across lakes, suggesting that small water features do not necessarily act as barriers to dispersal.

**Lynx exert their key ecological role by limiting populations of ungulates up to the size of juvenile red deer (*Cervus elaphus*). As a key driver in the renewed landscape they will disperse browsers over a larger area, reducing concentrated damage to young trees which are then better able to grow, supporting the forest regeneration process**


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Smaller carnivores like foxes (*Vulpes vulpes*) which oppress other species such as the pine marten (*Martes martes*), have less of an impact in the presence of lynx. Lynx also contribute significantly in the provision of carcasses, beneficial as a protein source for a wide range of scavengers, including ravens (*Corvus corax*), raptors and mustelids, such as weasel (*Mustela nivalis*), stoat (*Mustela erminea*), polecat (*Mustela putorius*) and pine marten. All of which contribute to the positive effects of a renewed ecological balance.

### 3.1.3 Habitat in Scotland

Scientific studies assessing the habitat potential for lynx suggest that the UK is well suited to their requirements. Hetherington et al. (2008) concludes that Scotland has enough suitable habitat to support a population of at least 400 individuals (Fig 5).
It should also be noted that Lynx are able to successfully make use of mixed habitats.

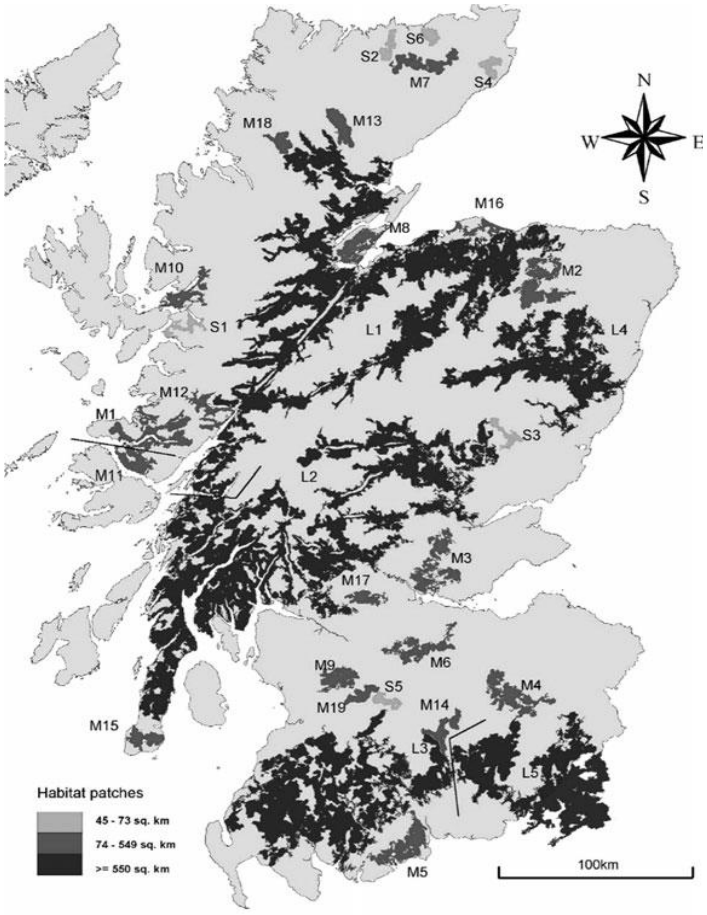


***Figure 5*** *The distribution of potential lynx habitat patches in Scotland according to the standard scenario. Potential habitat across the English border is also shown. Black lines highlight separation between two adjacent patches of the same shade (Hetherington et al 2008)*


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### 3.1.4 Climate requirements

In terms of climate conditions lynx are eurytopic, meaning that across their range in the Northern Hemisphere lynx occupy areas with a wide range of environmental conditions. They are found in areas of extreme winter conditions like the boreal forests of the north, to semi-arid conditions found in parts of Asia Minor and the Caucasus. The range of climate conditions found in Scotland falls well within those of the biogeographical range of lynx.

### 3.1.5 Founders

- *Source population*

Discussions with European advisers and senior members of the IUCN Cat Specialist Group have identified robust lynx populations in the Baltics, Romania, Slovakia, and Russia. The Trust is currently in discussions with a number of potential partner organisations across the above-mentioned states. These conversations will build reliable partnerships, ensuring proper procedures and safeguards are observed in the identification of potential source populations. We will be undertaking exploratory visits to suitable source areas over winter 2015/2016.

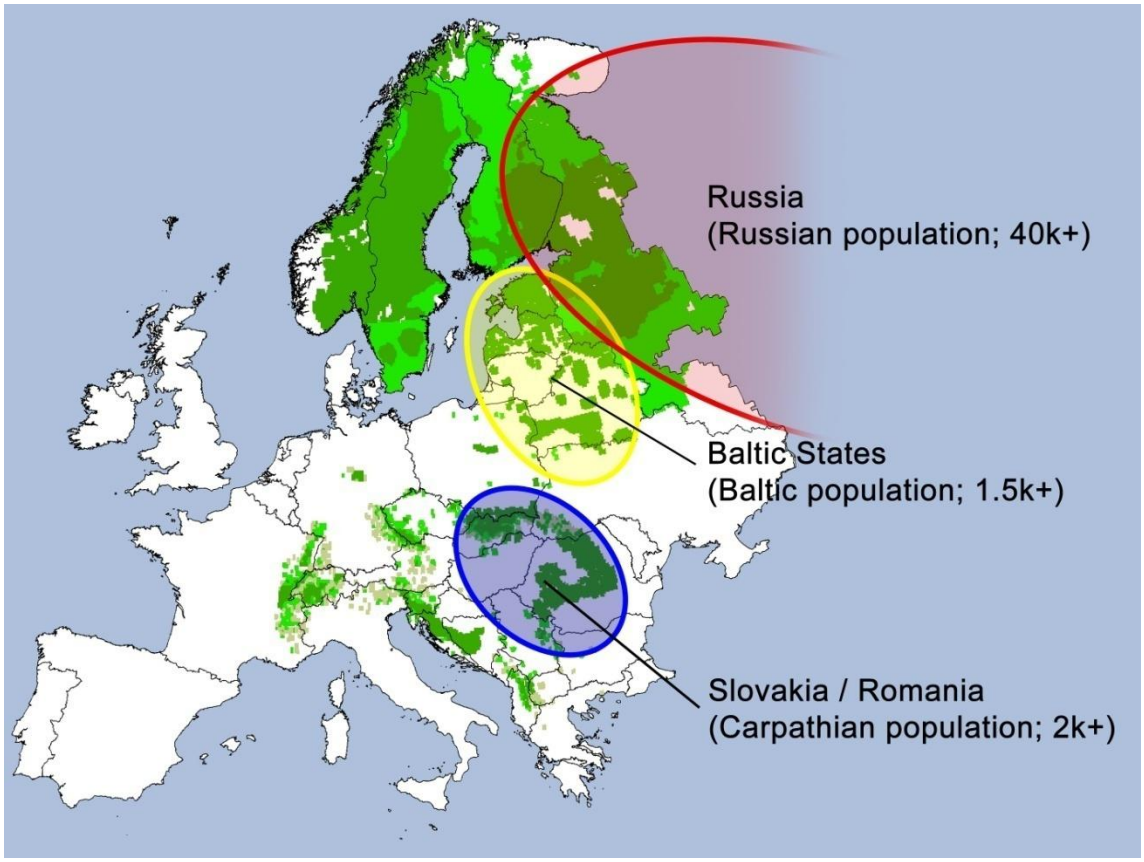


***Figure 6*** *Location of potential founder populations*


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- *UK lynx comparison*

Eurasian lynx will be sourced as the founders of the UK trial. Scientific evidence shows that it was the Eurasian lynx that was previously present in the UK.

- *Negative effects*

Lynx will only be sourced from robust populations. In some European countries such as Romania, the Baltic states and in Slovakia, lynx populations are managed with hunting quotas, suggesting that those nations respective governments' believe that lynx can be 'harvested' from such populations without detrimental effects.

- *Genetic suitability*

**Lynx individuals reintroduced into the UK will be of the same species, the Eurasian lynx, as those that previously existed here. This has been confirmed from multiple bone fragments collected at sites throughout the UK**

**There is no evidence that any other species of lynx, such as Iberian lynx, or any particular subspecies of the Eurasian lynx, was present in the UK. Therefore, Eurasian lynx will be genetically suitable**

Further, lynx will only be sourced from extant European populations that are genetically heterogeneous and stem from a strong and diverse founding population themselves – the Trust has been advised that this should be prioritised over other genetic details which are likely to be of no practical significance. In addition, every individual will be genotyped and assessed for heterozygosity.

The Trust has developed close working relationships with European partners who have been advising on source populations and assisting with the accumulated knowledge of other European lynx projects. It is expected that relationships with all partners will further develop over the coming months and that the eventual trial specimens will be sourced with significant assistance from these contacts.


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### 3.1.6 Animal welfare

Animal welfare is a fundamental moral and legal requirement for this Project and the team has extensive experience of capturing, moving, holding and releasing animals from a range of different species, including felids.

**A number of measures will be put in place in order to ensure that stress is limited/reduced at all times and, therefore, that the relevant legal and moral animal welfare requirements are complied with**

Measures taken will include, but not be limited to:

a) Capture – lynx will be captured using baited live traps. Such traps are proven to be both effective and humane, safely holding the lynx until it can be processed. Traps will be checked every 12 hours to minimise the length of time that a lynx will be held. This will reduce the chances of unnecessary stress caused by extended periods of close confinement. We are consulting extensively with our European partners who are highly experienced in lynx capture and will ensure that the most humane and efficient trapping methodologies will be employed. The Trust's team is highly equipped and experienced in feline trapping and, indeed, the chief scientist holds one of only two licences in Scotland to trap the Scottish wildcat (*Felis silvestris silvestris)* (herein referred to as wildcat).

b) Holding – substantial holding facilities will be provided both in the country of origin and in the UK.

**Holding facilities will be designed so as to reduce human contact to an absolute minimum. This has the dual benefit of reducing stress and preventing habituation**

Holding facilities will be placed in areas away from human activity and animals will be fed/serviced from behind screens so that humans are not visible.


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c) Transport – it is anticipated that lynx will be transported by air to the UK. Specialist couriers will be used for this. Air transport will reduce journey time and therefore stress. Within the Trust's team there is extensive experience of international animal capture and transportation, which will assist in promoting animal welfare throughout this process.

d) Release – a soft release methodology (Fig 7) will be employed that will have the dual benefit of reducing stress and increasing the chances of the animals staying in the release areas post-release.

**Fortunately, there have been a number of previous lynx releases across the globe and scientific data exists as to the optimum protocols for release**

The data suggests that animals should be released after a four to five week holding period. This allows the animals to acclimatise and also to gain condition before their eventual release. We will be using the experience of previous releases to guide our release protocols.

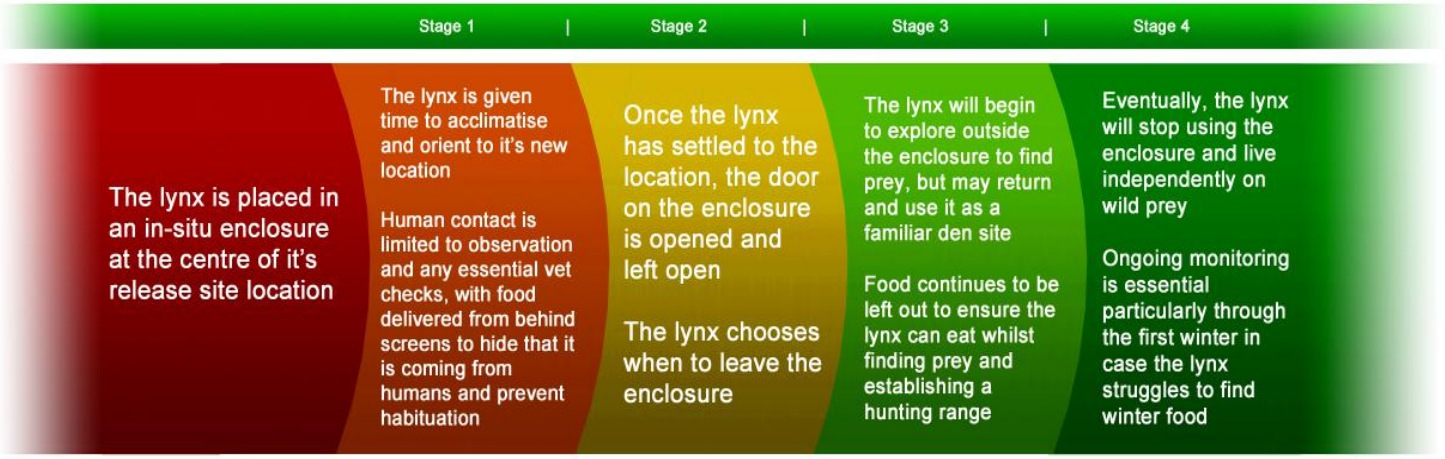


***Figure 7*** *The 'soft release' process to be used for the introduction of source population individuals*

The following animal welfare offences would be kept in mind during the course of dealing with lynx, in order to avoid the commission of any offence:


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i) Under section 1 of the Wild Mammals (Protection) Act 1996 it is an offence to inflict unnecessary suffering on a wild mammal with the intention of doing so; and

ii) Under section 4 of the Animal Welfare Act 2006 it is an offence to cause an animal in captivity unnecessary suffering where you know or ought reasonably to know that your act or failure to act would cause this.

#### 3.1.7 Disease and parasite considerations

The Trust will be complying with all quarantine requirements in the UK. We have been in contact with the Imports Team at the Animal and Plant Health Agency to ensure all requirements are fully complied with.

It is well documented that animals that are stressed are more susceptible to diseases. Therefore, a key course of action will be to minimise stress at all stages of the capture and holding process. Human interaction will be kept to an absolute minimum and the lynx will be provided with an optimum feeding schedule to maintain and even improve condition.

**During sedation for disease screening, animals will be checked for parasites and treated accordingly. All considerations will be assessed with reference to the IUCN Guide to Wildlife Disease Risk Assessment**

## 3.2 Social feasibility

#### 3.2.1 National public opinion

The Trust recently commissioned a consultation exercise to collect views on the reintroduction of lynx to the UK. This national consultation exercise, the largest conservation consultation ever carried out in the UK, sought to describe the opinions of two specific target audiences.

The first survey collected opinions from members of the general public who would actively seek to express their opinions given the means to do so, and the second surveyed a representative sample of the UK general public using a national omnibus

survey company. In total the opinions of 10,663 people were collected; 9,621 people ‘actively’ engaged with the proposal for a UK lynx reintroduction and opinions from a further 1042 people were collected from the ‘passive’ representative UK audience.

The positive response was overwhelming with over 91% of the ‘active’ participants agreeing that lynx should be reintroduced. Almost 80% of those people strongly agreed. Further, 84% of people agreed that this should happen in the next 12 months. The results captured a wide demographic range and crucially circa 50% of the respondents were from rural areas.

Results of pro-active online survey conducted by Lynx UK Trust on a trial reintroduction of lynx to the UK; overall results

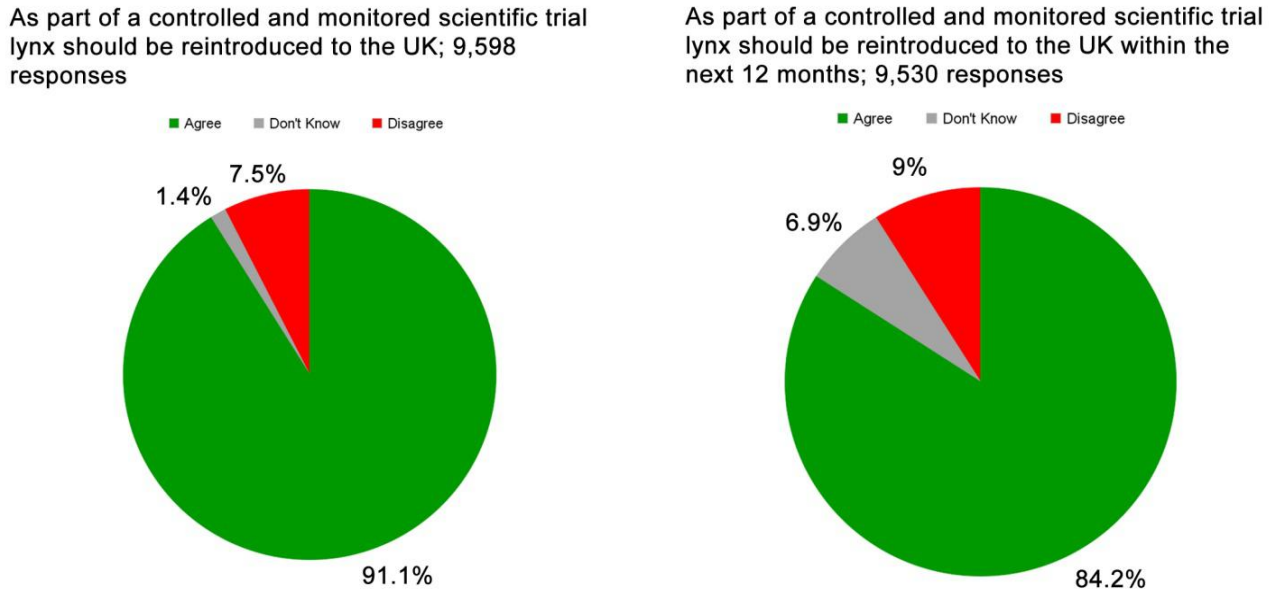


***Figure 8*** *Results from the active national public survey*

Similarly the ‘passive’ representative UK participants expressed overall support for a proposed lynx reintroduction. Of those participants who held a definite opinion 70% of the UK sample expressed agreement.

High levels of net agreement were also described by these ‘passive’ participants when characterised by country; England 70%, Scotland 67% and Wales 71%.


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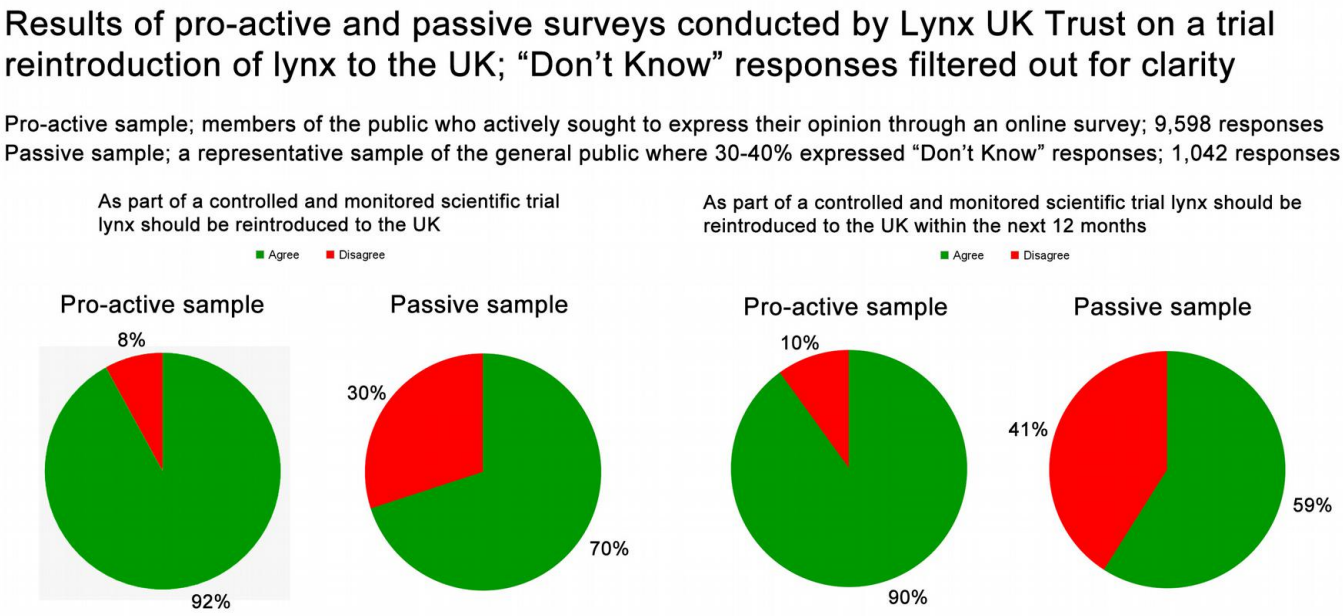


***Figure 9*** *Active vs passive results from the national public survey*

**These survey results clearly demonstrate unprecedented support for the return of lynx to the UK. It is against the background of a clearly demonstrated public interest that this national consultation is set**

Please see the Technical Document "*Reintroduction of the Eurasian lynx to the United Kingdom: Results of a national consultation*" for further details on the figures.

### 3.2.2 Consultation of stakeholders, interested parties and local communities

The national stakeholder consultation process, of which this document is the first step, is designed to ensure the Project is socially feasible, as well as economically and ecologically so. The three key purposes of this consultation process are:

1. **to allow us to build an understanding of how stakeholders view the proposed Project;**
2. **to inform stakeholders and the wider public of the feasibility, benefits, risks and design of the Project; and**
3. **to agree with stakeholders on the most suitable route forward in planning, designing and executing the Project**


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Once a trial site has been selected, after the results of the national consultation have been analysed, a similar process will be undertaken within the local community.

Please refer to section 1.5 for further details regarding national and local stakeholder consultation and engagement.

### 3.2.3 Education and awareness programme

Reintroductions offer a very tangible mechanism to connect communities to their local landscape. The proposed Project will offer opportunities for local schools, colleges and universities to participate in a 'living laboratory' of biodiversity restoration. We anticipate that a broad range of learners would be given access to the Project, from children at primary school to PhD students and those who are no longer in full time education.

Reintroductions also offer significant opportunities for job creation in a variety of areas including in ecotourism, in related services and in administrative roles, in visitor centres for example, which will all contribute to high levels of community engagement and awareness.

### 3.2.4 Dissemination of information

In collaboration with other organisations, the Trust will maintain on-going engagement with the local community and wider public through the following mechanisms:

a) Stakeholder forums will provide a key vehicle from which to disseminate information. Specifically because each stakeholder organisation will typically have its own membership to whom they will in turn disseminate information, producing an information cascade for the Project;
b) The regular issue of e-newsletters to the local community throughout the Project. A bi-annual newsletter will be produced and made available to the local community, largely through online means, to provide regular updates and facilitate a deeper understanding and knowledge of the Project;
c) The provision of educational materials. A comprehensive range of materials will be provided to local schools in the release areas to educate children about the Project and wider conservation issues;


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d) Involving local universities and further education colleges in research. Work placements, dissertation projects and opportunities to volunteer will be made widely available to local educational institutions. A series of research seminars will also be delivered by the Project staff and volunteers;
e) Involving and giving talks to local schools. A full school engagement schedule will be planned and executed by the Project staff and volunteers. Schools are at the heart of rural communities and regular engagement will be an absolute priority for this Project;
f) Giving talks to the public in general. Project staff and volunteers will give talks from a location central to the trial which will be open to both the local community and the visiting public;
g) The provision of volunteering opportunities. Each site will have a local volunteer coordinator who will both supervise and task volunteers to carry out a wide range of activities. As these volunteers are already active in their local communities, they will be a key vehicle for fostering long-term support amongst local communities;
h) The regular issue of press releases to local and national media throughout the Project;
i) Working with TV documentary makers with respect to producing an educational documentary on lynx; and
j) Utilising social media such as twitter and facebook to facilitate the sharing information regarding the Project.

### 3.2.5 Local engagement

**In order to fully engage stakeholders, the Trust will create a stakeholder forum which will hold meetings every six months to allow opinions and information to be shared. This forum will be alert to changes in stakeholder opinion and perceived knowledge**

It is important to note that the stakeholder forum will include representatives from all relevant groups, including any opposition or sceptic groups. We will work to combine


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this communication platform with educational and fact-based presentations, to develop knowledge and understanding of the Project over the five year trial period.

### 3.2.6 Economic benefits

A successful reintroduction may bring many societal benefits. These will include non-financial benefits such as enriched human experiences from increased contact with nature, as well as the potential for indirect and direct monetary benefits, such as increased income from ecotourism.

We also recognise that certain reintroductions may also cause harm to individuals and communities. For instance, the reintroduced species may harm livestock, habitats or other species impacting on livelihoods or other established uses of the land.

An independent cost-benefit analysis was undertaken by AECOM to estimate the potential social and environmental impacts of the proposed lynx reintroduction scheme for two sites: Kielder Forest on the Scotland/England border, and Thetford Forest in the East of England.

**The report identifies an estimated net present value of £30.5 million at Kielder Forest and £37.1 million at Thetford Forest, representing a total of £67.6 million across the UK if both sites were selected**

The results suggest that potential cost savings due to reductions in deer damage to crops and forestry alone will far exceed the potential costs of sheep predation by lynx at each site.

**These data suggest that a lynx reintroduction may have significant net benefits to farming and forestry practices at the trial site or sites**


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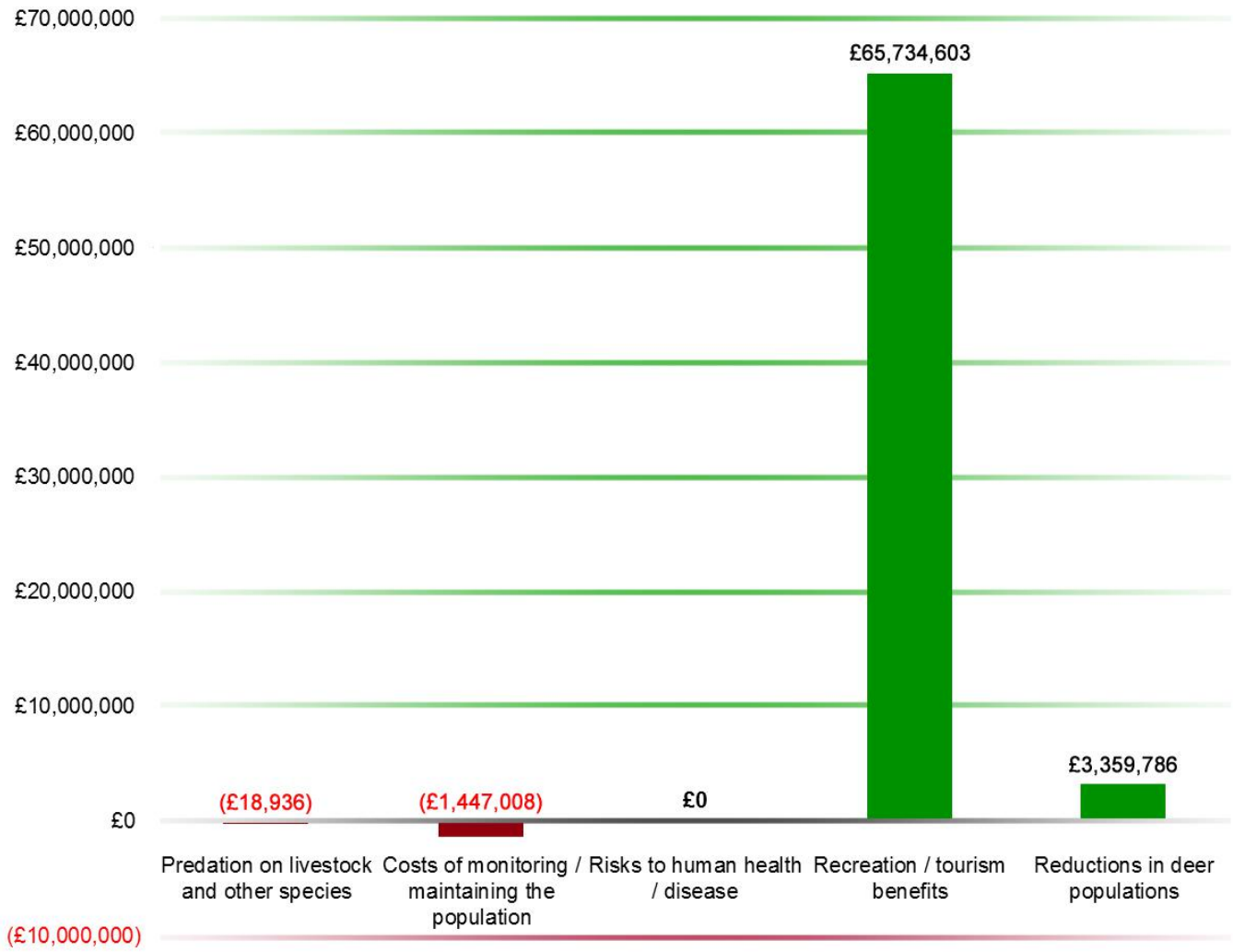


***Figure 10*** *Top line positive and negative economic impacts of lynx reintroduction*

In order to compare the potential impacts across different sites in the UK, a further analysis was undertaken for three additional sites in the UK: Kintyre (Scotland), Aberdeenshire (Scotland), and Cumbria (England).

**The results of this analysis suggest that potential returns are expected to be: £15.7 million in Kintyre, £16.8 million in Aberdeenshire; and £48.1 million in Cumbria. A comparison is provided in Fig 11**


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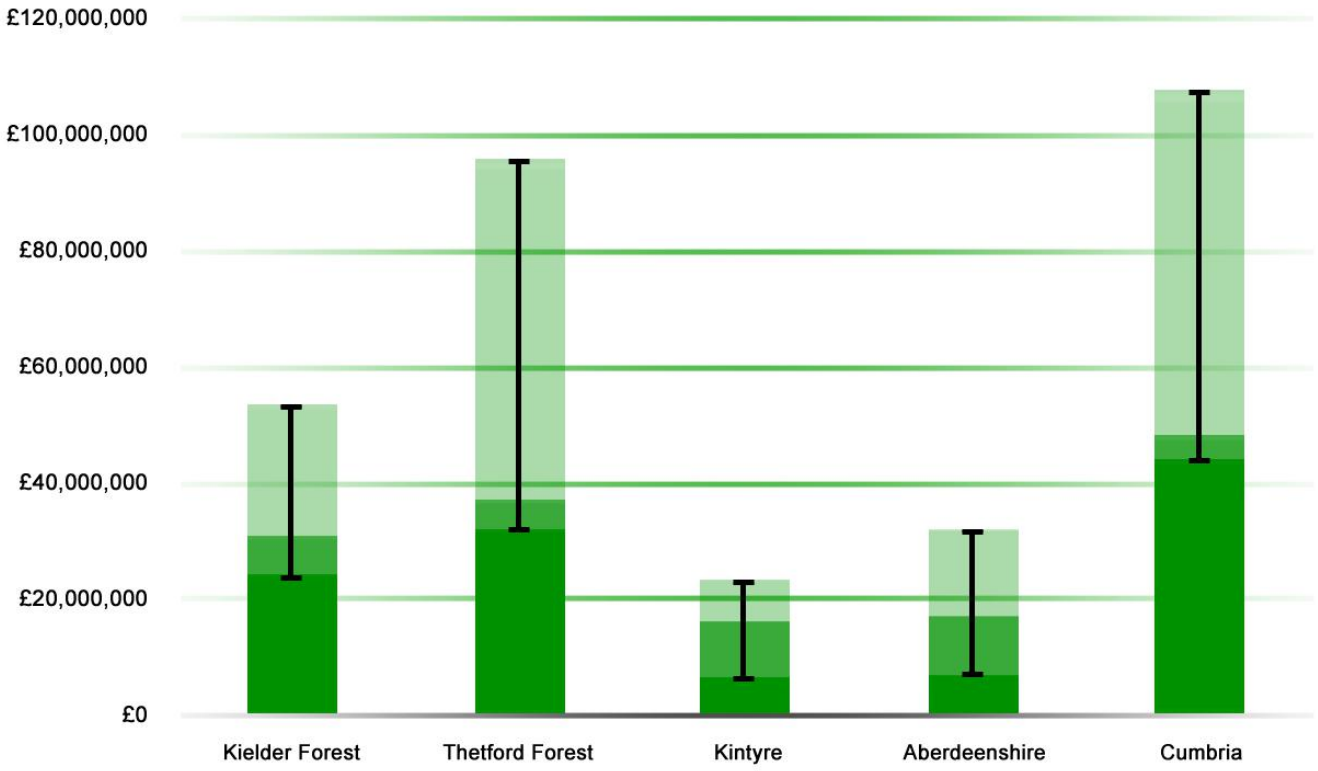


***Figure 11*** *Best, worst and most likely economic benefit for each potential trial site*

The estimates erred on the side of caution and several potentially significant positive impacts were excluded from the assessment due to a lack of robust monetary estimates. It is therefore considered that the results of this analysis are likely to be a lower bound estimate of the benefits.

Please see the Technical Documents *Cost-benefit analysis for the reintroduction of lynx to the UK: Main report* and *Cost-benefit analysis for the reintroduction of lynx to the UK: Site selection appendix* for further details on the figures mentioned above.

### 3.2.7 Economic opportunities

Ecotourism, which has brought great economic and job creation benefits to areas like the Harz Mountains in Germany following lynx reintroduction, will bring the most significant direct economic opportunities associated with the trial and any subsequent reintroduction. This is evident from numerous other reintroduction projects globally, for example, in the UK the reintroduction of the white-tailed eagle to Mull is reported to add around £5 million per annum to the local economy.


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***Figure 12*** *The lynx has been embraced in the Harz as a figurehead for the national park and a range of tourism related businesses*

Using examples from European lynx reintroduction experiences we aim to support local communities and stakeholders who are impacted by the Project in developing ecotourism opportunities around current infrastructure, or around minimal impact development.

**The Trust is also exploring ways in which it could directly promote and support ecotourism during the course of a trial, as it appreciates that, whilst ecotourism potential will be very high if the Project proceeds, it is helpful for there to be a catalyst for actual investment and growth**

In line with the overarching aims of the Translocation Code, to maximise benefit whilst minimising the potential for harm, the Trust is working to develop an agreement/business model enabling impacted stakeholders to be recipients of


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benefits arising from the reintroduction. Options currently under consideration by the Trust include:

**a) Direct investment in ecotourism, including the development of an extensive visitor centre facility, which could be utilised by local tour operators;**

**b) Direct investment in ecotourism through equity investment in local initiatives, which comply with a set of values promoted by the Trust;**

**c) Offering partnership status to those local businesses that comply with the Trust's set of values;**

**d) Providing loans to local tourism businesses to begin or expand ecotourism-related offerings, where such expansion complies with the Trust's values; and**

**e) Working with organisations that have significant experience in grassroots ecotourism in order to support local entrepreneurs and investors**

### 3.2.8 Mitigation of negative economic impacts

In working to maximise benefit whilst minimising the potential for harm, the Trust is committed to demonstrating clarity on responsibility and liability for any negative consequences.

The Trust will ensure the presence of an adequate and stable resource base needed to underpin necessary management activities, potential compensation arrangements, and/or the implementation of the exit strategy.

With this in mind, a compensation scheme will be developed for the loss of livestock, which, in the long-term, would be drawn from the incomes produced by the Project's ecotourism activities, whilst relying on a capital provision in the short-term.

Farmers have highlighted concerns with this type of policy, including that lynx might leave little evidence of predation.


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**However, each lynx will wear a satellite collar ensuring that clear 'footprint' evidence is left by any lynx that enters farmers' properties for the purpose of hunting**

This method will also protect the compensation fund from false claims whereby dog attacks are blamed on lynx (there are almost 1,000 incidents of sheep worrying by dogs reported every year in the UK).

Comparable compensation schemes already operate in mainland Europe and have also proven to be effective with white-tailed eagles on Mull. It is important to note, however, that based on the considerable pool of scientific evidence we expect sheep predation to be extremely low.

**Indeed, we believe that it is possible that a trial reintroduction of lynx could result in a net decrease in loss of sheep to wild animals due to the predation of fox by lynx**

**Do you have any comments with regard to the ecological, social and economic feasibility of the Project?**


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## 4. Assessment of benefits and risks

Lynx populations have been successfully restored in several European countries (including regions of France, Switzerland and Germany) into landscapes that share many similar features to the target sites in the UK. These projects present best practice templates for success and an opportunity to learn from a knowledge base of significant depth and breadth. The Trust is working very closely with a number of highly experienced lynx biologists in order to learn first-hand from the projects on the European mainland and has based much of its assessment of likely benefits and risks on these examples and sources.

**This section analyses the likely benefits and risks of the Project and shows that a reintroduction to Scotland would be an unprecedented but incredibly beneficial step forward for conservation in Great Britain**


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**In reaching this conclusion, it is recognised that a number of potential risks will arise from the Project, but that these will be remediable through mitigation measures, whilst the expected benefits will be far greater in both number and magnitude**

It should also be noted that the Project will be designed in a way such that the benefits and risks of a full lynx reintroduction can be studied and measured throughout the five year trial period. By the end of this period, the Trust expects to have sufficient evidence to present the case for a full reintroduction.

## 4.1 Benefits

### 4.1.1 Conservation

Lynx are the focus of considerable conservation efforts throughout Europe and are seen as a priority species in many EU member states.

**Data suggests that the UK could sustain a population of at least 400 lynx, making this a significant population for the species, becoming the 4th largest in Europe**

As such, a reintroduction of lynx to Scotland and the resultant expansion of the Scottish population would contribute significantly to the wider conservation status of the species, if the Scottish Government decides to grant a licence for lynx reintroduction after the five year trial period.

Furthermore, if new source populations can be established in the UK, they may later be used to re-stock other populations in mainland Europe. Whilst a number of populations are currently healthy in Western Europe, some populations, such as the Vosges population in France and the Black Forest population in Germany, currently exist in a precarious state due to poaching, persecution and habitat fragmentation. New populations created in the UK may actually be used as source populations to supplement these other populations in the future.


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The positive net effect lynx can produce in natural and semi-natural ecosystems as an interactive and keystone species is highly desirable in the context of a wider conservation benefit. This role is one which we expect to be of particular interest to a number of financially impacted stakeholders.

**As apex predators, lynx will assist in controlling the overpopulation of deer, which currently overgraze our forests, degrading the habitat of numerous other species**

**Upon the introduction of lynx into these habitats we can expect to see a trophic cascade, where overgrazing is reduced and forest regeneration can occur, expanding quality habitat for our other native wildlife. In Europe, particular benefits have been noted for mountain hare and grouse, such as the capercaillie**

Experience from areas in Europe where lynx occur in forests with high ungulate densities, such as in the Swiss Alps, shows that lynx can have a significant impact by changing the behaviour of its prey. By introducing an 'ecology of fear' into an area, lynx can cause ungulate populations to move more frequently and disperse widely in an area, reducing the impact of browsing locally, particularly on young saplings.

The positive effects of the reintroduction of apex predators as keystone species have been well documented, for example a net increase in biodiversity was observed in Yellowstone National Park, United States, after a successful wolf reintroduction.

Therefore, conservation benefits to both lynx as a species and to other species residing in the UK will accrue from the trial and any eventual reintroduction.

### 4.1.2 Moral/ethical

The evidence strongly suggests that human activities caused the UK extinction of lynx. Therefore, a strong moral argument can be made for the restoration of this species to the UK. As such, there is a direct ethical gain to be made from such a reintroduction.


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### 4.1.3 Socio-economic

**Well-managed ecotourism around the presence of lynx can drive significant economic benefits and job creation in remote rural communities**

As demonstrated in all the lynx reintroduction areas in Germany - namely the Harz Mountains, Bavarian Forest and the Saxon region of Switzerland - the lynx can be a significant attractor and figurehead for ecotourism as part of the 'rewilding' of protected areas. The lynx should be regarded as a driver or flagship species for conservation and the restoration of natural processes, the latter being an area which is growing strongly in terms of public appeal.

**The white-tailed eagle (*Haliaeetus albicilla*) project in Mull offers strong evidence that the reintroduction of a charismatic species can be a driving force in Scottish rural economies, in this case bringing £5 million per annum to the local economy**

Similarly, wolf reintroduction in Yellowstone National Park in the United States has generated huge levels of economic benefit for local communities by providing a yearly, and community-spread, cash flow of between $US7 and $US10 million due to wolf tourism alone. Romania is another example which is increasingly becoming a popular ecotourism destination, with many people drawn to the cultural wildness of the Carpathian mountains and the chance to encounter wild lynx, wolf and brown bear.

It is clear from the evidence available that large carnivores, as charismatic and awe-inspiring animals, can function well as a foundation for significant ecotourism.

Please see sections 3.2.6 and 3.2.7 for further details of the likely socio-economic benefits of a lynx reintroduction.


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### 4.1.4 Ecological

The presence of lynx is likely to have the following positive effects on ecology in the UK. Lynx will:

**a) Reduce and limit the size of prey populations, small ungulates (especially roe deer), assisting the return to a more ecologically balanced Scottish countryside;**

**b) Remove weak, injured or otherwise less fit prey returning sex and age ratios closer to a natural level;**

**c) Influence prey behaviour, movement patterns, distribution, and habitat use;**

**d) Restore a component of the original top-down trophic cascade, that will affect the composition, structure, and functioning of plant communities, which in turn will positively affect habitat availability for other native species;**

**e) Create a trophic cascade that will affect other biotic and abiotic resources, including water, soil, and geomorphology, which in turn will affect habitat availability for other native species; and**

**f) Create carrion that provides food for other species and cycles nutrients, having a predominantly positive effect on the abundance, distribution and behaviour of other native species through interspecific interactions including pine martens, raptors and ravens**

***Figure 13*** *Forestry protected from deer browsing (left) alongside unprotected forestry (right)*


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***Figure 14*** *Heavily deer browsed forestry compared to healthy forestry*

#### 4.1.5 Invasive species management

**Lynx have the potential to greatly assist with the curtailment of muntjac deer (*Muntiacus reevesi*), a particularly damaging and invasive species that has no significant predators and is rapidly spreading throughout the UK**

This area, in particular, would be subject to studies during the trial period.

#### 4.1.6 Culture, recreation and nature conservation

Lynx are a charismatic species with the power to inspire generations to come. The Project will educate and engage the general public in a way that no other UK


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conservation project has previously been able to do. Indeed, a recent international survey has established that felids in particular, such as the lynx, provide a catalyst which can focus the public's imagination.

The lynx will provide a unique rewilding icon for Scotland. Rewilding is a new and more intrinsic approach to nature conservation aimed at restoring trophic, food chain, relationships. As a new conservation science it also appeals to a growing sector of the public, with many people expressing their relationship with nature through a variety of outdoor activities, for example bushcraft, wildlife watching and the growing movement of citizen science.

**Lynx will also add an appealing 'wild' or adventurous quality to Scotland's natural places, promoting pronounced recreational, scientific and educational opportunities**

These can be expressed across a variety of beneficial societal endeavours, including ecotourism, ecological EPA (Education, Participation and Awareness) activities and science projects.

### 4.1.7 Legal obligation

Trialling the reintroduction of the lynx will assist the UK government in satisfying its obligation to study the desirability of reintroducing native species under Article 22(a) of the Habitats Directive, as well as its obligations under the Bern Convention and Convention on Biological Diversity.

Please refer to section 2.3 for further details of the UK's legal obligations in relation to the reintroduction of species.

## 4.2 Possible risks

Possible risks and intended solutions or mitigation techniques proposed for the Project are presented below along with explanations of the evidence available in relation to each. The potential risks described here should not be seen as a prescriptive list of risks that should or will be considered in the Project design, but as a starting point in order to assist the consultation process.


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**The purpose of the consultation processes is precisely to identify any concerns that stakeholders have beyond these and how these particular risks are perceived, such that the Project design can take account of this information**

### 4.2.1 Risks to source populations

Trial lynx will only be sourced from healthy and viable populations. In some European countries, lynx populations are sustainably managed and hunting quotas exist, suggesting that lynx can be removed without detriment to the existing populations. It is important to note that the number of lynx required for the proposed trials is small, consisting of 6 individuals per release site. Therefore any risks to donor populations are negligible.

Indeed, no actions will be taken to capture lynx until the appropriate licensing procedures in the source nations have been complied with. These procedures will most likely themselves be subject to the Habitats Directive and other EU laws. As such, no capture will be able to go ahead if lynx cannot be acquired without endangering the source population's viability.

### 4.2.2 Risks to people

**There are no documented cases of lynx, a relatively small cat, weighing 18-40 kilograms on average, ever attacking a human without the situation involving a lynx that was captive, wounded or rabid**

Indeed, even these cases are rare and few in number. Therefore, the risk of wild lynx posing a danger to humans is almost zero.

Regarding the small risk in cases of captivity, handling training will be given to any person likely to come into contact with a lynx in captivity and thorough risk assessments will be in place for any such activities.


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With respect to rabies, this should not be a risk given that there will be strict quarantine and veterinary procedures in place and that rabies no longer exists in the UK.

Regarding injured lynx, we would not expect such a case to arise given that the hunting of lynx would, ideally, not be permitted (this being the major reason for humans to interact with injured lynx). The Trust would be aware of any significant injuries to any trial specimen at all times due to the use of GPS monitoring. If such a case were to arise, timely intervention would minimise risks to and from any injured trial individuals.

#### 4.2.3 Risks to livestock

Across its range in Europe predation by lynx of livestock up to the size of a sheep, depending on livestock numbers and accessibility, is relatively low and almost negligible. Scientific studies throughout Europe have shown sheep predation levels to be around 0.4 sheep per lynx, per year.

**An exception to this is Norway where predation rates are higher. However, this is due to the fact that, in Norway, sheep are managed within the forest and so are directly placed into lynx habitat**

This type of sheep farming practice is completely different to that which is present in the UK, where the vast majority of sheep are grazed in open pasture. As such, the results of studies in Norway are not comparable or directly relevant to the UK.

**The scientific evidence overwhelmingly demonstrates that lynx prefer to hunt wild prey, such as deer, within the safe confines of forest cover**

A full compensation scheme will be provided to cover any losses that might occur. Furthermore, there are effective and easily applied preventative measures available, such as the use of guard animals.


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**It should also be noted that it is possible that the reintroduction of lynx would actually reduce net sheep losses, due to the fact that they would predate on foxes**

#### 4.2.4 Risks to game birds

Lynx are specialist roe deer hunters and European studies have shown that game birds make up a negligible proportion of a lynx diet.

**Lynx are also known to predate on foxes, so are likely to benefit game bird populations by limiting the number of foxes that would otherwise heavily predate such game species; an ecological relationship that has also been demonstrated in other multi-carnivore systems**

#### 4.2.5 Risk to livelihoods

There is an unfounded perception that lynx can cause loss of income for rural businesses such as farms, however, the evidence is overwhelmingly to the contrary. In fact, such a reintroduction would provide massive diversification opportunities for rural communities and result in a significant reduction in crop losses due to deer browsing. Please see sections 3.2.6, 3.2.7, and 4.1.3 for further information.

#### 4.2.6 Risks to pets

**Lynx avoid human habitation and so are highly unlikely to pose any threat to household pets**

The only remotely likely point of conflict may come from dogs that have been allowed off their leash in lynx habitat. However, the evidence from other European countries suggests that instances such as these are very rare events. Information from the Harz Mountains lynx project in Germany, where hikers with dogs are common, reveals that lynx avoid conflict with unleashed dogs. There has only been one alleged record of a lynx fatally attacking an unleashed dog in the 15 years of this project.


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### 4.2.7 Disease risk

Lynx can carry pathogens harmful to humans, especially rabies and *Echinococcus multilocularis*, from outside of the UK. Sarcoptic mange can be a danger to lynx and to domestic cats and dogs. However, due to the strict quarantine and screening protocols that the Trust will put in place (and which it is obliged to put in place under UK law), the risk of pathogen transfer or escape will be negligible. All lynx will be quarantined and disease-screened before being released

### 4.2.8 Risk of population explosion

**A population explosion of lynx in Scotland would be biologically unprecedented**

Large carnivores, including lynx, are highly territorial and occupy large territories. Lynx are density regulated through the amount of available habitat and prey density. Populations will be naturally maintained by the carrying capacity of the particular ecosystem. Higher densities of prey may result in higher densities, fecundity and dispersal of lynx and vice versa. Any population fluctuations will be monitored and regulated according to set management options.

### 4.2.9 Risks to protected species

The UK is home to a number of protected species, some of which are likely to interact with lynx and some of which are not. The following list identifies protected species and details possible interactions with lynx:

a) Water vole (*Arvicola amphibious*) – as water voles are riparian specialists and occupy a different habitat from lynx, there is minimal scope for interaction. Further, lynx are not specialist rodent predators;
b) Otter (*Lutra lutra*) – lynx and otters occupy very different habitats and there is very little chance of direct interaction. Lynx and otters coexist extensively throughout Europe;
c) Mountain hare (*Lepus timidus*) – mountain hares are open habitat specialists and lynx, being ambush predators, require cover to hunt. Lynx are highly unlikely to hunt mountain hares on open moorland;


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d) Pine marten (*Martes martes*) – lynx will share the same forest habitat as pine martens and may, in rare circumstances, kill pine martens. However, given that pine martens are extremely agile, aware of larger carnivores in their surroundings and highly arboreal, mortality through lynx attack will be a very rare event;

e) Capercaillie (*Tetrao urogallus*) – in areas of coexistence lynx have been shown to have a beneficial effect on capercaillie numbers. Lynx themselves are not significant game bird predators. However they do predate on foxes, which are game bird predators;

f) Scottish wildcat (*Felis silvestris silvestris*) – lynx and wildcats will share the same forest habitat, although wildcats utilise open areas more often than lynx. The diets of the two cats are very different with wildcats feeding primarily on small mammals and lynx being deer specialists. This clear niche differentiation ensures that there is unlikely to be any direct competition for resources, with both species coexisting extensively across Europe. Indeed, lynx may benefit wildcats through increased forest regeneration, which in turn will lead to a higher prey density for wildcats. In relation to predator-predator interactions more generally, studies have shown that, whilst foxes do tend to be predated by lynx, wildcats rarely form part of a lynx's diet; and

g) Raptors – lynx are highly unlikely to predate on either adults or nests of most raptors as these are largely inaccessible to lynx, with the exception of harriers and merlin (*Falco columbarius*) nesting in open marsh or heath areas. Harriers are ground nesters but given that lynx are neither specialist bird predators nor frequenters of open habitats, the risk of losses due to lynx predation is very low. However, lynx can be beneficial to raptors, such as the common buzzard (*Buteo buteo*), goshawk (*Accipiter gentilis*) and golden eagle (*Aquila chrysaetos*), in providing supplemental protein in the form of carcasses particularly during harsh winters.

**Do you have any comments on the potential risks and benefits of this project?**

**Do you have any comments on the measures proposed to mitigate the identified risks?**


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## 5. Capture, release and implementation

This section sets out how the Project will function in a practical sense. It describes how lynx will be sourced, where lynx might be released and how the release process will actually be conducted.

The activities described in this section and the next (Section 6) are expected to be funded by private donors. As such, there should be no question of the Scottish or UK governments bearing the Project's operational costs.


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## 5.1 Capture

Discussions with European advisers and senior members of the IUCN Cat Specialist Group suggest that utilising robust lynx populations in Romania, the Baltics, Slovakia, and/or Russia would be the best option.

As a result of this the Trust has entered into an extensive range of discussions, consulting a number of potential partner organisations across the above-mentioned states in order to set up reliable partnerships, proper procedures and safeguards. The Trust is planning exploratory visits to suitable source areas during winter 2015/2016.

The Trust plans to draw on these NGOs' and other experts' previous experiences in order to adopt best-practice processes for the capture of lynx. As such, whilst we always appreciate hearing your opinions and will take them into account wherever possible, in this area we will be relying on the knowledge and skills of the relevant experts when designing the processes and strategy for capture in various European nations.

## 5.2 Release sites

The Trust has been offered the use of land by multiple landowners in several locations in the UK, much of which the Trust believes is suitable for trial reintroductions of lynx. However, as a component of this consultation process, the Trust is seeking views from stakeholders on the site(s) that are believed to be/are the most appropriate for the Project. For any release site to be considered appropriate for the reintroduction trial, the Trust will demonstrate that the site:

- **Is an appropriate habitat;**
- **Meets all abiotic and biotic needs of the lynx;**
- **Is large enough to meet required conservation benefits;**
- **Has connectivity to prevent fragmentation;**
- **Is isolated from suboptimal habitat areas;**
- **Meets all requirements for a release with minimal stress;**
- **Enables the released lynx to quickly exploit the area; and**
- **Is suitable for media and public awareness needs**


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The broad areas (with specific sites being located within these areas) currently under consideration by the Trust include (Fig 15), but are not limited to:

**a) Kielder Forest;**

**b) Aberdeenshire; and**

**c) The Kintyre Peninsular**

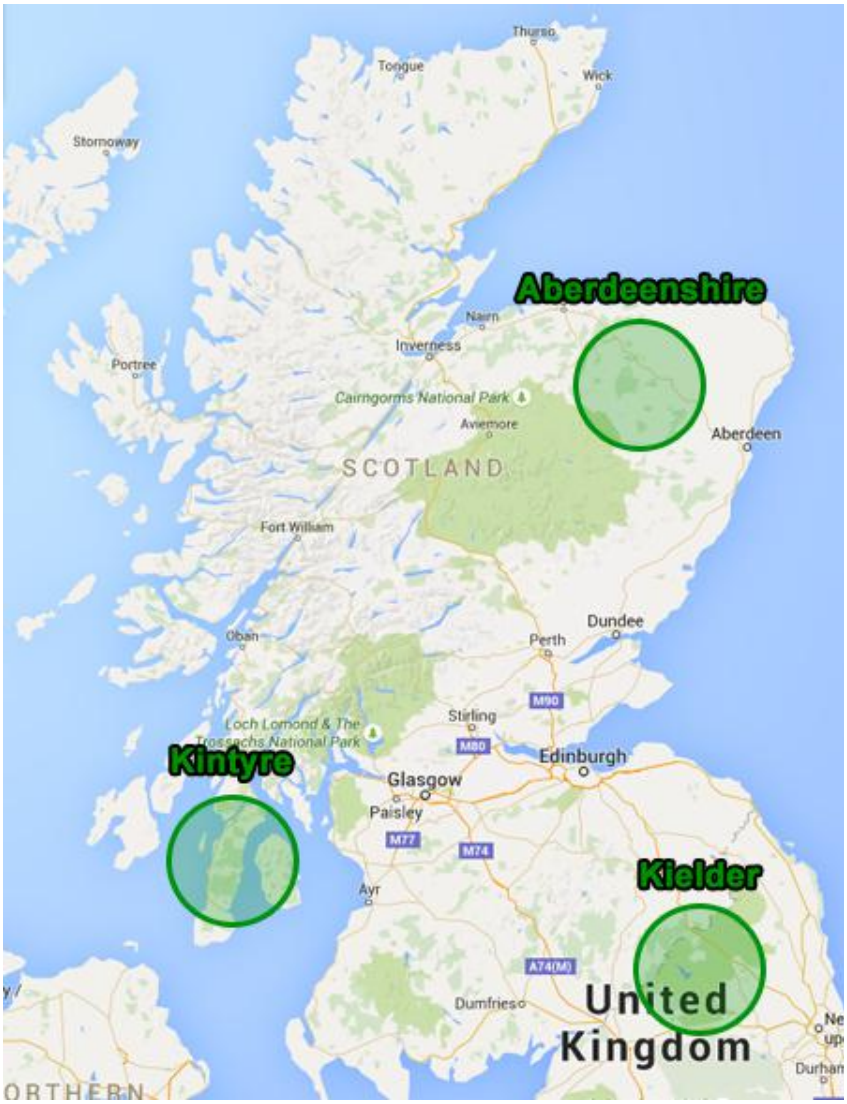


***Figure 15*** *Three potential trial release sites affecting Scotland*

With respect to the proposed key considerations above (in this section 5.2) we have conducted an initial assessment of each of the potential Scottish trial sites. Below we introduce the objective case for each of the three proposed trial areas, by providing data on each of these considerations.


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Beyond this, we have not put forward the specific case for each of these sites. This has been done in order to avoid biasing the responses of stakeholders. We hope to receive substantial feedback regarding the sites which stakeholders believe to be most appropriate and will use this as a significant factor in coming to our final decision as to the Project site.

**Kielder**

| Relevant Considerations | Comments | Satisfied? |
|---|---|---|
| Appropriateness of Habitat | Contains extensive tracts of primarily coniferous forest blocks which are situated in areas of relatively low population density, whilst containing significant prey densities. | Yes |
| Meeting abiotic and biotic needs of lynx | Contains deer densities of 6.5 deer per square kilometre and terrain that is representative of many mainland European areas where lynx thrive. All abiotic and biotic needs are met in this area. | Yes |
| Size of Area | Immediate area of 650 square kilometres available for the lynx to inhabit with other suitable habitat expanding contiguously to the west. | Yes |
| Connectivity | Moderate to high levels of connectivity to the west as evidenced by the modelling carried out by Hetherington et al (2008). The M6 is a potential major barrier to the west of the release site, obstructing otherwise highly-connected habitat. | Yes |
| Isolation from Sub-optimal Habitat | Low human population density of 24 people per square kilometre but some major road networks and presence of sheep farming activity in the area. The M6 provides a potential cause of lynx mortality | Yes |
| Minimising Stress | Suitable habitat and relatively low human population density. Construction of suitable release facilities will not be a problem in the area. | Yes |
| Speed at Which Released lynx Could Exploit Area | Instantly exploitable as contains suitable habitat and prey densities. | Yes |
| Suitability for Media and Public Awareness | Easy access from Newcastle and the south of Scotland/north of England providing accessibility to media outlets. Existing tourist attractions in the area will facilitate public awareness. | Yes |

***Table 1*** *Kielder release site information*


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## Aberdeenshire

| Relevant Considerations | Comments | Satisfied? |
|---|---|---|
| Appropriateness of Habitat | Contains extensive tracts of primarily coniferous forest blocks which are situated in areas of relatively low population density, whilst containing significant prey densities. | Yes |
| Meeting Abiotic and Biotic Needs of Lynx | Contains deer densities of 12.2 deer per square kilometre and terrain that is representative of many mainland European areas where lynx thrive. All abiotic and biotic needs are met in this area. | Yes |
| Size of Area | Immediate area of 769 square kilometres available for the lynx to inhabit with other suitable habitat in all directions. Relatively close proximity to the Cairngorms National Park. | Yes |
| Connectivity | High levels of connectivity to the north, east, south and west, as evidenced by the modelling carried out by Hetherington et al (2008). | Yes |
| Isolation from Sub-optimal Habitat | Low human population density of 40 people per square kilometre but contains some major road networks and presence of sheep farming activity. | Yes |
| Minimising Stress | Suitable habitat and relatively low human population density. Construction of suitable release facilities will not be a problem in the area. | Yes |
| Speed at Which Released lynx Could Exploit Area | Instantly exploitable as contains suitable habitat and prey densities. | Yes |
| Suitability for Media and Public Awareness | Easy access from Inverness providing accessibility to media outlets. The close proximity of the Cairngorm National Park provides the potential for media synergy with conservation and rewilding projects in the area. | Yes |

***Table 2*** *Aberdeenshire release site information*


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## Kintyre

| Relevant Considerations | Comments | Satisfied? |
|---|---|---|
| Appropriateness of Habitat | Contains extensive tracts of primarily coniferous forest blocks which are situated in areas of both relatively low population density and limited sheep farming, whilst containing significant prey densities. | Yes |
| Meeting Abiotic and Biotic Needs of Lynx | Contains high deer densities of 12.2 deer per square kilometre and terrain that is representative of many mainland European areas where lynx thrive. All abiotic and biotic needs are met in this area. | Yes |
| Size of Area | Immediate area of 335 square kilometres available for the lynx to inhabit with a land link to suitable habitat to the north. This would be sufficient for the trial but is limited due to being a peninsula. | Yes |
| Connectivity | Limited by being a peninsula. The lynx can disperse from the northern land link only. Beyond this point connectivity is good to the east and north, as evidenced by the modelling carried out by Hetherington et al (2008). | Yes |
| Isolation from Sub-optimal Habitat | Very low human population density of 13 people per square kilometre and only minor road network will both reduce any potential conflicts and minimise road traffic collisions. | Yes |
| Minimising Stress | Suitable habitat and low human population density. Construction of suitable release facilities will not be a problem in the area. | Yes |
| Speed at Which Released lynx Could Exploit Area | Instantly exploitable as contains suitable habitat and prey densities. | Yes |
| Suitability for Media and Public Awareness | Access from Glasgow is possible, providing some accessibility to media outlets. The close proximity of the Knapdale beaver trial provides potential for media synergy with another significant reintroduction project. | Yes |

***Table 3*** *Kintyre release site information*


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| Statistic | Kielder | Kintyre | Aberdeenshire |
|---|---|---|---|
| Size of Immediate Area (Square Kilometres) | 650 | 335 | 769 |
| Deer Population Density (Deer per Square Kilometre)* | 6.5 | 12.2 | 12.2 |
| Human Population Density (People Per Square Kilometre) | 24 | 13 | 40 |

*These figures have been taken from Hetherington et al, which divides Scotland into a number of areas for the purposes of deer populations. The Kintyre and Aberdeenshire areas both fall within one of these areas, hence the identical density figure.

***Table 4*** *Comparison of potential trial release sites*

A key point to note is that lynx have the potential to range over large territories. Therefore, whilst it is of course useful to speak with and engage specific landowners to ensure that the Trust has access to sufficient land ensuring comprehensive opportunities to study lynx, it is difficult to predict exactly whose land the lynx will use.

**Do you have any comments with regard to the proposed release sites for the Project and, in particular, the site which you believe to be most appropriate?**

## 5.3 Release strategy

### 5.3.1 Trial animals

All selected trial animals will be mature adults; only individuals that are in excellent condition and health will be selected for the trial. Selection will ensure that the individuals are already proficient deer hunters, as evidenced by their survival to


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maturity. It is anticipated that two to three animals of each sex, up to six in total, will be selected for each release site.

**Releasing mixed-sex groups in appropriate sex ratios (50:50 sex ratios are the norm in wild populations) will ensure that the trial will be assessing as natural a situation as possible. Releasing single sex groups would cause artificially high levels of dispersal as animals search for breeding opportunities**

### 5.3.2 Season of release

We propose that lynx should be released in the spring, given the seasonal prey abundance and benign conditions. However, it is important to note that release in other seasons is also likely to be successful from an ecological point of view.

### 5.3.3 Stages of release process

Prior to release, all animals will be fitted with a number of identifying and tracking features. Each lynx will have a GPS collar fitted and a subcutaneous microchip responder will be implanted under its skin in a painless procedure.

Two options are available for the release of the animals: ‘hard release’ or ‘soft release’. ‘Hard release' involves the direct release of animals to the wild from the transit cages. ‘Soft release’ involves the use of an enclosure that provides security, shelter (den sites), food and the opportunity to acclimatise. Whilst this is a more expensive and time-consuming method, it provides the potential to:

- **Reduce stress to the animals by providing instant shelter;**
- **Reduce the need for animals to seek out prey; and**
- **Reduce the risk of animals moving away from the selected release site**

Given the fact that a soft release will minimise stress and may therefore lead to a higher success rate, this Project will implement a soft release approach.


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On the assumption that a soft release will be implemented, the actual act of release will consist of the door to the holding pen being left open in the evening, after a period of acclimatisation.

The lynx will be able to leave when they choose to and it is important to note that, after the door is opened, it will remain open for a period of several weeks and food will continue to be placed both in and around the enclosure during that time.

Please see Fig 7 which explains the soft release process.

### 5.3.4 Exit strategy

Although the Trust firmly believes that the Project will be successful, an exit strategy is an integral part of the Project plan, and also a requirement of the Translocation Code. This may be implemented either during the trial, if major insurmountable problems occur, or at the end of the trial.

The reasons for considering the implementation of an exit strategy are as follows:

**a) Unsustainable and detrimental effects arise as a result of the re-introduction of lynx to the trial area;**

**b) There is an insupportable level of mortality in released animals as a result of persecution, human intervention or natural mortality attributed to trial procedures;**

**c) The security of the site is compromised to the serious detriment of the animals; and/or**

**d) The trial coming to an end without a trial extension or new licence being granted by SNH**

There are four exit options described below, listed in order of preference, any of which could be taken in the event of a trigger event occurring:


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**a) Repatriation of animals to the country of origin/transfer to other reintroduction programmes, which will be the focus of any exit for the Trust and for which funding will have been reserved;**

**b) Housing of animals in zoological collections;**

**c) Capturing, neutering and returning animals to live their life span in the wild; and**

**d) Humane control of animals - methods of humane control are well known and the option would require the collection of all known animals for destruction**

It should be noted that, should the Scottish Government not licence a full reintroduction or further trial period upon the initial five year period coming to an end, this exit strategy would be executed.

**Do you have any comments about the proposed release and exit strategies for the Project?**


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# 6. Monitoring during the trial

## 6.1 Monitoring

**An effective monitoring programme is imperative, to ensure sufficient and appropriate information is collated during the trial to underpin an informed decision on the feasibility, and viability, of restoring a widespread population of lynx**

In order to ensure that the monitoring programme is effective, a protocol for the collection of baseline data will be in place prior to the release of any animals to the chosen study area(s).


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During the course of the trial, regular measurements will be made on the health and status of the lynx population, their behaviour, and changes to environmental conditions locally. Subsequent comparison of this information against the data collected pre-trial will identify changes to local landscapes and ecology that may be attributed to specific aspects of lynx occupation or behaviour.

The use of a geographic information system (GIS) will play an important role throughout the Project in the interrogation, analysis and presentation of data. Initially all existing survey information will be collated and, where appropriate, placed on GIS.

### 6.1.1 Duration

Monitoring will take place up to six months before the trial commences and will last for the entire duration of the trial period which is anticipated to be five years.

## 6.2 Areas of monitoring

A number of key areas will be monitored throughout the trial. The following covers all of the areas which we currently anticipate would be monitored and studied.

### 6.2.1 Animal health

The Trust will be responsible for the health and welfare of the released animals and their progeny throughout the trial. Wherever possible, remote, non-invasive techniques, including remote camera trapping and tracking, will be used to assess the health status of individuals. Analysis of faecal material will provide information on diet composition, gut parasite burden and cortisol as a measure of stress.

### 6.2.2 Lynx ecology

Individual adult animals will be tagged for the purpose of tracking and identification. Information on their health and status will be collected at regular intervals. The following parameters will be measured:

- **Survival;**
- **Breeding success/fecundity;**
- **Distribution/dispersal; and**
- **Interactions with other species**


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Measurements of these elements will be made using field observations. Tagging of new individuals will require trapping and handling at suitable periods. In addition, the information collated through practical observations and surveys will provide a dataset which may be used to refine the accuracy of the initial predictive population model.

The distribution and habitat use by lynx will be monitored, providing information on:

- **Feeding areas;**
- **Types of prey; and**
- **Use of den sites**

### 6.2.3 Impact on habitats

As well as monitoring the success/failure of the establishment of the lynx population, information will be collated at regular intervals from which to assess the ecological effects of lynx locally.

Terrestrial vegetation surveys will be undertaken in the release areas, to assess the impact of lynx on forest regeneration and the predicted reduction in deer damage. Detailed habitat maps prepared prior to the release of lynx will be used to record changes to the landscape during the course of the study. Monitoring protected species in each of the release sites will be a key part of the monitoring programme.

It is highly likely that detailed information will already be available for protected areas at each release site and this information will be utilised as a benchmark from which to judge the impact of lynx on the associated protected areas.

### 6.2.4 Impacts on other species

As apex predators, lynx are expected to have both a direct and indirect impact on other species. Monitoring will focus on several main groups, these being:

a) Deer numbers and movement - As well as monitoring the movements of lynx, deer distributions and densities will also be monitored throughout the trial to assess the impacts of the presence of lynx on the UK deer species. Radio collars will also be fitted to track individuals of all the key prey species;


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b) Other carnivores - Lynx are known to predate on and displace other mammalian carnivores. The impact on foxes is an area that we are interested in focusing on and, to that end, fox movements and densities will be studied locally during the trial period; and

c) Protected species - Monitoring populations of protected species in each of the release sites will be a key part of the monitoring programme. It is highly likely that detailed population information will already be available for protected species at each release site and this information will be utilised as a benchmark from which to judge the impact of lynx on the protected species present.

### 6.2.5 Potential predation on livestock

The evidence from extensive research conducted across Europe strongly suggests that lynx pose an insignificant threat to livestock, however, despite this we will be monitoring the impact of lynx on livestock and sheep in particular. Any livestock predation or interaction events will be recorded, and compensated for, where appropriate.

**We hope to work closely with stakeholders such as the National Farmers Union Scotland ("NFUS") and National Sheep Association Scotland to ensure that there is an efficient and agreed monitoring protocol in place to facilitate the capture of as much information as possible about this area of study**

### 6.2.6 Potential positive impacts on arable crops

The evidence from mainland Europe suggests that lynx can utilise mixed woodland/arable areas and are very effective deer predators in such environments. Therefore, it is possible that crop damage from deer may be locally reduced. Again we hope to work closely with stakeholders such as the NFUS to ensure that information about crop damage from deer can be successfully monitored throughout the trial.


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### 6.2.7 Human interactions

There are no documented cases of lynx ever attacking a human without the situation involving a lynx that was captive, wounded or rabid. Indeed, as lynx are extremely shy and elusive creatures, we anticipate that human-lynx interactions will not occur or will be extremely rare. However, in the unlikely event that such an interaction should occur, they will be fully documented and recorded. Full contact details will be provided to the public in the local areas about whom to contact and how to record a sighting or incident.

### 6.2.8 Social attitudes

**The public attitude towards lynx both locally and nationally will be monitored during the five-year trial. The long-term success of any reintroduction or large-scale conservation project rests on the backing of local communities and the public at large**

In order to monitor how attitudes change over time, both local and national opinion polls will be conducted to capture the level of public support. This will also allow us to monitor the efficacy of the continuing education and consultation activities that we will be carrying out during the life of the trial.

**Do you have any comments regarding the proposed post-release monitoring programme for the Project?**


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## 7. Responding to the consultation

The collection of responses to this stakeholder consultation document is an important component of the Project planning and design process and will help to inform and shape the Trust's next steps.

It should be noted that we are requesting separate responses to this document and the equivalent document for the English project, for administrative and legal reasons.

**Given that this is the national stage of the consultation process, we are hoping to receive responses from the sole authorised representatives of stakeholder groups, associations, organisations and collectives from which we have requested responses, on a national level**


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If you believe that a national group, organisation, association, or collective which you represent or of which you are a member should have been given the opportunity to comment on this document, but has not been given such an opportunity, please notify us at **consultation@lynxuk.org** (for a list of groups contacted in relation to this stage of consultation, please see our website at **www.lynxuk.org/consultation**).

More appropriate opportunities for individuals and localised groups to comment will come at a later stage, once a release area has been provisionally selected and the local stakeholder consultation process has begun. However, we will endeavour to consider responses from anyone who takes the time to reply to this document.

The initial response period for this document will last for 6 weeks, between **28th October and 9th December 2015**. Please ensure that you respond within the allotted time-frame or inform us that you are unable to do so due to extenuating circumstances. If we do not receive a response to this document from any group to which we have extended an invitation to respond, we will presume that such stakeholder group has no concerns or issues in relation to the Project.

**To access the survey documents and begin your involvement with the proposal for a trial lynx reintroduction in Scotland, please use the link below:**

## www.lynxuk.org/consultation

If you have questions regarding the consultation process or the contents of this document which you feel must be answered prior to providing a full response, contact us via email at:

## consultation@lynxuk.org

Contact us via mail at:

**Darrell Smith, University of Cumbria,**

**The Barn, Rydal Road,**

**Ambleside, Cumbria,**

**LA22 9BB**



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**Please ensure your responses reach us by**

**9th December 2015**

**Do you have any additional comments in relation to this document or the current Project proposals?**

**Thank you for taking the time to read this document and thank you in advance for any responses that you choose to provide**


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## 8. Bibliography and additional information

Below find a list of literature that has been use to provide background and reference material for this consultation document.


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