

**Written Evidence submitted by Professor Richard Brazier, Director, Centre for Resilience in Environment, Water and Waste ([CREWW](#)), Faculty of Environment, Science and Economy, University of Exeter (SR0052)**

I submit the following evidence in my role as Director of the Centre for Resilience in Environment, Water and Waste (CREWW), at the University of Exeter. Part of my research portfolio over the last 10 years has involved science and evidence work around the reintroduction of a variety of native species in the UK, primarily the Eurasian beaver, but also a range of other mammals including wild cat, lynx, wild boar, red squirrel, water vole, pine marten and European bison. I chair several science and evidence committees to build understanding of the implications of species reintroduction (for example the River Otter Beaver trial), which undertake a wide range of research from environmental social science to understand people's perceptions of species reintroduction, to ecological, hydrological and geomorphic research to understand how ecosystems respond to species reintroduction. I have authored >20 papers on species reintroduction in the UK over the last 10 years (all available as open-source, peer-reviewed articles if useful), >30 feasibility studies on the reintroduction of species such as the beaver and numerous reports to NE, EA, FE, FC, NatureScot, NRW etc... to advise arms-length bodies of UK Govt. on species reintroduction impacts and strategy.

Below I address the key questions included in this call for evidence:

**What role should species reintroductions play in the delivery of the government's biodiversity and nature recovery goals? Should specific objectives/targets be set for species reintroduction?**

Species reintroduction, especially that of keystone species, for example beaver, pine marten, wild cat and lynx, should be a core element of biodiversity enhancement and nature recovery. It is abundantly evident that previous strategies, that have focussed upon land use/management and conservation are failing to halt the steep decline in biodiversity that we have caused. Innovative approaches, that make space for nature (noting well John Lawton's call for this 12 years ago which has not been heeded), enabling nature to restore natural structure and function of ecosystems are desperately needed. We humans have shown ourselves to be unable to manage landscapes to protect and improve biodiversity, which underpins human existence, it is time for us to relax our control of ecosystems and let nature work for us. Examples would be:

- Supporting and funding the widespread reintroduction of the beaver, to engineer water back onto floodplains, slowing the flow of water in tributaries, reducing flooding and enhancing drought resilience and bringing water back to formerly wet lands and wet woodlands, in support of all wildlife that has been lost from these places.
- Widespread reintroduction of pine marten, to restore woodland ecosystem balance in parallel with red squirrel reintroduction, supporting the healthy regeneration of deciduous woodland which is currently compromised by grey squirrels.
- National reintroduction of woodland-dwelling apex predators such as wild cat and lynx, which will return 'landscapes of fear' to our woodlands, reducing deer pressure on regenerating trees and providing competition for the middle-guild predators that we have left (fox and badger).

- Widespread reintroduction of species that deliver naturalistic grazing regimes – large herbivores in woodland such as native cattle and pony breeds as well as wild boar which perturb woodland to drive variability and thus ecosystem resilience/health.

Ideally, all of the above (and more) would be targeted to happen in multiple landscapes, driven by a coherent national strategy with specified areas that would be delivered year on year, with Defra/NE taking responsibility for leading and implementing this strategy, both across Govt. owned land holdings (EA, NE, FC, FE, MOD etc...) as well as privately-owned land. Such an approach could target specific species, but also support the multi-species reintroduction that will move things forward most rapidly and deliver large efficiencies with respect to public engagement, licensing etc...

**How can the government maximise the potential benefits from species reintroduction, and ensure the correct species are reintroduced in the correct places?**

As above, multi-species reintroduction is an obvious strategy to deploy, layering those species that require certain ecosystem structures on top of species that prepare the landscape for them. In this way, ecosystem services are not restricted to those that single species provide, they are enhanced and multiplied as additional species themselves benefit from the ways in which ecosystems are modified by the ‘pioneer’ species which should be ecosystem engineers.

One example which our research shows works very well is the reinforcement of water vole populations into beaver modified wetlands. Water voles are declining rapidly and it is likely that they will be driven to extinction in the UK, unless we act rapidly to combat the twin pressures of habitat degradation and predation by north American mink. In one tributary of the River Otter - the River Tale – mink culling has taken place for some years as have surveys of water vole populations. Since beavers established a territory in this subcatchment, the water vole numbers have increased dramatically, illustrating the positive renewal of coexistence of these two species. The complex wetlands that beaver create are the precise habitats that water voles evolved to thrive in. Unsurprisingly, when we increased hydrological connectivity by draining the land and straightening the streams and rivers, it had a negative impact on water voles (which incidentally are the prey base for many of the carnivores that are left in the UK). Thus the reintroduction of beaver and water vole together, in the same place, is likely to yield significantly better outcomes in terms of species recovery and resultant ecosystem services than if either species were reintroduced alone.

Before humans intervened by simplifying the structure and function of the natural landscape, especially via intensive farming, most species that we have extirpated, or that have declined significantly would have lived across most of the UK. That we consider certain species only to be able to survive in certain places, is a product of the fact that many species have retreated to the last refuges of habitat that they are able to survive in - many of which are in fact sub-optimal for the species. Thus, it should be acknowledged that national strategies for species reintroduction should not limit thinking only to the ‘best’ habitats, (or where species have sought final refugia), but should also plan, through habitat improvement efforts and the reintroduction of ecosystem engineers, for many degraded habitats to be more supportive of many more species.

A national species reintroduction strategy can no doubt help by bringing together multiple layers of information to identify where habitat is currently most suitable for specific species, but it should also identify where habitat is less than ideal and should target improvements in those areas in support of multiple species. An example of this might be to use the existing maps/GIS layers of beaver habitat, dam capacity etc... (that sit with NE and EA, having been funded by them) to drive forward the national beaver strategy in England, alongside parallel strategies for all other species that will benefit

from wetland restoration (wetland and woodland birds, freshwater fish and shellfish, woodland/wetland mammals, for example). On a county scale, we have demonstrated how this can be delivered in Cornwall, where we recently completed a multi-species feasibility study to map the potential to co-reintroduce beaver, water vole, pine marten, red squirrel, wild cat, and lynx. Numerous large areas of land were identified as ecologically suitable for the reintroduction of all of these species, thus such approaches could be extended nationally in support of national-scale policy encouraging nature recovery via species reintroduction.

**What role should the Landscape Recovery and Local Nature Recovery Schemes, under ELMS, have in supporting species reintroduction?**

Both Landscape Recovery areas (especially if rolled out beyond the preliminary 22), and Local Nature Recovery schemes could become flagship examples of how national policy to reintroduce species is implemented and then financially support via ELMs payments. The vision in the 25YEP could thus be implemented. For this to happen, coherent national strategies for multiple species are required, otherwise it is likely that piecemeal approaches will be taken in each LRA (for example) and the national-scale step-change in nature recovery that is needed will not be realised. Ideally, each LRA and LNRS could be required to consider species identified via national strategy in every location and ELMs payments could be tailored to be the mechanism to encourage the reintroduction of these species at the farm-landscape scales, or to deliver the habitat improvement (making the space) that may be the precursor to species reintroduction where habitats are so degraded (typically due to intensive farming) that they cannot support certain species. Finally, such schemes should recognise that species represent flagships which inspire action and make sense of habitat management interventions for all to see. Understanding this role of keystone species in particular will result in greater uptake, greater recovery and more support for changes to the ways in which we value our land and water.

**How effective is current government policy and 2021 guidance in leading and managing species reintroductions? Should any changes be made to its policies and guidance?**

Current policy/guidance (published in May 2021) sets out in great detail the process that needs to be followed to reintroduce species or deliver conservation translocation to reinforce existing species. The process is overly bureaucratic and leads to significant and real costs to organisations who wish to reintroduce species, leading to the delay in species reintroductions (some applications following this guidance for beaver reintroduction even in fenced sites have taken >1 year to be granted permission). The policy therefore does not lead species reintroduction as a practice, in fact it makes it more difficult than it should be, to reintroduce native species that will bring multiple benefits to nature recovery in our very degraded landscapes.

The guidance also sets a very worrying precedent, in that it does not apply to translocations of species where the purposes are related to 'agriculture, fisheries, aquaculture and hunting'. Thus, a double standard has emerged wherein, for example, managers of pheasant shoots or grouse moors can introduce many millions of non-native birds, without having to adhere to the guidance set out for the translocation of native species. It is therefore unsurprising that the vast majority of animals introduced to the UK countryside are non-native species and that the very habitats that could support native species reintroduction (especially the uplands and woodlands) are highly degraded ecosystems that no longer function in anything approaching a natural manner. I would suggest that:

- The 'precautionary-principle' with respect to species reintroduction has gone too far and that industries that regularly degrade our habitats via the introduction of non-native species

- (agriculture, fisheries, aquaculture and hunting industries) do not apply the precautionary principle themselves and thus undermine the work that the conservation sector is doing.
- The requirements for native species reintroduction in terms of all nine principles of the translocation code be relaxed to encourage nature recovery and enable rapid progress in this regard. If business as usual was to continue, it should also be mandatory for a risk assessment to be made of what no species reintroductions would result in (i.e. continued degradation of habitats and nature).
  - Examples of change to the code could include:
    - An assumption that reintroduction of extirpated native species is of fundamental and critical importance and cannot be met by other ‘management options’ (as principle 2 currently advises).
    - In low-risk reintroduction scenarios, relax the requirements of a translocation plan to the absolute minimum (under principle 3).
    - Acknowledge that keystone species such as the beaver will significantly modify habitats to both their advantage and that of other species, and that as such, even sub-optimal habitats will support beaver territories, therefore the (principle 5) assumption that the *‘release site, wider area and management meets all requirements for survival and maintenance of healthy populations into the foreseeable future considering climate change’* is flawed. Ironically, animals like the beaver will make the degraded habitat more resilient to changing climate – as they have done for at least 40 million years.
    - Principle 6 asks for integration with ‘species recovery plans’ yet these are absent for species such as the beaver. They need to be published, as soon as is practical, so that reintroduction of this species can meet such principles via a national-scale, strategic reintroduction program.
    - Principle 7 requires that reintroductions ‘evaluate the potential... to provide economic or cultural benefits’ and ‘try to deliver wider economic or cultural benefits, wherever possible’. Whilst such approaches are clearly desirable, it should be considered enough that the translocations lead to the reintroduction of formerly native species. We extirpated these species in many cases, either directly or indirectly causing their removal from the UK. We have the responsibility to return them, whether or not there are economic or cultural benefits.
    - Both principles 8 and 9 also ask a lot, in the long-term for those considering species reintroduction. I would argue that there must come a point in time (perhaps just 5 years) when species are considered re-naturalised and that monitoring need no longer continue. It is clear that the long-term commitments that organisations have to make to monitor species reintroductions is off-putting, especially financially.
  - That the same principles are applied for the translocation of non-native species and game species such as grouse and pheasant, to the UK countryside, which would help to reduce the inevitable degradation of habitats that could support native species, but are currently managed for commercial purposes that do not support nature recovery and biodiversity goals.

**What improvements can be made in how local communities, landowners and other land users are engaged and consulted on reintroduction proposals? What practical steps can be taken to reduce conflict with these groups?**

Our research has shown that conflict tends to arise between people about reintroduction or potential approaches to management, more-so than conflict arises between people and animals. Thus, early and thoughtful engagement with all stakeholders (not just those groups listed above) is an important part of the species reintroduction process that can lead to what we call 'renewed coexistence' between people and animals. We suggest the following practical steps:

- Engagement should ideally begin prior to a reintroduction (and if this is not possible, then as soon as is feasible). Early engagement should consider more than attitudes towards simply whether to reintroduce a species, and consider views on approaches to coexistence in the long term (e.g. seeking to understand attitudes to potential approaches to management to inform the development of socially acceptable management strategies).
- Consultation will need to take a holistic view and consider not just those who may experience conflict with reintroduced species, but also those who may benefit from the opportunities.
- Different opinions will exist and it is likely impossible to reach a consensus view, so lack of a consensus view should not necessarily be seen as a consultation failure. The aim of consultation should be an effective process in which consultees feel they have been able to express their opinions in a way that has been listened to and that their views have been respected, rather than one which seeks to find a unanimous position.
- As people living in the vicinity of a reintroduction project will be familiar with a landscape in which the species has so far been absent, they are likely to lack familiarity with the animal or ways in which to coexist with it. Education should therefore form part of the engagement approach, seeking to familiarise groups with the species and potential impacts they may have (positive and negative), but it is important to also inform people on how to coexist with the species (e.g. information on practical management interventions that can be taken to minimise conflicts).

### **How could the development of long-term management plans and regulatory regimes for reintroduced species control be improved?**

If we aim to improve nature by reintroducing species we could begin by relaxing our assumptions that we will need to manage and control all of these species. In many cases, the species will look after themselves, self-regulating population sizes and re-establishing a dynamic equilibrium with the ecosystems that they are reintroduced to. Thus, I would advocate a minimal approach to long-term management of reintroduced species, wherein interventions only occur in places where costs are unbearable or outcomes for the species are detrimental to the health of the overall population. Most of the species that we might consider to reintroduce lived in equilibrium with their surroundings for many millions of years longer than humans have and are thus well adapted to survive with minimal intervention from humans if they are given space to live. If anything is planned in the long-term, therefore, it should be the set-aside of land that is not managed (or minimally so) in which these species can thrive and the support for landowners to take the responsibility to enable species reintroduction, which delivers benefits to society.

### **What can the government do to help prevent unregulated species reintroductions?**

Enable regulated species reintroductions to happen more easily and to be better supported both in terms of national policy and in terms of public funding for the ecosystem services that reintroducing species can deliver. I feel that one of the main reasons that unregulated native species reintroductions occurs is that it is so difficult to reintroduce species in a regulated manner, so

different actors take forward the process of reintroduction in ways that deliver progress more efficiently.

**What lessons could the UK government and Natural England learn from reintroduction in other jurisdictions, in UK and Europe?**

Adopting the Bavarian model to the reintroduction and management of species such as the beaver would be both pragmatic and straightforward. Publish a national strategy for the reintroduction of the species into all major river catchments. Reconsider the overly bureaucratic regulatory framework (see above). Put in place publicly funded (or green finance funded) support officers in each region to coordinate management. Release many animals simultaneously and devolve management responsibility to the local level with funding made available for any management interventions that are needed. Realise benefits of species reintroduction via re-naturalised, species-rich, more biodiverse landscapes that work in harmony with agriculture and other industries. This last point is key, all other countries around the world that have reintroduced species such as the beaver have not compromised their agricultural productivity etc... We should be prepared to accept that we are not unique and not the first country to reintroduce such species, in fact, we are probably the last, and it has been successful pretty well everywhere else.

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