Royal Holloway
Geography for Schools
Lecture Series

(Re)wilding and Ecosystem Services

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Case study: Reintroducing the wolf (*Canis lupus*) to Britain

A-Level Syllabus:

- AQA Ecosystems under stress

Introduction

The extreme impacts of Ice Age climate change caused the major reorganisation of mammalian faunal communities in northern Europe over the last half a million years. Periods of cold climate were characterised by the expansion into Britain of cold-adapted mammals including extinct woolly mammoth, reindeer and Arctic fox. In contrast, during interglacials (periods of warm climate similar to today), Britain was home to other kinds of megafauna, including extinct species of elephant and rhino, as well as hippos. In the last thousand years, extinction of Britain's native mammals, such as wolves, beavers and wild boar, has accelerated because of persecution by humans, habitat loss and other anthropogenic factors. However, examination of places where large herbivores still exist today shows that they have a very significant effect on the ecosystems in which they live, which clearly benefits biodiversity. This is because of their activities in, for example, opening up vegetation for other species of plants and animals, reducing flooding and contributing to nutrient cycling, carbon storage and the reduction of wildfires. Large carnivores act as keystone predators, controlling herbivore numbers and preventing over-grazing. Together, these activities contribute to key ecosystem services, particularly regulating and supporting vital functions such as promoting healthy soils and making space for nature. Nevertheless, despite the apparent benefits for biodiversity, the reintroduction through 'rewilding' of native species is often controversial, pitting urban viewpoints against those of rural inhabitants, and those of farmers against conservationists.

Figure 1 – The grey wolf (Canis lupus), an example of a keystone predator now extinct in Britain

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EXERCISE

The following exercise asks you to think critically about the potential reintroduction to Britain of a major keystone predator, the grey wolf.

1. Watch this video "Wolves saved Yellowstone National Park – the Northern Range".
The Northern Range, which occupies just 10 percent of Yellowstone National Park, serves as the winter range for the biggest elk herd in Yellowstone and is arguably the most carnivore-rich area in North America. Early management of predators caused dynamic changes to the ecosystem. The reappearance of carnivores on the landscape, and in particular the reintroduction of wolves in 1995, has had significant and sometimes unexpected impacts on the resident grazers and their habitat.

Make brief notes on the following:

- **What happened when carnivores were removed from the ecosystem?**
- **What happened when they were reintroduced and what were the apparent benefits?**

2. Listen to this podcast about the reintroduction of the wolf to Yellowstone in the light of new information about the complexities of monitoring change in the ecosystem. Should we bring wolves back to Britain? Think about the following questions:

- **Where in Britain would you reintroduce wolves, bearing in mind their needs for large range size, suitable prey and minimal interactions with humans?**
- **What would be the ecological benefits of doing so?**
- **What are the potential barriers a reintroduction programme might face?**

3. Reflect on your answers to the above two tasks. Then discuss, in groups, the following questions:

- **Are you for or against the reintroduction of large carnivores to Britain?**
- **Do we have an ethical responsibility to reintroduce species we have hunted to extinction in Britain?**
- **How do we balance the needs of wildlife with those of people? What steps could local or national government take to help?**
- **Looking at the Ecosystem Services wheel mentioned in the lecture, which sectors on the wheel does rewilding benefit?**

Further reading:

Auster, R.E., Barr, S.W. and Brazier, R.E. 2022. Beavers and flood alleviation: Human perspectives from downstream communities. *Journal of Flood Risk Management*. Available at: https://doi.org/10.1111/jfr3.12789

Bavin, D. and MacPherson, J. (2022) The Lynx to Scotland Project: assessing the social feasibility of potential Eurasian lynx reintroduction to Scotland. Available at: https://www.vwt.org.uk/download_category/scientific-publications/.

Rewilding Europe. *Amazing Grazing*. Available at https://rewildingeurope.com/impact-stories/amazing-grazing/.

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