

## The Wildlife Trusts Position Statement

### Reintroduction of the Eurasian beaver (*Castor fiber*) to England

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#### 1. The Wildlife Trusts' position

The Wildlife Trusts are leading efforts to reintroduce the Eurasian beaver to England<sup>1</sup> because of their important potential role in restoring natural ecosystem processes at a landscape scale.

There is substantial evidence from Europe about the positive benefits of beaver reintroduction and there would seem to be no substantive reason why these successes could not be repeated in England, Wales and Scotland. The evidence strongly suggests that the positive benefits of beaver presence far outweigh any localised problems they are alleged to cause.

The beaver could be a valuable and effective 'natural' tool for restoring wetland habitats, reducing management intervention requirements and increasing the resilience of ecosystems in the face of threats such as climate change.

The Wildlife Trusts therefore support the reintroduction of the beaver to England using IUCN guidelines<sup>2</sup>.

The Scottish Wildlife Trust played the leading role in the Scottish Beaver Trial and the study of the unlicensed beaver population on Tayside. Trusts are at the forefront of developing proposals for the reintroduction of beavers in Wales.

In England, a small number of Wildlife Trusts have, under Natural England licence, introduced beavers into fenced reserves to improve wetland habitat and/or have conducted feasibility studies within enclosures to assess the impact of beavers on landscapes and their biodiversity. In 2014, beavers were discovered living wild in east Devon and, after extensive public consultation and under rigorous licence conditions, Devon Wildlife Trust is leading the River Otter Beaver Trial to monitor this population over the next five years.

The Wildlife Trusts fully support Devon Wildlife Trust's trial reintroduction programme.

These trials will build on what we have already learned about the feasibility and practicalities of living with beavers in England, and the weight of evidence from Europe suggests that the return of this formerly native mammal would be of overall benefit to British biodiversity.

The Wildlife Trusts do recognise that beavers can have some detrimental impacts to the economic interests of farmers and landowners in certain situations and so reintroduction programmes will need careful local consideration and be subject to appropriate monitoring and adaptive management. Landowners and managers, statutory agencies and local communities must be engaged in the development of any reintroduction plans. The Scottish Government has recently developed a Scottish Code for Conservation Translocations<sup>3</sup> and accompanying Best Practice Guidelines<sup>4</sup>, which should also be adapted for use in England and Wales.

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<sup>1</sup> There is no evidence that the Eurasian beaver was ever native to Ireland

<sup>2</sup> IUCN / SSC (2013) *Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0.* Gland, Switzerland <https://portals.iucn.org/library/sites/library/files/documents/2013-009.pdf>

<sup>3</sup> <http://www.snh.gov.uk/docs/A1327922.pdf>

<sup>4</sup> <http://www.snh.org.uk/pdfs/publications/wildlife/CodeTranslocationsGuidelines.pdf>

## 2. Frequently asked questions

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### Why reintroduce the beaver to England?

The Eurasian beaver (*Castor fiber*) became extinct in England in the 16th century, primarily due to hunting for its pelt, meat and scent glands. Beavers are a missing element in our native biodiversity and bring many benefits to their local environments.

The beaver is a ‘keystone’ species<sup>5</sup> and its absence has had a profound impact on the ecology of our rivers. There are few species which have such significant and positive influences on ecosystem health and function.

Beavers are often referred to as ‘ecosystem engineers’. By modifying their habitats through the coppicing of tree and shrub species, the digging of canal systems and, in some cases, damming of water courses (beavers living on lochs or large rivers have little need of dams) beavers create and maintain diverse wetlands that can bring enormous benefits to other species including otters, water shrews, water voles, birds, invertebrates (especially dragonflies) and breeding fish. This kind of habitat restoration can be extremely costly to achieve by artificial means.

Beavers and the landscapes they generate provide a range of ecosystem services of benefit to both wildlife and people, including:

- **Alleviation of downstream flooding** – the channels, dams and wetland habitats that beaver create hold back water and release it more slowly in periods of heavy rain.
- **Increased water retention** – by storing water and greatly enhancing the absorption capacity of the wider landscape, beaver activity also helps to sustain flows during periods of low water.
- **Water purification** – beaver-generated landscapes have been linked to the significant amelioration of diffuse pollution from human activities. Beavers have been specifically introduced into some river systems in Europe and North America to combat environmental degradation and pollution.
- **Reduced siltation** – dams trap silt, helping to reduce turbidity and sedimentation of water courses, reservoirs and lakes.
- **Ecotourism** - where beavers have been reintroduced on mainland Europe, there is substantial evidence of revenue and employment generation from ecotourism. The most appropriate sites for initial reintroduction can often be in more remote areas where alternative forms of livelihood from traditional land uses are in decline.

### What is the European experience of beaver reintroductions?

Reintroductions and translocations of Eurasian beaver have now taken place in 24 European countries. They began in the 1920s in Sweden, Norway, Latvia, Russia and the Ukraine and continued throughout the 1980s and 1990s in the Netherlands, Croatia, Bosnia and Herzegovina, Czech Republic, Denmark, Hungary, Romania and Slovakia.

Reintroductions usually involve the release of animals over a number of years to several sites. Most have been successful in terms of breeding, population growth and range expansion.

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<sup>5</sup> A keystone species is defined here as one that affects ecosystem function in a significant manner through its activities; the effect normally being disproportionate to its numerical abundance. The removal of a keystone species initiates changes in ecosystem structure and often loss of diversity.

More than 150 translocations have now been undertaken across Europe, most without the detailed monitoring carried out by the Scottish Beaver Trial and other British projects, but some have been thoroughly studied, enabling scientists to predict with confidence the likely pattern of events post reintroduction.

### **What are the potential economic impacts?**

A study on the economic impacts of the beaver by the University of Oxford's Wildlife Conservation Research Unit concluded that "with forethought, prior consultation and planning, a beaver reintroduction should bring significant monetary benefits within the local economy and communities that could greatly outweigh any potential negative impacts."

Research into the impact of beavers on the local economy around Knapdale Forest was carried out as part of the Scottish Beaver Trial and its results are currently being assessed by the Scottish Government. Local businesses reported an upturn in business due to interest in the Trial increasing visitor numbers to the area. There is also anecdotal evidence of an increase in beaver tourists to the River Otter in Devon.

### **What impact do beavers have on their environment?**

Beavers can modify the habitats and landscapes they live in through coppicing, feeding and in some cases damming (beavers living on lakes or larger rivers have little need of constructing dams). However in many cases when they are living at low density, their impacts can be remarkably subtle and go unnoticed for many years.

Beavers forage close to water with activity usually concentrated within 20 metres of the water's edge. Beavers do fell broad-leaved trees and bushes to reach upper branches, encourage regrowth, to eat the bark during the winter and to construct their lodges. Many tree species regenerate, which diversifies the surrounding habitat structure and create areas of mixed-height, mixed-age vegetation. Coppicing has been practiced by foresters throughout history as a method to manage bankside trees. The actions of beavers are very similar, meaning woodlands and trees are more naturally managed.

Evidence from Europe shows that beaver impacts are, in the vast majority of cases, small-scale and localised. Beavers are not normally regarded as pests in Europe and where localised problems have occurred, there are a number of well-established mitigation methods that can be adopted. These include the removal of dams, the introduction of overflow piping, or the installation of fencing (as one does for deer and rabbits). In some cases, the removal and translocation of beavers could be considered. Some countries with sustainable beaver populations permit seasonal hunting and/or lethal control as legitimate management strategies.

### **Do beavers reduce or cause flooding?**

Beavers can have a significant impact on water management. By creating dams and associated wetlands in headwater streams, they store floodwater in upper catchments, moderating water flows. This reduces the height of flood peaks and also ameliorates low flows during dry periods as the leaking dams recharge streams with fresh constant flows. For those landowners impacted, these dams clearly cause localised "flooding" or raised water levels in wetland habitats. The size of these ponds and wetlands can be restricted by the use of flow devices where pipes set the maximum height of the dam, and thus the area of land flooded.

Beavers rarely build dams in main rivers downstream where there is sufficient depth of water, and so many of the concerns about flooding are not real. However in low lying floodplains where

agricultural activities depend on land drains and deep ditches, beaver dams can have more significant impacts. They can obstruct culverts and “restore wetlands” in places that are not compatible with the existing land-uses and therefore create real, and perceived conflicts. In some cases mitigation measures will not be successful, and beavers may need to be moved on.

Evidence from elsewhere in Europe shows that instances of beaver dams creating undesirable flooding are uncommon, localised and usually small-scale. In these situations dams are simply removed or pipes (‘beaver deceivers’) are placed through them to manage water levels.

### **What impact will beavers have on migratory fish?**

Beavers are herbivorous, so do not eat fish. Habitat modification by beavers, however, can have significant impacts on fish populations in some circumstances, and fisheries groups are often concerned about the potential impact of beaver dams on the movement of migratory fish.

The interaction between beaver activity and freshwater fisheries has been the subject of several reviews. Based on the combined results of an independent and systematic review of the literature and survey of expert opinion, Kemp *et al.* (2012)<sup>6</sup> concluded that:

- Benefits (184) were cited more frequently than costs (119).
- Impacts were spatially and temporally variable and differed with species.
- The most frequently cited benefits of beaver dams were increased habitat heterogeneity, rearing and overwintering habitat; flow refuge; and invertebrate production.
- The most frequently cited negative impacts were impeded fish movement because of dams; siltation of spawning gravels (particularly for salmonids); and low oxygen levels in ponds.
- The majority of 49 North American and European experts (more than 60% of whom described themselves as fisheries scientists or managers) considered beavers to have an overall positive impact on fish populations, through their influence on abundance and productivity.

### **How big are Eurasian beavers?**

Beavers can grow to the size of a tubby spaniel, they usually weigh between 16–30kg, measuring 60–90cm in body length, with tail lengths of 20–35cm. It is hard to tell the sex of a beaver from its appearance. Unusually for mammals, female beavers are the same size or slightly larger than males of the same age. Beavers are uniquely adapted for a semi-aquatic lifestyle, with a sleek waterproof coat, large flattened muscular tail and webbed hind feet to provide propulsion underwater.

### **What do beavers eat?**

Beavers are herbivorous and feed on aquatic plants, grasses and shrubs during the summer months, resorting to more woody plants in winter. They will often cache food underwater near the lodge so that they can access it if the water freezes over.

In woodland environments, beavers help to diversify the woodland structure by coppicing larger trees, and stimulating regrowth. This helps to create a diverse age range of trees which greatly benefits woodland biodiversity.

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<sup>6</sup> Kemp *et al.* (2012) Qualitative and quantitative effects of reintroduced beavers on stream fish. *Fish and Fisheries* 13: 158–181. See also *Kemp, P.S., Worthington, T.A. & Langford, T.E.L. (2010) A critical review of the effects of beavers upon fish and fish stocks. Scottish Natural Heritage Commissioned Report, No. 349 (iBids No. 8770)*

### **Do beavers build dams?**

Beavers are well known for their construction skills. They tend to build dams when their habitat does not provide all the conditions suitable for a beaver's needs.

Beavers feel safest when they have easy access to deep water, and so to ensure their safety a beaver may construct a dam in order to create deeper ponds on which to build its lodge, and/or to enable water access to food resources.

When beavers do dam, this modification can have a positive effect for biodiversity. Their ponds benefit many species including otters, water shrews, water voles, birds, invertebrates (especially dragonflies) and breeding fish. Dams can also hold water in periods of drought, can regulate flooding and improve water quality by holding silt behind dams and catching acidic and agricultural run-off.

### **When do beavers start breeding and do they hibernate?**

Beavers are highly territorial and live in family groups, with a family group occupying a few kilometres of river or stream, or wetland or freshwater lakes. Beavers are crepuscular, rather than nocturnal, meaning they are most active at dawn and dusk throughout the year and do not hibernate.

Beavers can live up to 25 years in captivity, but would not live as long in the wild – possibly 15 years. Beavers are thought to be monogamous which means they mate for life or until their partner dies. A breeding pair can produce 2-4 kits per year. Mating takes place between January and February, with kits born within the lodge from April to June (gestation of around 105 days). Other family members may bring vegetation to the lodge for kits to feed on during this time. Kits are usually weaned after 2-3 weeks and emerge from the lodge to feed with their parents during June or July.

Offspring will remain with their parents until they are around two years old. Around this period they become sexually mature and leave to find territories and partners of their own.