

Bringing beavers back

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Scottish Beaver Trial

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The comeback of the Eurasian beaver (*Castor fiber*) can be described as a real conservation success story. Reduced to an estimated 1,200 individuals by the end of the 19th century predominately through over-hunting, this species has recovered across most of its former native range in Europe through active conservation measures from hunting bans and protection, to proactive translocations and reintroductions (Nolet & Rosell 1998, Halley & Rosell 2002). The success of such measures has resulted in a current population estimate of over 1 million individuals (Halley *et al.* 2012). Several reasons are often cited as to why so much effort has been invested into bringing beavers back. As a former native removed through human actions many believe we have a duty to implement its restoration, and there is a real public desire to do so, which of course is greatly aided when dealing with a charismatic mammal! The European Habitats Directive implies a legal responsibility to at least investigate the restoration of this species within member states where it was previously native. However, most importantly there is significant evidence that beavers and their associated activities generate more complex and dynamic wetland environments (see Rosell *et al.* 2005 for review)

The concept of beaver reintroduction is not new to Britain (see Jones *et al.* 2013). After its extinction in the 16th century small numbers of beavers have been imported, bred in captivity and even released at various points from the 18th century onwards, but these never established as free-living populations. Conservation campaigns for a full beaver reintroduction have occurred at various points but serious discussions began in the 1990's resulting in an application for a trial reintroduction by Scottish Natural Heritage in 2002, which was rejected by the Scottish Government in 2004. The next few years saw credible feasibility studies undertaken in England and Wales (Gurnell *et al.* 2008, Jones *et al.* 2011), and the successful application for a trial release by the Royal Zoological Society of Scotland and the Scottish Wildlife Trust in 2007 led to the establishment of the Scottish Beaver Trial in 2009 following a change in government in Scotland. More recently it has become evident that an unlicensed beaver population has become established on the

Tayside river catchment (Campbell *et al.* 2012) and significantly the Scottish Government announced in 2012 that their presence will be tolerated until the conclusion of the official trial in Knapdale, Argyll.

The positive habitat creation and biodiversity benefits created by beavers are exemplified by key activities such as tree felling with the associated opening in the tree canopy spurring vegetation growth and plant biodiversity, and also the creation of dead wood providing breeding and feeding sites for a host of invertebrates and their predators. Dam building creates new wetlands, slowing water to encourage invertebrates, providing spawning ponds for fish and amphibians. These activities along with beaver burrowing behaviours all serve to create a more complex and dynamic environment for numerous plant and animal species.

Such activities may conflict with human land-use, especially in highly modified landscapes. Burrowing and dam building tend to generate the most significant conflicts and irritation. However knowledge of beaver behaviour and ecology can be used to try and reduce the impact of such conflicts. Human-beaver conflicts tend to occur in and around freshwater bodies, the vast majority of which tend to occur within 20 metres of the water's edge. The creation of 20m buffer zones around water courses and bodies can serve to greatly ease such impacts. Long-term changes in land practices such as not farming to river edges or canalising water ways would also greatly benefit many other species.

Along with biodiversity benefits the ecosystem services beavers can provide such as water purification and water management are particularly evident in dry seasons in Canada for example (Hood 2011). Beaver ponds also act to retain silt and trap nutrients, and these ponds in turn can develop into very fertile beaver meadows when eventually the beavers move on and the dam breaks down dropping water levels. Also the potential positive socio-economic benefits that beaver tourism could bring at a local level should not be ignored (Campbell *et al.* 2007).

Over 26 European countries have already reintroduced the beaver, and experience from these countries has shown that this is a species that will need management, especially in heavily modified landscapes. But for such management solutions to work they need to be pragmatic. Beaver reintroduction will require compromise not only by landowners but also by conservationists and this will require education and experience with beavers in a British context. Ultimately, after such a long absence we need to learn to live with and manage this species again.

So what happens next? There is a strong drive for a full beaver reintroduction and it is increasingly evident that there are free-living beavers present in parts of Scotland and in England to a lesser extent, which are generating scientific, media and tourist interest. However, there are also strong arguments being presented by those opposed, many of which are currently being investigated in a Scottish context through the work of the Scottish Beaver Trial and the Tayside Beaver Study Group. 2014-2015 will see the conclusion of the Scottish Beaver Trial along with information from the Tayside beaver population being gathered by SNH and presented to the Scottish Government, who will then make the decision on whether beavers will remain in Scotland or not. In conclusion there has been a complex history of how beavers have returned to Britain. Ultimately the decision for them remaining will be a socio-political one, as supposed to an ecologically based decision, with the next two to three years being critical for the future of beavers in Britain, so watch this space.

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