



The Wildlife Trusts' Beaver Reintroductions



Beavers **and us**

The Wildlife Trusts believe that people are part of nature; everything we value ultimately comes from it and everything we do has an impact on it. Beavers were hunted to extinction in the UK by the 16th century, but over the past decade efforts have been underway to reintroduce them and to study their impact on the modern landscape. This report summarises the findings of five beaver projects that Wildlife Trusts run together with a range of partners – from farmers to government agencies.

The reintroduction of beavers is an area of keen interest and debate amongst conservationists, land owners and decision-makers alike. Our findings give a glimpse into how beavers could help provide a natural, cost-effective and sustainable solution to the serious issues of flooding, pollution and species loss in the UK.

We want to see more wildlife-rich wetlands in the landscape, and land and watercourses managed in a way that slows the flow of water towards the sea; beavers are an integral part of this.

Beavers can create large areas of water-retaining wetland, slowing the flow of streams and rivers and protecting the land downriver from flooding, as well as reducing siltation and improving water quality. These wetlands provide excellent habitat for entire communities of species, such as otters, water shrews, water voles, birds, dragonflies, breeding fish and rare freshwater plants. The presence of beavers can be a real positive for nature tourism.

This report gives an overview of some of the main beaver projects underway across The Wildlife Trust movement. There are many more Wildlife Trust beaver projects in the pipeline across the UK, including the reintroduction of beavers to Wales.

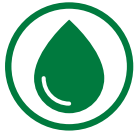
Beaver at Loch of the Lowes, Scottish Wildlife Trust
© Ron Walsh

About The Wildlife Trusts

We are a grassroots movement that believes we need nature and it needs us. More than 800,000 members and 40,000 volunteers work together with their Wildlife Trust to make their local area wilder and make nature part of life, for everyone. There are 46 Wildlife Trusts covering the UK and each is an independent charity. Collectively we look after more than 100,000 hectares on 2,300 nature reserves and in 2017 provided advice to almost 4,000 land managers across approx. 120,000ha. We look after hundreds of miles of rivers and streams, managing them for wildlife.

This pioneering and important work couldn't happen without donations from our supporters. Find out more at www.wildlifetrusts.org/beavers

The **benefits** of beavers



Improved water quality

Beaver dams slow and filter water, causing sediment and nutrients to be deposited in ponds. This improves the quality of water flowing from sites where beavers are present.



People engaged with wildlife

People are fascinated by beavers. The presence of beavers in an area provides an opportunity for people to engage with wildlife, as well as creating a market for nature tourism in some places.



More wildlife

Beavers create diverse wetland habitats that can provide a home for a wide range of wildlife, especially aquatic invertebrates which act as a food source for other species.



Land holds more water

The dams, ponds and channels created by beavers increase capacity of land to store water and produce a more consistent outflow below their dams. This can result in less water being released during storms and heavy rainfall, and more water availability during times of drought.

Beavers: **Before and after**

As ecosystem engineers, beavers are able to very rapidly alter the hydrology of the landscape they occupy.

These before and after images taken from a fixed- point post in the enclosed beaver project run by Devon Wildlife Trust, show the impact the beaver activity has had on the capacity of the land to hold water in just five years.

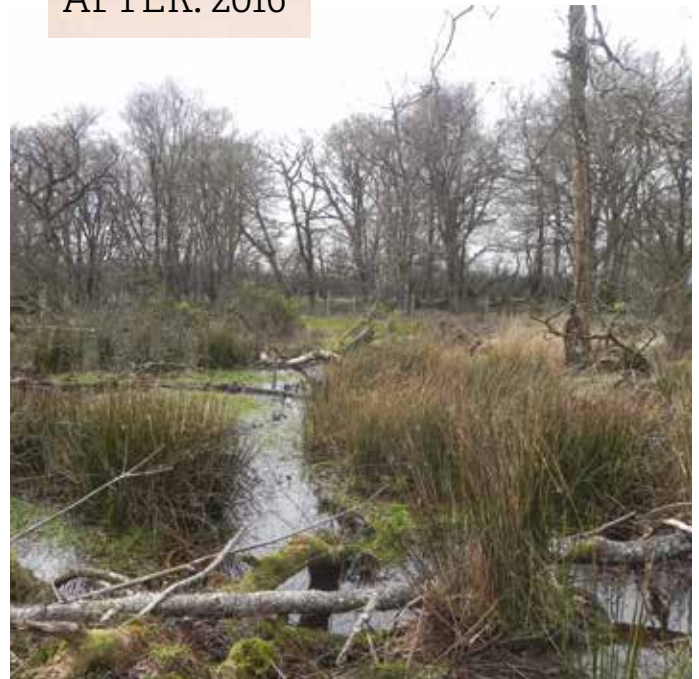
This example of landscape engineering 'slows the flow' of water, thereby decreasing the chance of flooding downstream.

Ponds created in this way have a complex and varied structure and integrate seamlessly into the landscape. By coppicing broadleaved trees and bushes, this creates diversity in surrounding habitat structures which increases the level of biodiversity.

BEFORE: 2011



AFTER: 2016



Scottish Beaver Trial

Scottish Wildlife Trust

The project

In 2009, the Scottish Wildlife Trust and partners released the first wild beavers in Scotland in over 400 years. The beavers were released in Knapdale Forest, in Argyll. The findings of this pioneering project, the first of its kind in the UK, persuaded the Scottish Government to allow beavers to remain, and commit to granting beavers legal protected species status. In October 2017, a three-year reinforcement project began with the release of three more beavers into Knapdale Forest, with further releases in spring 2018.

The impact



The beavers temporarily increased water storage in the larger lochs. This also caused the elevation and stabilisation of water levels in small lochs which can reduce the impact of flooding downstream.



The most striking change was caused by a dam on the outflow of a small pond, Dubh Loch, which caused a rise in water level of 1.1m.



Beavers greatly increased the habitat diversity of the landscape, providing more niches for different species. The impact of this will continue to be monitored in Scotland in order for long-term effects to be identified.

The future

The reinforcement project has a licence to release up to 28 animals over 3 years.

Project summary

Area of habitat: 4,400ha

No of beavers: around 11

Wild or enclosed: Wild

Trial timescale: 2009 – 2015

Reinforcement: 2017-2020+

Partners: Scottish Wildlife Trust and Royal Zoological Society of Scotland.

Host: Forestry Commission Scotland

Funding: £1m grant from Biffa Award and funding was also received from the People's Postcode Lottery and Scottish Natural Heritage, and donations from the public.

Beaver created wetland at the Dubh Loch
© James Shooter/scotlandbigpicture.com

“Beavers have created a wetland the size of ten Olympic swimming pools...

When the land holds more water, this means less water is free to flow downstream,

and a lower risk of flooding”

Susan Davies, Scottish Wildlife Trust

The Devon Beaver Project

Devon Wildlife Trust

The project

In 2011, Devon Wildlife Trust introduced one beaver family group to an enclosed area (3 hectares) of land in the west of Devon. They're working with the University of Exeter to monitor the effects of the beavers on the habitat using water quality tests, flora and fauna surveys and fixed-point photography.

The impact



The wetland habitats created by beavers store 56 litres of water per m² of land. This has the potential for reducing the impact of flooding downstream.



During storms and heavy rainfall, peak flows were an average 30% lower leaving the site than entering.



During storm events, each litre of surface water leaving the beaver-modified site has 3x less sediment than the water entering the site.



The diversity of both plants and invertebrates within the beaver site increased, with the number of beetle species more than tripling since the beavers were introduced. This increase in prey availability has led to more species of bat being recorded, including rarer species such as barbastelle bats.

The future

Devon Wildlife Trust will continue to monitor the effects of beavers on this site but rely on donations to continue this groundbreaking work. Go to our website to find out more www.devonwildlifetrust.org

Project summary

Area of habitat: 3ha

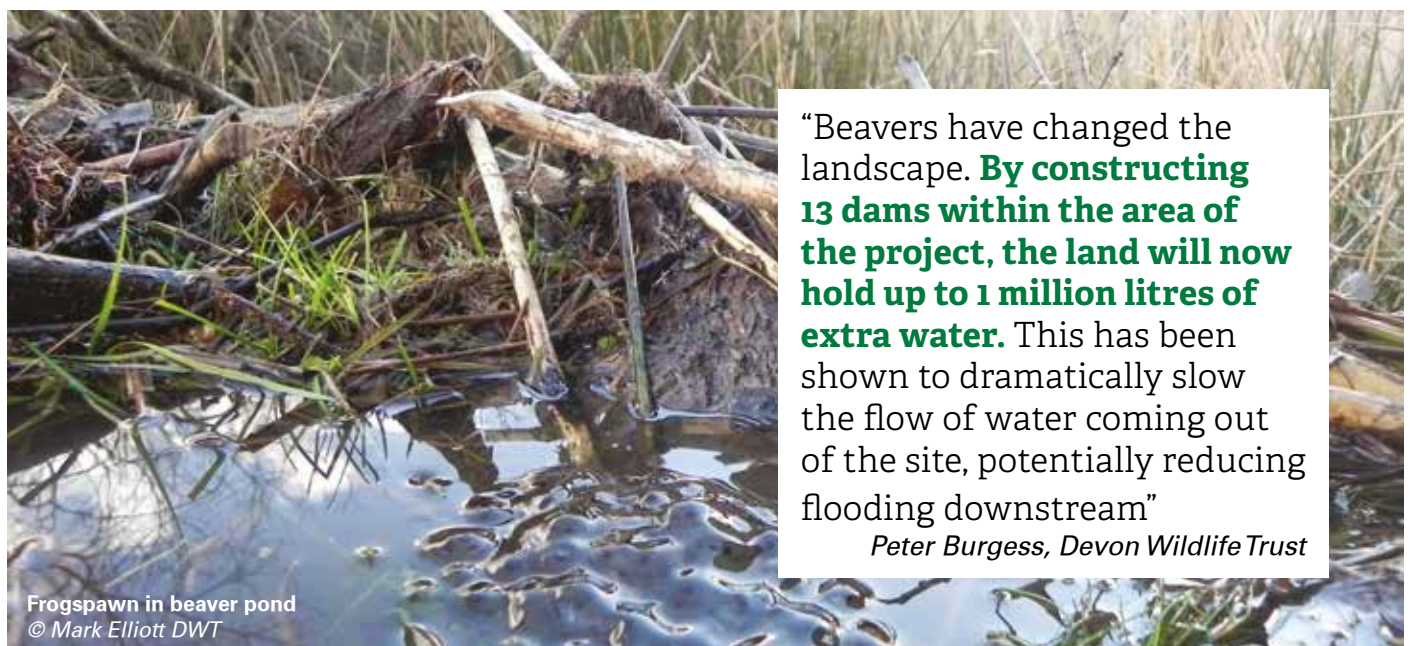
No of beavers: 1 family

Wild or enclosed: Enclosed

Timescale: 2011-ongoing

Partners: Derek Gow Consultancy, The University of Exeter

Funding: Viridor Credits Environmental Company and the Truell Charitable Foundation paid for the fencing costs and Westland Countryside Stewards funded the University of Exeter research work. The enclosure is also covered by a Higher Level Stewardship agreement.



“Beavers have changed the landscape. **By constructing 13 dams within the area of the project, the land will now hold up to 1 million litres of extra water.** This has been shown to dramatically slow the flow of water coming out of the site, potentially reducing flooding downstream”

Peter Burgess, Devon Wildlife Trust

River Otter Beaver Trial

Devon Wildlife Trust

The project

When beavers were found living wild in east Devon, Defra intended to remove them citing the risk of a parasitic disease, a plan opposed by the local community. Devon Wildlife Trust spent much of 2014 developing an alternative proposal: England's first ever wild beaver trial.

Following tests to show the beavers were healthy, Devon Wildlife Trust were permitted to re-release the beavers under a licence from Natural England, as part of a five year monitoring project – The River Otter Beaver Trial. The Trial oversees the population, range and health of the beavers, and the effect they have on the local landscape and people. It focuses on the beavers' impacts on wildlife, vegetation, water flow, water quality, communities and infrastructure.

The impact



The beavers have been recorded moving into new areas and creating dams and ditches to create wetland habitat which holds more water in the landscape, and filtering silt and agricultural chemicals out of water. Both reduce flooding downstream.

The future

Devon Wildlife Trust will submit a report to Defra at the beginning of 2020. Defra will then decide whether beavers will be allowed to remain in the wild in England.

Project summary

Area of habitat: 28,700ha

No of beavers: 8 families

Wild or enclosed: Wild

Timescale: 2015-2020

Partners: The University of Exeter, the Derek Gow Consultancy, and Clinton Devon Estates.

Funding: The Wildlife Trusts, Peter de Haan Charitable Trust, Garfield Weston Foundation, University of Exeter and donations from the public.



Female beaver with kits

© Mike Symes/Devon Wildlife Trust

The Ham Fen Beaver Project

Kent Wildlife Trust

The project

In 2001, Kent Wildlife Trust released beavers into an enclosure (30ha) near Sandwich to restore Kent's last remaining area of fenland habitat.

The impact



The beavers have transformed the old fen from dry secondary woodland to a mosaic of willow, alder and herbaceous plants. They've created conditions suitable for the reappearance of species not seen on the reserve for decades (southern marsh orchid, water vole, otter) or even centuries (few-flowered spike rush).



Beaver activity has dramatically increased the amount of deadwood in the site, restoring a key ecological component absent from most of our managed landscapes.



The benefits of beavers for conservation management and flood attenuation have been demonstrated to thousands of people through guided walks, talks and beaver-watching events.

The future

Kent Wildlife Trust are looking to extend the area of species-rich fenland habitat, not only at Ham Fen but also in the wider landscape. The beavers are laying the foundations that will allow Kent Wildlife Trust to explore the reintroduction of other lost species, such as the fen orchid and marsh fritillary butterfly. Go to our website www.kentwildlifetrust.org.uk to find out how you can help Kent Wildlife Trust to continue to restore this wonderful habitat, for wildlife and people!

Project summary

Area of habitat: 30ha

No of beavers: 10

Wild or enclosed: Enclosed

Timescale: 2001-ongoing

Funding: This project relies on the generosity of members and supporters



Beaver Dam at Ham Fen, KWT
© Vicky Aitkenhead



Beaver swimming at Ham Fen, KWT
© Terry Whittaker

“The beavers have transformed the landscape. They've created a more meandering watercourse, wetting the wider fen. **Species are popping up that haven't been recorded here for decades**, like the southern marsh orchid.”

John Wilson, Kent Wildlife Trust

The Cornwall Beaver Project

Cornwall Wildlife Trust and Woodland Valley Farm

The project

In June 2017, two beavers were released into an enclosure along a stream above Ladock, Cornwall, a village increasingly affected by flooding.

The Project team worked with researchers from the University of Exeter, who installed specialised equipment over a year before the beavers were in place, monitoring the flow of water through the site.

The impact



The landscape is evolving as new dams are constructed and existing ones extended, holding water and slowing the flow. It used to take 15 minutes for water to flow through the site; it now takes an hour.



Weekly 'beaver watches' help engage people with wildlife and raise funds for the project. Over 1000 people have been shown around the site so far, and the farm has seen increasing bookings for residential stays by schools, colleges and universities.

The future

The university researchers will now track the changes in flow rate and water quality as the beavers continue to alter the habitat, with ongoing monitoring to measure the effects of the beavers' landscaping.

Project summary

Area of habitat: 2ha

No of beavers: 4

Wild or enclosed: Enclosed

Timescale: 2017-ongoing

Partners: Woodland Valley Farm and research with University of Exeter.

Funding: This project relies on donations from the public.



"I came thinking I couldn't possibly have beavers on my land, **I am leaving thinking I can't possibly not!**"

A visiting farmer