



BEAVER

Barmy about **Beavers**



Cheshire
Wildlife Trust



Beaver facts

Scientific name:
Castor fiber

Common names:
Beaver, Eurasian beaver

Names of Hatchmere's beaver family:
Willow (mum), Rowan (dad), Aspen and Bramble (kits)

Origin:
Native to Britain

Family:
Castoridae

Predators: Adults have no natural predators

Appearance:
Beavers have brown fur, a flat, broad tail and huge orange teeth.

Diet:
Aquatic plants, tree bark and leaves

Size:
One of the largest members of the rodent family native to Europe, beavers can weigh as much as 30kg and measure well over a metre from head to tail!

Habitat:
Streams, rivers and lakes next to woodland

We want beavers back in Cheshire



The Eurasian beaver (*Castor fiber*) is a large herbivore, a mammal that was formerly native to these shores and once played an important part in our landscape. After 400 years, we want to bring beavers back to Cheshire! Our beaver family, Willow (female), Rowan (male), Aspen and Bramble (their two young kits) play a really important part in making Hatchmere wilder. They enjoy over 10 acres of wetland habitat at Hatchmere Nature Reserve, within a special beaver-proof fence. A brook flows through the beaver zone, and the native plants and trees will offer our beavers all the food variety they need to thrive.

Where did they go?

Beavers were hunted to extinction in the 16th century for their fur, meat and scent glands. The loss of this charismatic species also led to loss of the mosaic of lakes, meres, mires, tarns and boggy places that it so brilliantly built.

The Wildlife Trusts are working hard to bring these fantastic mammals back to Britain.



Beaver Female with Kits. © Michael Symes DWT.

Why bring beavers back?

This isn't just about the reintroduction of a species - it's about the reintroduction of an entire ecosystem that's been lost.

Beavers are often referred to as 'ecosystem engineers'. They make changes to their habitats, such as digging canal systems, damming water courses, and coppicing tree and shrub species, which create diverse wetlands. In turn these wetlands can bring enormous benefits to other species, such as otters, water shrews, water voles, birds, invertebrates (especially dragonflies) and breeding fish.

The **benefits** of beavers



Improved water quality

Beaver dams slow and filter water, causing sediment and nutrients to be deposited. 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, decreasing the chance of flooding downstream.

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



BEFORE: 2011



AFTER: 2016

Hatchmere Nature Reserve

Hatchmere's precious wetlands are dying...

Hatchmere © John Roberts



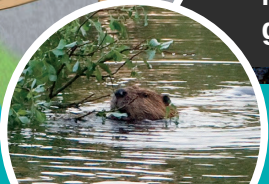
... but beavers can help save these special habitats



- Man-made problems are destroying rare habitats at Hatchmere Nature Reserve, and killing aquatic life in the wetlands and in Hatch Mere lake.
- Peat bogs are delicate habitats which need nutrient-poor water.
- But the brook flowing into the site has become far too rich and nutrient-packed, so the peat bog plants and animals are losing their fight for survival.
- Invasive species like nettles and bramble are thriving on the nutrient-rich water supply – reducing sunlight and accelerating the loss of peat bog life.



- Beavers are nature's finest 'wetland engineers', driven by instinct and the relentless desire to create their ideal breeding grounds.
- As they dig and dam the area to make the deep pools they need, the beavers will be helping restore the delicate balance of wetland life for many plant and animal species living downstream.
- Ground water levels will rise, and the beavers' deep slow-moving pools will turn their enclosure into a vast natural sediment filter.
- Cleaner water will then flow out into the neighbouring Site of Special Scientific Interest – so Hatch Mere and its surrounding peat bog habitats can at last begin to recover



Now watch Hatchmere grow wilder.

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 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 three 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, Scottish Wildlife Trust

"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 (three 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.

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.



Programme in a beaver pond. © Mark Elliot, DWT

"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

cheshirewildlifetrust.org.uk

Ham Fen Beaver Project

Kent Wildlife Trust

The project

In 2001, Kent Wildlife Trust released beavers into a 30 ha enclosure 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).



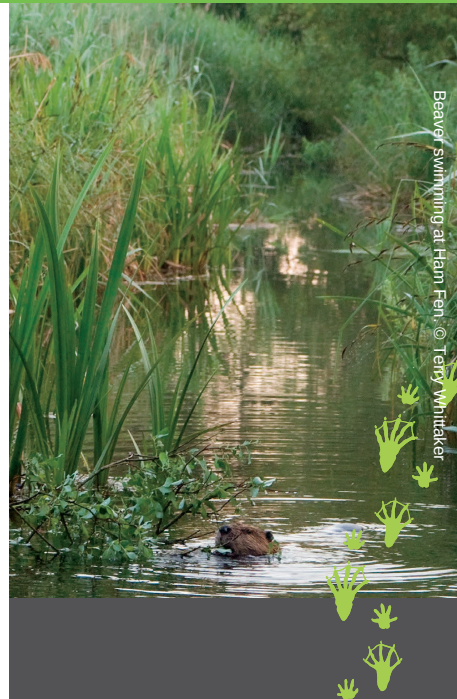
Beaver activity has dramatically increased the amount of deadwood in the site, restoring a key ecological component absent from most of our managed landscapes.



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.



Beaver swimming at Ham Fen. © Terry Whitaker

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. © Vicky Aitkenhead

"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



A message from our Living Landscape Officer

Exciting times are on the horizon for Hatchmere Nature Reserve.

The reintroduction of beavers supports our mission to bring wildlife back. Beavers are keystone species. The way they transform their environment has knock-on effects for a huge variety of species, creating safe havens for wildlife from the smallest of invertebrates, to otters and birds such as kingfisher and bittern.

The beaver is our largest rodent, with a flat tail, webbed feet and small ears. Their tiny eyes have a third transparent eyelid to protect them underwater. Beavers are well-suited to a semi-aquatic lifestyle. Being herbivorous, they feed only on plants such as willow in the winter, and aquatic plants, bark, roots, leaves and shoots in the summer.

Preferring not to travel far on dry land, the majority of a beaver's work is focused along the water's edge. They fell trees to create dams and create standing deadwood through bark stripping for food. This reduces tree cover and shading on the edges of the ponds, rivers and streams where the beavers live. With light now being able to reach the ground, a beautiful new variety of plants are able to grow, both under the water and on the forest floor. This variation is maintained throughout the summer by the grazing beavers. The plants then attract dragonflies and damselflies, butterflies, bees and a whole host other

invertebrates as well as newts, frogs and toads.

Beaver dams store high volumes of water, increasing the retention of water on a site. The leaky dams slowly release the water throughout the year, preventing droughts upstream in the summer, and reducing downstream flooding in the winter. The pools which form in front of the dams become refuges for fish, which then attract birds such as kingfishers, bittern and egrets, which use these pools for hunting.

So when we say we are reintroducing beavers to Hatchmere Nature Reserve, that's just one small part of our project. We are rebalancing the natural processes and providing safe havens for plants and animals in the Delamere area. We are reconnecting people with the beauty and importance of wildlife.

Kev Feeney

Hatchmere Living Landscape Officer



Beaver reaching to eat Willow at Ham Fen. © Terry Whitaker



**Cheshire
Wildlife Trust**

About Cheshire Wildlife Trust

Let's bring wildlife back - for everyone for everywhere

Cheshire Wildlife Trust is a grassroots movement of people from all walks of life, who believe that we need nature and nature needs us. With the current climate and ecological crises, 'conservation' is no longer enough.

Together with our supporters, members and volunteers, we're fighting to bring nature back.

Working across Cheshire, Halton, Stockport, Tameside, Trafford, Warrington and Wirral, we manage and influence huge swathes of land as well as areas across the Irish Sea. We are pioneers in creating nature-based solutions to combat the current climate and nature crisis we find ourselves in today. We also know that our natural world needs everyone to act if we are to save it.

Cheshire Wildlife Trust reaches thousands of people each year, from school children to local businesses, inspiring communities to love and protect nature where you are.

As a charity that receives no government funding, we can only do what we do thanks to the generosity of our supporters.

Visit cheshirewildlifetrust.org.uk/support-us to see how you can join the fight to bring nature back.


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