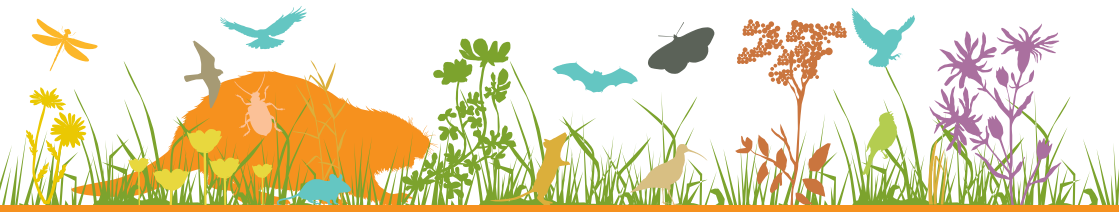
BEAVER

Barmy about Beavers

Derbyshire
Wildlife Trust



Beaver Facts

Common names: Beaver, Eurasian beaver

Scientific name: Castor fiber

Origin: Native

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, 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've brought beavers back to Derbyshire

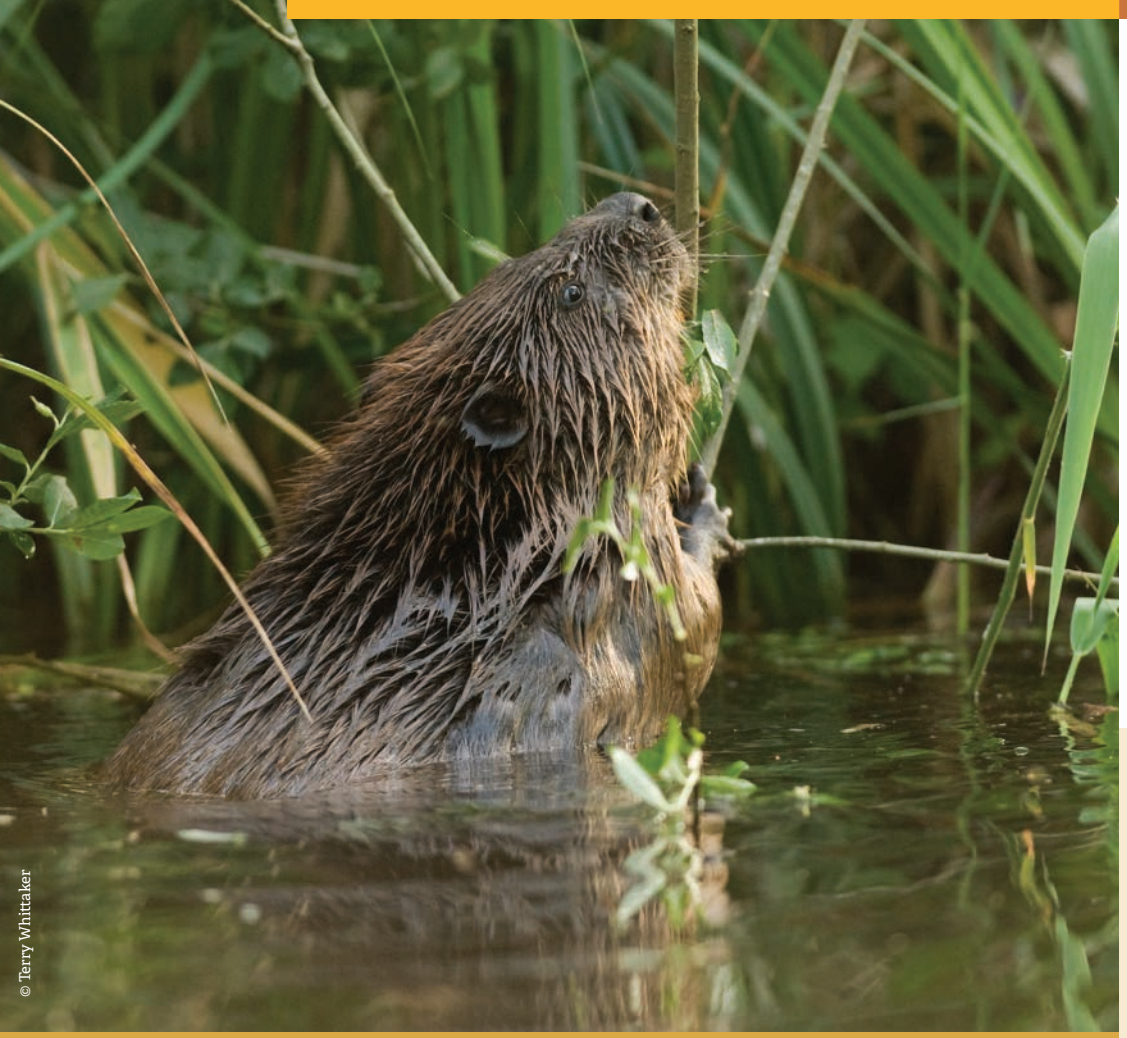
The Eurasian beaver (Castor fiber) is a large herbivore, a mammal that was formerly native to these shores and once played an important part in our landscape.

After 800 years, beavers are back in Derbyshire! Our beaver families will play a really big part in making Willington wilder. They have over 40 hectares of wetland habitat to enjoy, within a special beaver-proof fence. Egginton Brook flows through the beaver zone, and the native plants and trees 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.



© Terry Whittaker

Why bring back the beaver?

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 channels, 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 in ponds. This improves the quality of water flowing from sites where beavers are present.

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.

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.

Land holds more water

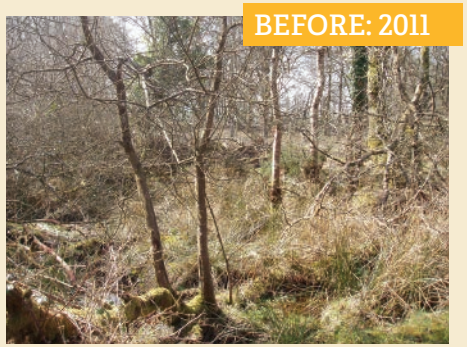
The dams, ponds and channels created by beavers increase capacity of land to store water and produce a more consistent outflow below their dams. This can result in less water being released during storms and heavy rainfall, and more water availability during times of drought.

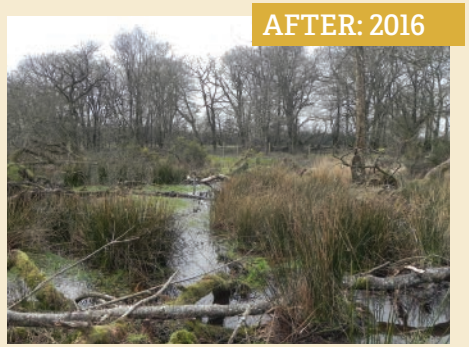
Beavers: before and after

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.





Willington Wetlands

Willington is a special place, recovering from industrial scars

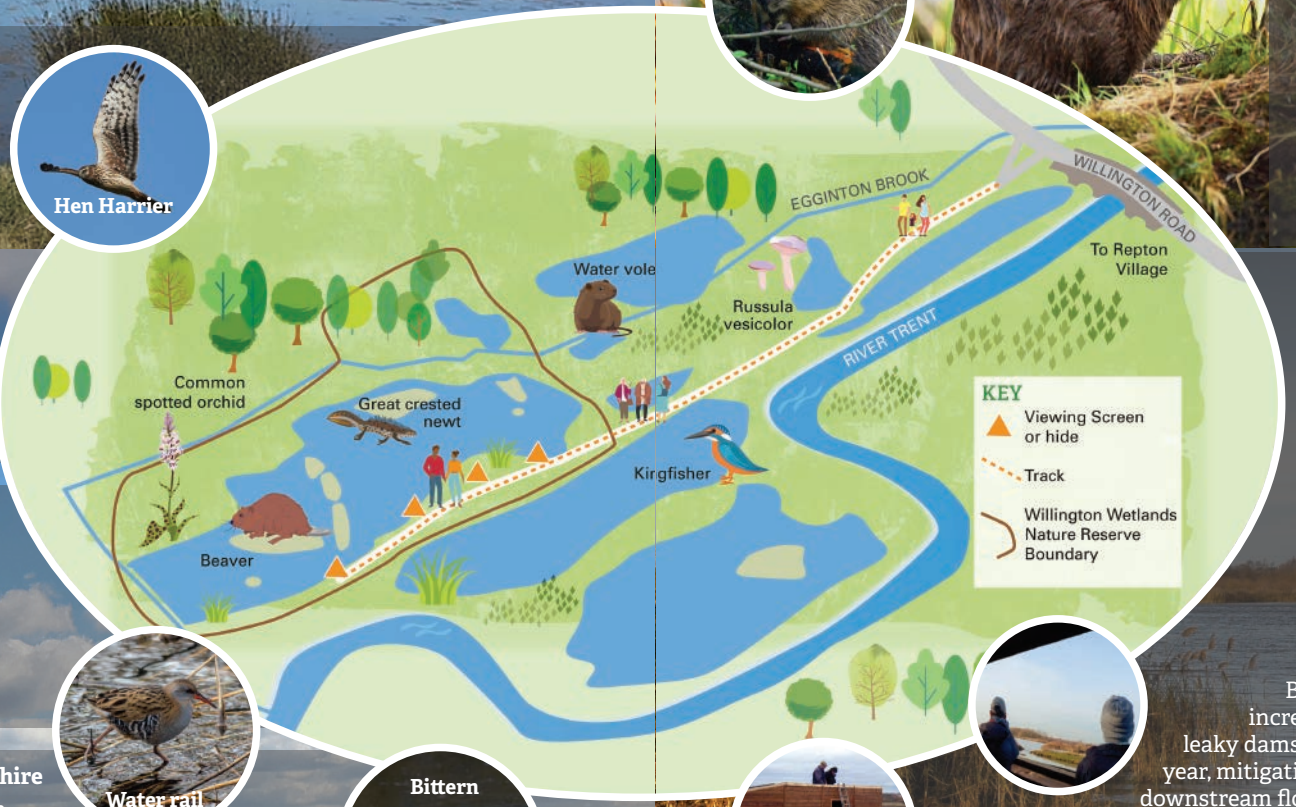
We acquired this site in 2005 after initial restoration work had been carried out. Prior to this, gravel had been extracted here for decades, leaving a series of deep pits across its 114 acres. We've gently helped nature and wildlife to reclaim the landscape by keeping human impact low and by encouraging water to flow between the pits. These are now the vital water reservoirs at the heart of this rich wetland.

The site is already teeming with life

Many rare bird species have become resident or feed here on their migration paths, including kingfisher, reed buntings, water rail, marsh harrier, Cetti's warbler, lapwing and bittern.

It's a key wildlife 'hub' for Derbyshire

The location and size of Willington make it a natural 'hub' for wildlife, providing links between neighbouring reserves. Our efforts are focussed on protecting and enriching this nature reserve to support Derbyshire's wildlife.



Exciting times are on the horizon for the Willington Wetlands Nature Reserve.

The reintroduction of beavers supports our wider rewilding agenda, with the reintroduction of natural processes forming a key aspect of rewilding. Beavers are keystone species: the way that beavers transform their environment has knock-on effects for a huge variety of species, creating spaces 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 and webbed feet, small ears and small eyes with a third, transparent eyelid to protect their eyes underwater, they are well-suited to a semi-aquatic lifestyle. Being vegetarian, 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 aquatic margins. The felling of trees to create dams, and the creation of standing deadwood through bark stripping for food reduces tree cover and shading on pond, river and stream margins. Submerged, emergent and marginal vegetation can then establish, and is maintained through beaver grazing in the summer. Higher numbers of marginal and aquatic 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, mitigating droughts in the summer, and reducing downstream flooding in the winter. The pools which form behind 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 the Willington Wetlands Nature Reserve, that is just one small part of our project. We are restoring eco-system services in the Trent Valley, we are bringing back natural flora and fauna to the Trent Valley, and we are reconnecting people to the Trent Valley.

...now watch Willington Wetlands grow wilder, more self-sustaining, and become easier to visit!

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, providi ng 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.

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, along with funding from the People's Postcode Lottery and Scottish Natural Heritage, and donations from the public.

The future

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

© Clare James

"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 m^2 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.

Project summary

Area of habitat: 3ha

No of beavers: 1 family

Wild or enclosed: Enclosed

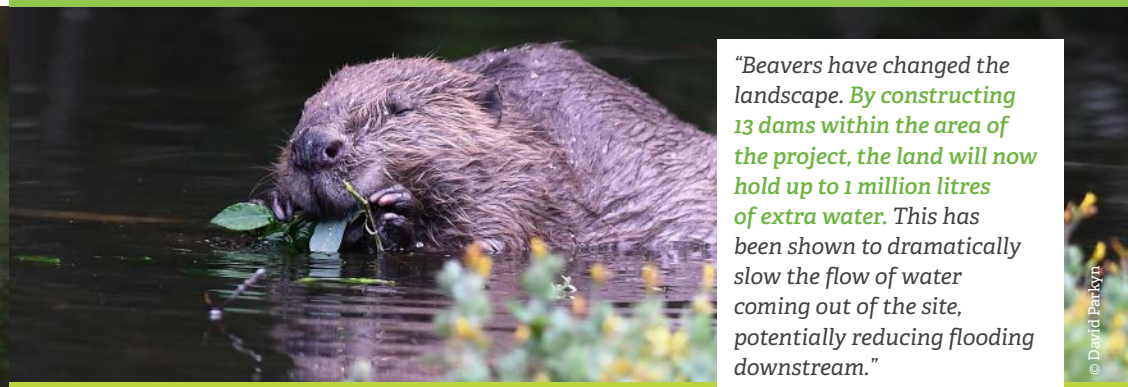
Timescale: 2011–ongoing

Partners: Derek Gow Consultancy and 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.

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.



© David Parkyn

"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

© Michael Symes Devon

Beaver families

Beavers reach maturity at around 20 months old and will form a monogamous relationship with only one partner in their lifetime. Mating season is relatively short for beavers, limited to January and February, so the pairs rarely leave each other's side at this time of the year.

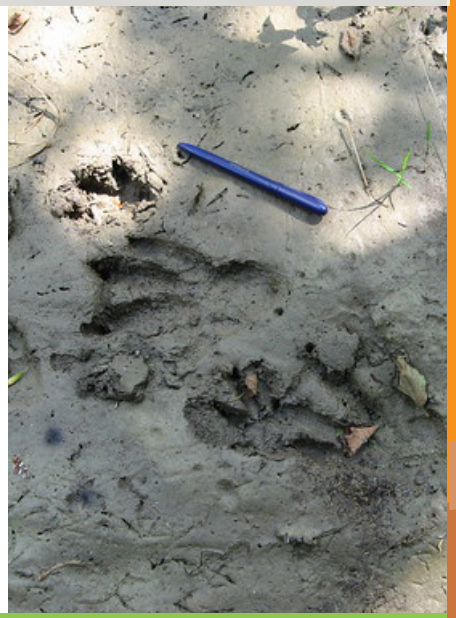
Each May, the breeding pair with have a litter of 1–4 kits. The healthier the mother is, the more kits she will have. These kits will stay with their parents until they are around 2 years old, when they will leave the den in search of their own territories and a breeding mate.

Signs of beaver activity

It's actually much more common to see signs of beavers than the beavers themselves.

The most common sign of beavers in an area is the absence of bark on trees. A groove will be gnawed in a circular motion all around the tree, with horizontal teeth marks, usually close to its base. Fallen trees in the same area will also be stripped of bark by the beavers for food. The most common trees beavers will gnaw are willow, aspen and birch.

Another tell-tale sign is beaver footprints which are relatively easy to spot, especially in late autumn when river banks are muddy. Beaver prints differ from other animal prints as their hind feet are notably bigger than the front feet, usually 2 or 3 times bigger. Each foot will have 5 visible toes, the hind legs are webbed and claw marks will also be visible in the print.



Frequently Asked Questions

How many beavers are there?

We have two males and two females at Willington.

What happens if they escape?

The beaver fencing that has been installed is to an exact specification from Natural England. It was agreed following a full site survey with the anticipated flood risk and levels appropriately considered, making sure we keep the beavers safe and that they don't escape.

What do they eat?

Contrary to what many people believe, beavers only eat plants! Not just trees but they'll be eating brambles and other plants too. They're big fans of Himalayan balsam, which is an invasive non-native species that can spread easily and become problematic for our native wildflowers.

Will beavers damage other wildlife?

Beavers are known as nature's engineers. They make changes to their habitats which create diverse wetlands for other species to thrive. By digging canal systems and damming water courses, they create diverse wetland areas and homes for other animals such as otters, water voles and water shrews.

Are beavers easy to spot?

Beavers are crepuscular mammals, meaning they are most active at dawn and dusk. If you are trying to spot one, this is when the chances are highest. Listen out for splashing or gnawing sounds in areas where you know beaver activity is common, and look for signs of branches being piled up – this could be a sign of a lodge or even a dam.

Will the new beavers breed?

We hope so! Typically two to four kits are born each year and youngsters stay with the family for around two years. There is plenty of space at Willington for our beaver families to expand.

How will they be monitored?

We have a team of staff and volunteers who will be closely observing the site and species of Willington to monitor the effects of beavers. We have an interactive map where you can see the latest sightings, videos, images and aerial footage.

To learn more please visit:

www.derbyshirewildlifetrust.org.uk/explore/projects/all-about-beavers

About Derbyshire Wildlife Trust

We are a small charity with big ideas.

We want to help nature to recover from the decline that for decades has been the staple diet of scientific studies and news stories.

We believe passionately that wildlife and natural processes need to have space to thrive, beyond designated nature reserves and other protected sites. To achieve this it is vital that the richest wildlife sites are protected and sustained as a starting point from which nature can spread back into our wider landscapes

Derbyshire Wildlife Trust
Sandy Hill, Main Street
Middleton, Matlock, DE4 4LR

Tel: 01773 881188
Email: enquiries@derbyshirewt.co.uk
Web: www.derbyshirewildlifetrust.org.uk

Registered Charity Number: 222212

@DerbyshireWildlifeTrust
Derbyshirewildlifetrust
@DerbysWildlife

Cover Image: Michael Symes