Derbyshire Wildlife Trust

Wilder Willington Wetlands – beaver reintroduction project

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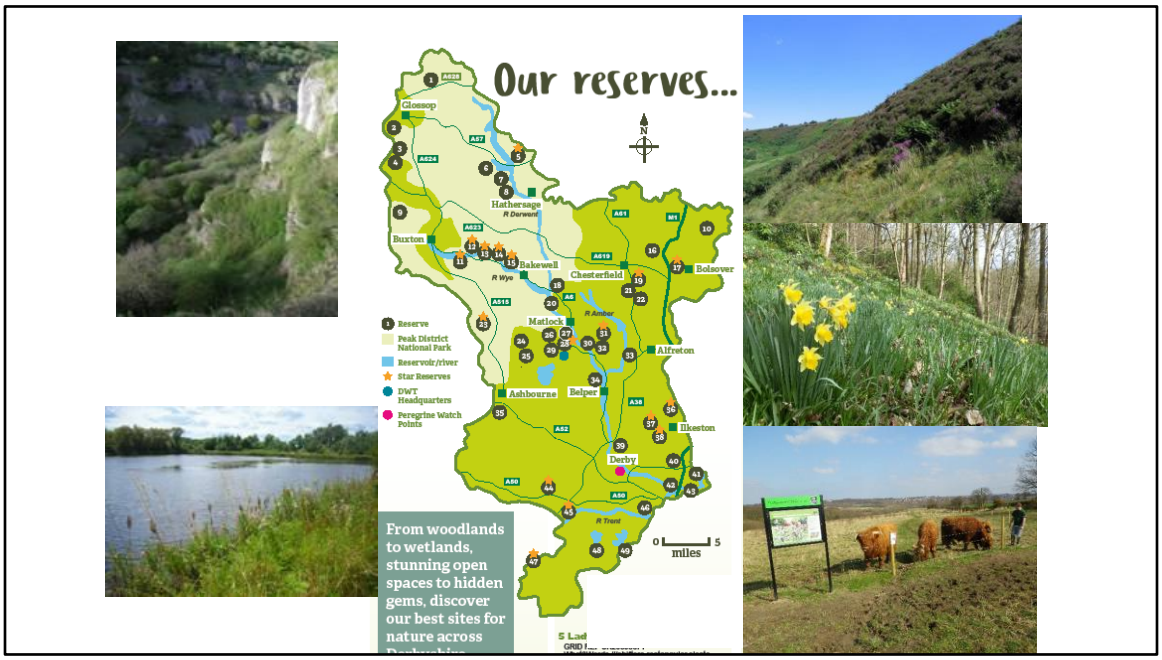
Who are the Wildlife Trusts?

- *The Wildlife Trusts partnership is the UK's leading conservation charity dedicated to **all** wildlife.*
- Network of 47 local Wildlife Trusts, mostly at County level with a small UK head office.
- Junior branch; Wildlife Watch.
- Work together with local communities to protect wildlife in all habitats across the UK, in towns, countryside, wetlands and seas.

Who is Derbyshire Wildlife Trust?

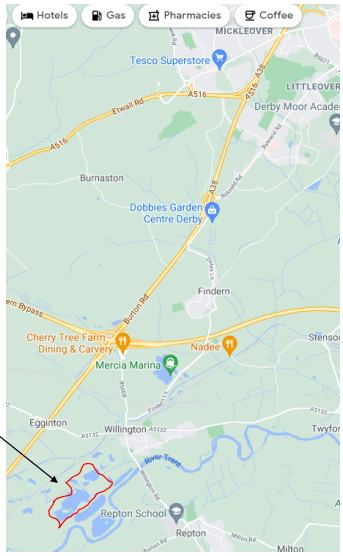
- Formed in 1962 as the Derbyshire Naturalists Society.
- As with each of the 47 Wildlife Trusts, DWT is an independent, autonomous charity with its own trustees, whose primary concern is the conservation of nature within county of Derbyshire.
- Membership of 18,000.
- Employ 65 staff; Education and people engagement, fundraising, marketing, conservation advice, influencing planning and managing 48 nature reserves across the county.



DWT nature reserves - 48 at moment. Our nature reserves are areas of land that are carefully managed to safeguard habitats, plants and animals that are threatened or declining. They act as safe havens where wildlife can thrive and ideally spread from.

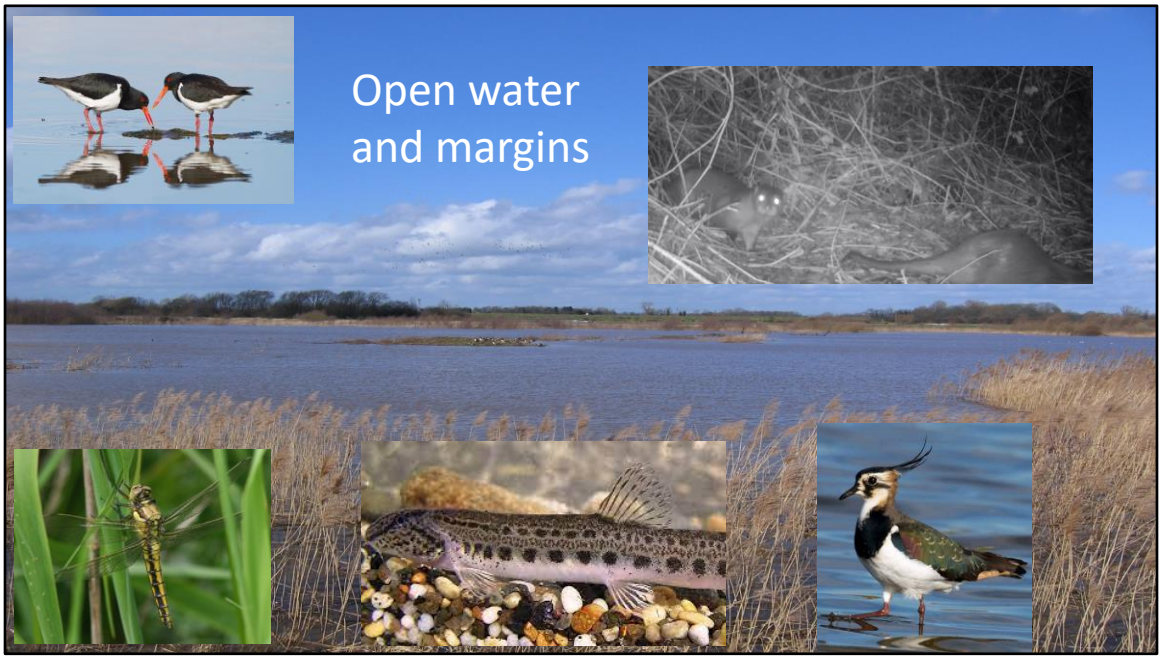
Having so many sites across the county means we have every habitat type represented from the upland moorland of the Dark Peak, the limestone grassland of White Peak, the Coalfields in the East, the Peak Fringe and Derwent Valley through to lowland grassland and the wetlands in the Trent Valley.

Willington Wetlands Nature Reserve



Reedbed - One of the largest single blocks in Derbyshire, LBAP habitat, with Kingfisher, Little Ringed Plover, Bittern, Spined Loach, Water Vole,Bittern, wide range of Odonata, amphibians.
Bittern.

Wet grassland. Reprofiling works were done after quarrying finished to encourage deliberate water retention and slow draining to hold water for longer and slow down flood water movement in the area. The flowering plants support, bees, butterflies, and a range of other invertebrates, like this bush cricket and hoverfly. The meadows provide nesting grounds for birds in the summer such as lapwing and feeding areas for curlew and snipe. Foxes also frequent the meadows in search of food. Snipe, Heron, Curlew.



Open water and margins - a very large body of open water in close proximity to the River Trent makes the reserve attractive to waterfowl. We have large areas of open water, smaller ponds and ditches, some of which are wet year round and other that dry out in the summer. This variety in open water habitat benefits a range of wildlife with the seasonally wet ponds providing vital habitat for a range of newts including great crested.

The vegetation in and out of the water provides places for dragonflies to lay their eggs.

The margins provide foraging habitat for Water Rail, Great White Egret and Little Egrets and range of other wader species.

A couple of visitors that are always a pleasure to spot are the kingfishers that frequent the reserve.

We also have been getting a lot of footage of otter on reserve like the two here screenshotted from our footage.

Waders, Ducks, Geese, Gulls, Lapwing, Shoveler, Oystercatcher, Little Ringed Plover.

So why beavers?

V's

Humans control scrub in the reedbeds and wet grassland but this is labour intensive, environmentally unfriendly, repetitive and fairly unsuccessful.

Beavers are a more 'natural' approach, where their work has multiple effects and wider landscape benefits.

Current rationale: All work carried out at Willington and across the Trent Valley is planned in to mimic natural processes which once would have occurred in the Trent Valley. This can be seen in our current work: many staff and volunteer hours are spent managing willow. The removal of willow from the edges of ponds, and from within reedbeds is carried out to mimic the natural browsing of large roaming herbivores and the activity of beavers. Removing the willow from the reedbeds halts succession, and maintains the reedbeds in good condition, preventing them from drying out and suffocating new growth through leaf litter.

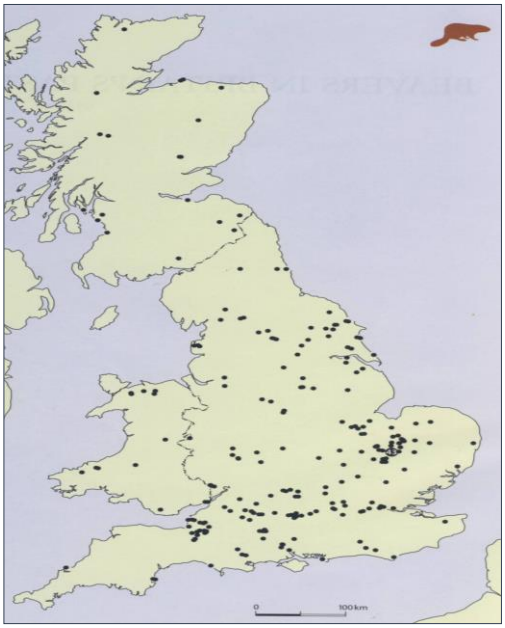
We currently graze the reserve with cattle at low densities, maintaining the two large areas of wet meadow, which are used as breeding grounds for Lapwing and Snipe, but they do not enter the reedbed and control the scrub in there. Although we can do our best to mimic these natural processes, we are losing the battle slowly a little more each year. So a new approach is to utilise natural processes more, in this case using a particular species.

- Beavers are a *keystone species*
- Called ecosystem engineers or architects beavers change their environment to suit their needs.
- Being mindful of climate change, beavers are a low carbon and non-polluting solution.

Beavers are a keystone species; an animal that has a disproportionately large effect on its natural environment relative to its abundance. Called ecosystem architects beavers change their environment to suit their needs. But in doing so, they create complex wetland habitats for many other species.

With the constant threat of climate change, beavers are also a natural and cost-efficient possible answer to reducing and mitigating environmental disasters.

Beaver finds from Britain since the last Ice Age



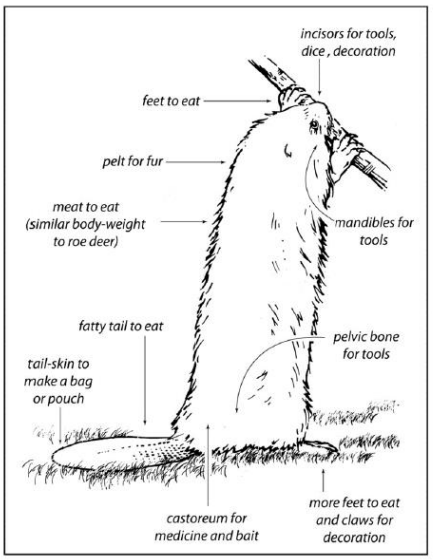
Dots show spread of beaver finds – widespread but biased by soil conditions (acid soils destroy bone) and by human digging activity has occurred, e.g. digging for peat in Fens and Somerset Levels, M5 corridor, lots of modern construction – reveal bones, so very likely this is a small snapshot of the true distribution.

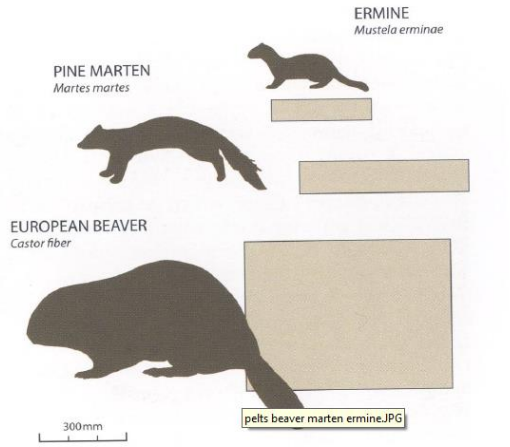
Beaver referenced names are common across the UK.

Beauer κύναποτάμιον a water dogge, or a dogge fishe, I know likewise thus much more, that the Beauer doth participate this propertie with the dogge, namely, that when fishes be scarse they leaue the water and raunge vp and downe the lande, making an insatiable slaughter of young lembes vntil theyr paunches be replenished, and whē they haue fed themselues full of fleshe, then returne they to the water, from whence they came.

Beavers are native to the northern hemisphere and were once widely spread but were heavily hunted for their fur, scent sacs and meat. The last sighting in the UK was in the 16th Century.

This quote incorrectly suggests that beavers eat fish, and even lambs – they do not – they are vegetarians!





The uses for beavers was extensive and hunting was positively encouraged with records of the laws of Hywel Dda, King of Wales c. 940 AD showing a pine marten pelt worth 24 pence but a beaver pelt was worth 120 pence.

Beaver are still hunted in other countries for a natural substance called castoreum. Castoreum refers to the resinoid extract resulting from dried and alcohol tinctured beaver castor. It cannot be harvested from live beavers. In the EU, it is illegal to hunt beavers, so most of the castoreum comes from the US and Canada. Both sexes have a pair of castor sacs and a pair of anal glands located in two cavities under the skin between the pelvis and the base of the tail. The dried castor sacs are aged for two or more years to mellow.

Beavers use castoreum to help grease their fur and in combination with urine to mark their territory. Castoreum is used in perfume (to give a leather-like smell), flavouring food such as ice cream or sweets, alcoholic drinks (Bäverhojt is a Swedish schnapps which translates to ‘beaver shout’), to add a sweet flavour and odour to cigarettes and it also contains a high level of Salycilic Acid, a component of aspirin.

What do beavers do that is so special?

- Beavers are vegetarians, who mostly eat trees.
- Beavers build dams for safety.
- These create pools, slow water flow and act as silt traps.
- The habitats that develop behind the dams for dynamic carbon sinks.

When a beaver creates a dam, it floods the area behind it, creating a diverse mosaic of wetland. This also slows the motion of water and prevents sediments from flowing downstream.

The silt which is held back locks up carbon and the new plant growth able to establish in the resulting marshland forms a carbon sink.
Dams decrease the impacts of floods by up to 60% by reducing water flow. The same mechanism is also a solution for drought periods where water in pools can be utilised. Both are helpful to level out the extremes of floods and droughts.

- Beavers are vegetarians, who mostly eat woody species.
- The trees that beavers chew will grow back, giving a truly random age and distribution.
- The woody debris is also home to over 2,000 species of invertebrates, the building blocks of all food chains

Beavers are vegetarians who will eat the bark, twigs and leaves of trees, while breaking larger branches into smaller pieces to build dams and lodges. These dams are often built on rivers and streams to create deep bodies of water on one side. This enables them to enter their lodge only via underwater entrances, deterring predators.

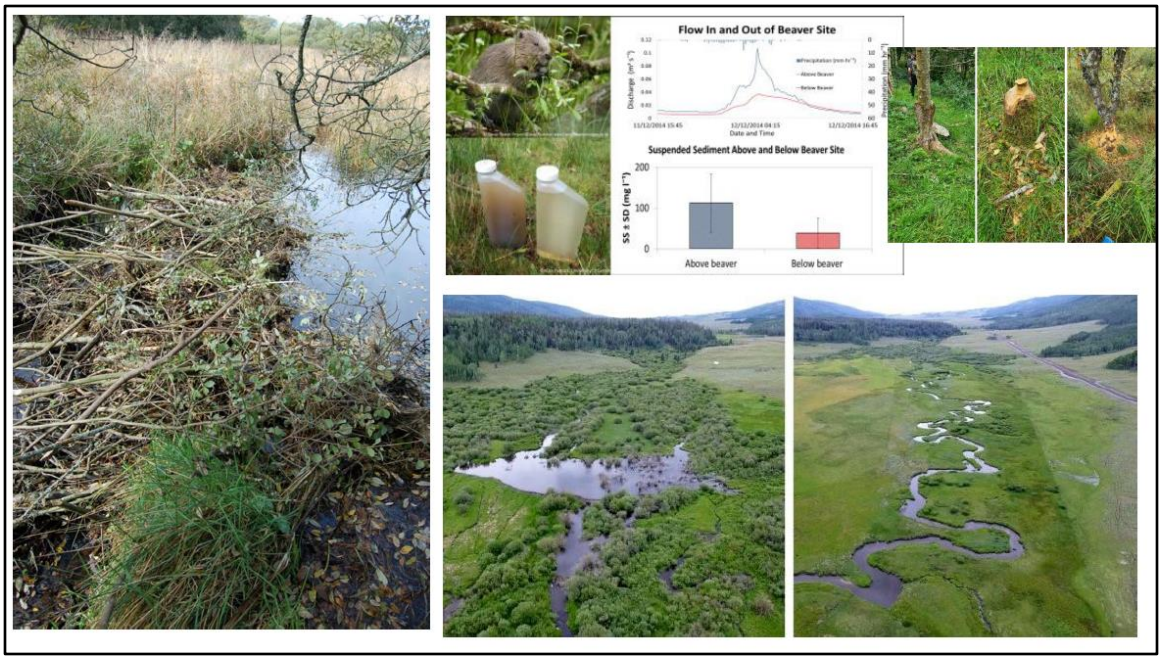
These dams double as an invaluable tool for filtering and cleaning water, as well as creating pools in otherwise fast flowing and straight watercourses, often with limited habitats.

- They create new wetland habitat too, benefiting hundreds of other species.
- Being mindful of climate change, beavers are a low carbon and non-polluting solution.

Native trees such as willow or alder evolved alongside beavers for millions of years. When gnawed on by beavers, they quickly regrow from felled stems or cuttings. This process thins trees and allows space for other plants to grow in the area, creating a rich and diverse ecosystem. Woodlands develop a greater range of age structure and subsequent dead wood than if engineered by humans.

The woody debris is also home to over 2,000 species of invertebrates, many of which are food sources for freshwater animals, shelter for fish to hide from avian predators and perches for birds to rest on.

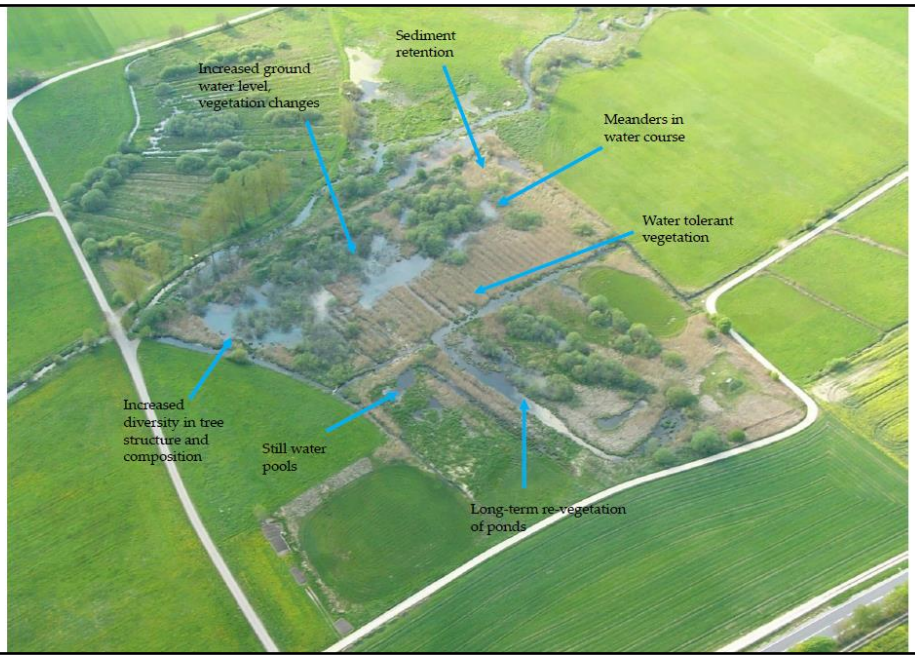
Beaver dams are often assumed to be huge structures that will block entire rivers and cause huge pools of water to form. In Canada perhaps, this is true but in the UK the dams we see are much smaller affairs, which seem to be quite proportionate in size to the waterbody they are on. The principle behind dam building is to create a pool of water to give only underwater access to a chamber, deterring predators and giving options to escape quickly.



Illustrated picture of a small scale release of beavers, and the huge effect it has had.

This is the definition of a keystone species in action – the effect of that one organism is disproportionate to its population size.

So to go back to why do we want beavers back? Examples of flooding in UK – which is becoming more common. Problems such as building on floodplains so loss of areas to absorb rain/percolate it slowly, rivers are full of silt from farmland soil erosion so less room for water in them and climate change is leading to wetter winters where the ground is saturated earlier in the winter and cannot absorb any more water.



How dams affect a watercourse and surrounding wetlands;

(a) Beaver will dam streams within watercourses during low flows to create deeper pools but when the water levels rise the stream power is often too high, which results in blowouts.

(b) These blowouts help widen the narrow trench with a floodplain starting to form.

(c) The widened trench results in lower stream power, which enables beaver to build wider, more stable dams.

(d) Fast streams often have high sediment loads but when the water is slowed, the beaver ponds rapidly fill up with sediment and are temporarily abandoned, but the accumulated sediment provides good establishment sites for riparian vegetation. The beavers move on and the process repeats itself until

(e) The beaver dams raise the water table sufficiently to reconnect the stream to its former floodplain.

(f) Eventually, vegetation and sediment fill the ponds, and the stream ecosystem develops a high level of complexity as beaver dams, live

vegetation, and dead wood slow the flow of water and raise groundwater levels such that multithread channels are formed, often connected to off-channel wetlands such that the entire area is saturated.

A beaver timeline in the UK

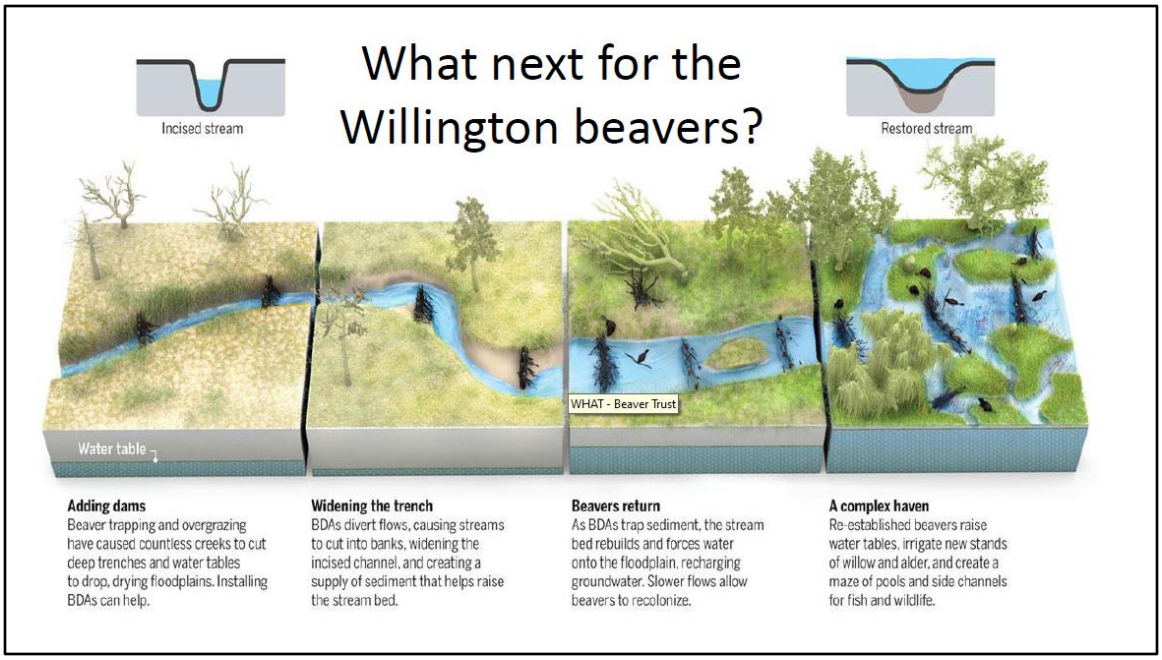
- 1600 - last recorded sightings of beaver in the UK.
- 2001- wild beavers were discovered on the River Tay, the first sightings in 400 years.
- 2009 – the Scottish Beaver Group formed and a small population established in Knapdale, western Scotland.
- 2011 - a pair of juveniles were released in north Devon.
- 2013 - three wild beavers were spotted on in Devon , the first time in England in over 400 years.
- 2014 – these beavers are allowed to remain and leads to the River Otter beaver trial, the first uncontained population.
- 2015 - the River Otter population deemed a success and beavers allowed to remain in the UK
- 2016 - Scottish government declare beavers a native species and offer them European Protected Species status.
- 2017 – release in Cornwall
- 2019 – Spains Hall Estate in Essex (and bred in 2020)
- 2020 – releases in Cheshire, Cumbria and Norfolk.
- 2021 – more releases in Hampshire, Dorset, Isle of Wight, Powys, Montgomeryshire, Derbyshire and Nottinghamshire.
- Now up to 500 within UK with more releases possible.....

Beavers were last seen in the UK in the 16th century.

Beavers were released in Hatchmere Nature Reserve in 2020 as part of a five-year plan to restore valuable wetland systems. Another pair were released in March 2021 in the South Downs, a region of chalky hills in southeastern coastal counties of England, and two more in an enclosed area in Dorset.
The latest beaver release, also in March 2021, included an adult and its offspring at Cors Dyfi Nature Reserve in Powys, Wales. Many more releases are on the horizon.

The Wildlife Trusts have led on many of the beaver introductions across the country. Craig Bennett, chief executive of The Wildlife Trusts recently said, 'Beavers are a fantastic keystone species that have a hugely important role to play in restoring nature to Britain. It's brilliant to see a better future for wetlands and for a wealth of other wildlife by bringing back beavers whose engineering capabilities inject new life into wild places. The benefits for people are clear – beavers help stop flooding downstream, filter out impurities, deliver grazing to prevent trees and shrubs invading wetland areas and they create new homes for other iconic wetland species including otters, water voles and kingfishers. People love seeing them and their presence boosts tourism in the countryside.

Eva Bishop from the Beaver Trust highlighted the irony of how we spend large sums on flood relief schemes, such as building dams to slow streams and rivers and make them meander more whereas beavers will do it for free and, crucially, maintain it."



Examples of the effects of beavers through assorted studies. Our Willington project will be closely monitored for 5 years with a wide range of methods used to identify and assess the changes the beavers will bring about. Already we have built up a solid body of data and imagery before their arrival as a baseline for comparisons.

What next for beavers?

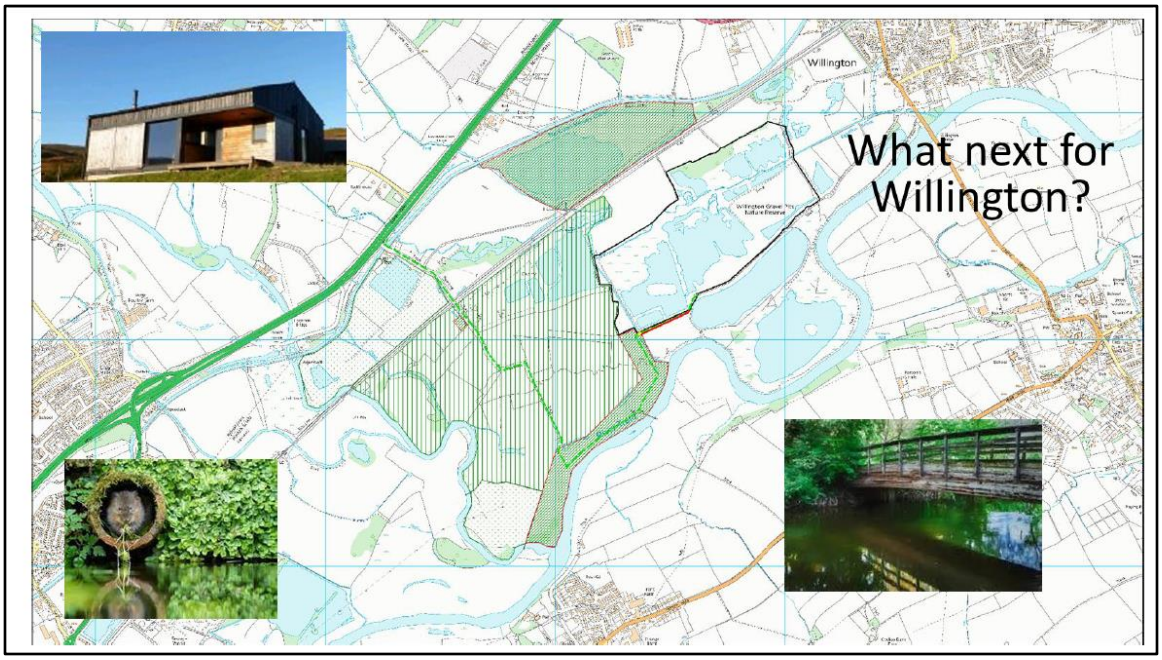
- DEFRA consultation until 17th November
- For England only
- The consultation sets out their proposed approach, including future wild, current and future enclosed releases and existing wild-living beavers
- What management and support do you think should be available?

https://consult.defra.gov.uk/natural-environment-policy/beaver-reintroduction-and-management/

Defra are currently seeking views on their proposed approach to further reintroductions of beavers in England and the management of the species in the wild.

The consultation sets out their proposed approach, including future releases into the wild, current and future releases into enclosures and existing wild-living beavers. They also want to know what management and support you think should be available to those managing beavers.

The consultation will run for 12 weeks and will close on 17 November. The consultation relates to beavers in England only.



What next for Willington? We are planning a bridge and access project. Managing Cemex land through conservation grazing. Expanding into Willington Quarry as it ends its working life.

Derbyshire Wildlife Trust

- All about beavers at Derbyshire Wildlife Trust - https://www.derbyshirewildlifetrust.org.uk/explore/projects/all-about-beavers
- Willington Beavers release video - https://www.youtube.com/watch?v=ENVJJCELWRU
- Adopt a Beaver Pack - https://dwtshop.org.uk/product/beaver-adoption-pack/

www.derbyshirewildlifetrust.org.uk