A History of Beavers in Britain

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Lesson 1: An Overview - What are beavers and where did they go?

Lesson 2: Prehistoric Britain - When did beavers appear in Britain?

Lesson 3: Ancient Britain to the Stuarts - Have beavers and humans lived harmoniously in the past?

Lesson 4: How and why are beavers being reintroduced to Britain?
How to use this pack

These lessons directly link to the KS2 History National Curriculum in England.

This pack consists of 4 History lessons with points for discussion, information, video links and activities.

In addition to these slides, also find:

- Teacher notes/lesson plan document
- A teachers copy of the Beaver Trust Fact Sheet and FAQ's:
- Beaver Knowledge Organiser, as seen on the right, aimed at pupils to support activities
- Beaver Word Mat

These lessons can be used in conjunction with other subject Lesson Packs from Beaver Trust, for cross-curricular learning.
By the end of this unit, you will be able to:

- Describe and explain chronologically the history of the Eurasian Beaver.
- Note connections, contrasts and trends over time in relation to the history of the Eurasian beaver.
- Ask and address historically valid questions about change, cause, similarity, difference and significance in relation to the history of the Eurasian beaver in Britain.
- Use a range of sources relating the Eurasian beaver to construct knowledge and understanding of the past.
Lesson 1:
What are beavers and where did they go?
There are two types of beaver...

1. **Eurasian beavers**, *Castor fiber*, which are only found in Europe

2. **North American beavers**, *Castor canadensis*, which are found in North America.
They're a native species to Britain, which means they evolved as part of our ecosystem.

They are Europe's largest rodent - they can weigh up to 30 kg, which is about the same as an 11-year-old person!

Beavers can grow up to 1.4m long.

They have large, iron-filled, orange front teeth that are used to coppice trees.

Baby beavers are called kits.

They live together in territories.

They lived here freely on our waterways until about 400 years ago...
Aquatic adaptations

- Webbed feet for fast swimming
- Thick, waterproof fur
- Transparent eyelids
- Can hold breath for up to 15 minutes underwater
- A large paddle-shaped tail that acts as a multi-tool!
  - A fat store, a prop, a paddle and more!
Pile of sticks? Or a beaver dam?
Pile of sticks? Or a beaver dam?

These are all examples of things made by beavers!

The lodge is their home while dams hold water behind them and control the flow of the river.
But where did beavers go?

Beavers were *hunted to extinction in Britain* about 400 years ago by humans (for fur, meat, medicine and perfume).

Beaver populations are now being *restored* throughout the UK by humans.
Beavers became extinct in Britain in the 1600s

Key moments in the 1600s you might recognise are:

- The death of William Shakespeare (1616)
- The Great Fire of London (1666)
- England and Scotland were ruled by The House of Stuart and governed by Oliver (and Richard) Cromwell, who was ‘Lord Protector’, during this century.

By the late 19th Century, only about 1,200 beavers were present across Europe. There were none in the UK.

In the late 19th century
An estimated 1,200 beavers remained
Beavers' history

7.5 million years ago
100s of millions co-evolved with land, wildlife and humans

1600s
Hunted to EXTINCTION in Britain
- Meat
- Fur
- Castoreum

1930
Back in Britain (Knapdale, Scotland)

2002
Beaver RESTORATION began in America and Continental Europe (not UK)

2015
River Otter Beaver Trial (Devon)

2019

2022
Protected species in England

PROTECTED species in Scotland
Watch the animation ‘Beavers: Nature’s Ecosystem Engineers’

https://www.youtube.com/watch?v=qXVMK1MW5xw
Activity 1
Beaver fact file poster

Make your own fact file poster about beavers.

It must include:

1. Information about beavers, including their habitats and some of their features. You might also include how some of their features have adapted to suit their environment.

2. Information about how and why beavers became extinct in Britain.

Your poster needs to be informative and eye-catching.
Lesson 2:
When did beavers appear in Britain?
Beavers' history

7.5 million years ago
100s of millions co-evolved with land, wildlife and humans

Hunted to EXTINCTION in Britain
- Meat
- Fur
- Castoreum

1600s

1930
Back in Britain (Knapdale, Scotland)

2002
Beaver RESTORATION began in America and Continental Europe (not UK)

2015
River Otter Beaver Trial (Devon)

2019

2022
Protected species in Scotland

...
65 million years ago...

Beavers’ ancestors were scaly-tailed squirrels that lived not long after the dinosaurs became extinct. There were lots of different types (species), up to 100 different members of the family (known as Castoridae).

24 million years ago...

The early beavers were burrowers until they started cutting down trees and swimming about 24 million years ago.

They covered the Northern Hemisphere from North America to the Arctic Circle, including the whole of Britain.

There are fossil records of beavers being found in France between 24 and 30 million years ago.

You can find out more here: www.sciencedaily.com/releases/2022/08/220824103040.htm
Fossils are a key source of historical and scientific information about the past.

Historians and scientists can use fossil records to learn about the past and how animals have changed and adapted over time.

One particular species of beaver also appeared during this time...

- What do you notice?
- What do you wonder?
- What are the similarities and differences between these skeletons?
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One particular species of beaver also appeared during this time...

- What do you notice?
- What do you wonder?
- What are the similarities and differences between these skeletons?
Between 1.4 million and 10,000 years ago...

Fossils of giant beavers of the Castoroides family have been found across North America... Before the beavers we know appeared, a giant beaver, up to 2.5 metres long roamed.

Standing up, it would be as tall as an adult human and would have weighed up to 100kg!

Even though they have a similar name, giant beavers do not share many similarities with beavers today. For example, giant beavers’ teeth were more rounded than modern beavers and their size differs significantly.
12,000 years ago...

Giant beavers became extinct about 12,000 years ago, along with many other species of megafauna. This was around the time of the end of the Ice Age (end of the Pleistocene epoch).

Eventually, they evolved into the beavers we know today.

At the same time...

Eurasian beavers we know today settled in Europe around 12,000 years ago following the last Ice Age and at the start of the Holocene epoch.

They’d been here before but had to move to warmer places to escape the Ice Age.

Can you remember how many species of beaver there are today?
There used to be a land bridge between Alaska and Russia.

This bridge allowed lots of animals and plants to move between the two continents. However, once this disappeared beneath the sea, the animals in each continent evolved and developed in different ways.

Both types of beaver are closely related, but because they have now been separated on different continents for over 7 million years, they cannot interbreed.
Eurasian beavers

- They are Europe's largest rodent - they can weigh up to 30 kg, which is about the same as an 11-year-old person!
- Beavers can grow up to 1.4m long
- They have large, iron-filled, orange front teeth that are used to coppice trees
- Baby beavers are called kits
- They live together in territories
Aquatic adaptations

- Webbed feet for fast swimming
- Thick, waterproof fur
- Transparent eyelids
- Can hold breath for up to 15 minutes underwater
- A large paddle-shaped tail that acts as a multi-tool!
  - A fat store, a prop, a paddle and more!
Beavers are a native species to Britain!

They once covered the Northern Hemisphere from North America to the Arctic Circle, including the whole of Britain.

This means they evolved as part of this ecosystem.

They lived here freely on our waterways over 400 years ago...
Eurasian beavers once roamed across our countryside, shaping the landscape and waterways, providing habitats for a huge abundance of fish, birds and insects.

Fish, insects, amphibians mammals, birds, trees and plants evolved alongside beavers for millions of years.

Many species rely on the habitats and food sources created in beaver wetlands.
Why do we call them a **keystone species**?

Beavers transform the landscape and create a diverse range of watery habitats supporting vital food webs and a lot of other life, such as:

1. Ponds
2. Canals
3. Fell trees which let in light, and leaving the dead wood behind
4. Other watery habitats for creatures to live in
Benefits to wildlife

**BATS**
Feeding opportunities for insectivorous bats are improved.

**BIRDS**
Increased breeding, foraging and shelter opportunities for birds.

**INVERTEBRATES**
Increased biodiversity of habitats like standing deadwood and wetlands for invertebrates.

**FISH**
Valuable habitats are created and more opportunities for finding food.

**AMPHIBIANS**
Opening up of the canopy and increasing light hitting the water has been shown to increase breeding in amphibians.

**MAMMALS**
New complex wetlands behind a dam provide new habitats, increase diversity, which in turn provides breeding, foraging and shelter opportunities for mammals.
What are the similarities and differences between giant beavers and Eurasian beavers?

Use these artefacts to help you...

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 3:
Have beavers and humans lived harmoniously in the past?
So...

Eurasian beavers once roamed across our countryside, shaping the landscape and waterways, providing habitats for a huge abundance of fish, birds and insects.

Fish, insects, amphibians mammals, birds, trees and plants evolved alongside beavers for millions of years.

Many species rely on the habitats and food sources created in beaver wetlands.
They are part of human history as well as being part of natural history...

From the Stone Age to the Iron Age, people would have lived alongside beavers.

Beaver pools provided people in Ancient Britain with places to hunt and fish to eat.

Beavers naturally fostered the growth of a rich and biodiverse ecosystem and this provided lots of plants for humans to harvest.

Their dams would have been used as bridges across rivers (a dam would easily support a human’s weight).
Beaver chips, produced when a beaver is chopping down a tree would have been used to light fires, as would the bark-stripped twigs they leave at their feed stations.

In Ancient Britain, beaver teeth and bones would have been fashioned into tools e.g. a beaver lower jaw provided Mesolithic/Neolithic people with a cutting tool (the teeth) complete with its own handle (the jaw).

It’s probable that the coppice formed by beavers’ tree-felling was employed as fence-posts and walking sticks.
At Star Carr (a Mesolithic site in North Yorkshire) there is a collapsed beaver lodge, which seems to have been adopted for use by humans.

In a Mesolithic (Stone Age) society it would have made sense to repurpose a ready-made beaver platform or collapsed lodge, or even ready-cut timber.

Beaver activities would have created clearings, ponds, smooth rich soil for farming, medication (castoreum was used until the 19th century), coppiced wood, clothing, food and more.

Source: https://archaeology.co.uk/articles/features/life-beside-the-lake.htm
What does this look like to you?

How do you know?
This is a beaver jaw that was found at Star Carr.

This is one of many pieces of evidence that beavers lived in Ancient Britain.

Source: https://www.futurelearn.com/info/courses/exploring-stone-age-archaeology-the-mysteries-of-star-carr/0/steps/64657
In Ancient Britain, from the Stone Age to the Iron Age, beavers and people lived side-by-side.

In the west of Scotland, crannogs are very common. Crannogs are the remains of Bronze Age settlements built on platforms, either in a loch or at the end of a piece of land jutting into a loch. They were built here as they were easy to defend.

In Knapdale, Argyll, a family of introduced beavers have built a lodge very close to a crannog site. Some historians wonder whether Bronze Age people were inspired to build crannogs after seeing where beavers chose to build their homes.
But where did beavers go?
A key source of information about how and why beavers became extinct in Britain is artwork from the time...

This is called a primary historical source.
What do you think this is?
What do you think this is?
Well, this is actually a beaver....
The medieval period is the time between 1066 and 1485.

Beavers were featured a lot in medieval artwork, mainly being hunted (being pursued by a hunting group or dead).

In a great deal of artwork from the time, beavers are depicted as almost dog-like.

Even the illustration shows here a defeated beaver. This image is from the Queen Mary Psalter (1310-1320), which is a biblical manuscript.

Historians therefore used artwork (amongst other things) to deduce that the cause of the beaver extinction in Britain was due to humans hunting them.

Source: https://blogs.bl.uk/digitisedmanuscripts/animals/page/13/
Beavers were hunted to extinction in Britain by humans for their fur, meat and also Castoreum (which is from a gland in beavers) which was used to make medicine and perfume.

This is an example of a beaver hunt from folio 33v of Philippe de Thaon's translation of Bestiarius around 1300.

Sources: https://coblaith.net/heraldry/beavers/default.html
https://potiphar.jonjarvey.co.uk/wp-content/uploads/2015/09/wolf-300x273.jpg
At the end of the **Middle Ages** and beyond, the artwork of beavers became more **realistic**.

For example, these images are taken from Konrad Gesner's *Historiae Animalium*, Volume I, which was issued in 1551.

Source: [https://coblaith.net/Heraldry/Beavers/default.html](https://coblaith.net/Heraldry/Beavers/default.html)
What makes the beaver on the left **more realistic** than the beaver on the right?

Why might the artwork of the beavers have improved over time?
Beaver crests

Here are some examples of Beavers in crests from the Middle Ages and Renaissance. These would have gone on things like shields, flags and buildings.

- **What accurate features of beavers can you spot?**
- **What features of these beavers are not so accurate?**

Source: [coblaith.net/Heraldry/Beavers/default.html](https://coblaith.net/Heraldry/Beavers/default.html)
Both by hunting and draining their wetland habitats and also as we forgot how important they had been to us. The beavers retreated into a few isolated areas in Europe and Asia (known as refugia).

Beavers were so important for people’s lives that we can trace where they lived through place names of towns, rivers, meadows etc throughout Europe. In England, the town Beverley is a combination of the Old English words for beaver (beofor) and stream (leac) and the River Bobr in Poland translates as the River Beaver.
Beavers became extinct in Britain in the 1600s

At the time, people did not seem to widely understand the importance of keystone species and also didn’t have the scientific ability to track species populations.

Key moments in the 1600s you might recognise are:
- The death of William Shakespeare (1616)
- The Great Fire of London (1666)
- England and Scotland were ruled by The House of Stuart and governed by Oliver (and Richard) Cromwell, who was ‘Lord Protector’, during this century.

By the late 19th Century, only about 1,200 beavers were present across Europe. There were none in the UK.
Activity
Write a newspaper article about the day beavers became extinct in Britain.

It must include:

1. Information about what beavers are and where they live
2. Reasons for why they have become extinct
3. Information about the impact of this extinction on Britain and its wildlife
Lesson 4: How and why are beavers being reintroduced to Britain?
Beavers' history

A key source of information about how and why beavers became extinct in Britain is artwork from the time...

This is called a **primary historical source**.
In the late 19th century
An estimated 1,200 beavers remained

120 years ago there were only just over 1,000 Eurasian beavers left in the world. Not only that but they were split into small groups a long way from each other.

The future looked grim, beavers were teetering on the edge of extinction.

In 1909 on the River Rhone in France, there were a handful of beavers hanging on by the skin of their very big teeth. The French authorities passed laws to protect them. Slowly their numbers grew and they started to extend their range.

Meanwhile, Germans, Swedes and Austrians began to reintroduce beavers and many other European countries followed their example.

To date over 27 countries have seen beavers return to their rivers and lakes and there are now around 1.2 million beavers in Europe; an amazing conservation success story!
A conservation success story, with proactive human intervention

In the late 19th century
An estimated 1,200 beavers remained

Today
There are an estimated 1.5 million beavers!
Conservationists reintroduced beavers to Scotland in 2009. At the time, beavers hadn’t been present in the UK for 400 years, which seems like a very long time; we've changed a lot since 1600!

However, from an evolutionary or ecosystem point of view, it’s barely the blink of an eye.

We have seen this with the many species that beavers would have interacted with when they used to be here.

If they could talk they might say something like: “Where have you been? It’s good to see you back”.
Beavers are back and populations are slowly being restored...

This map shows where Eurasian beavers, *Castor fiber*, currently live in Britain.

The map doesn’t contain any pins for zoos even though some (such as Wildwood in Kent) do keep a group of beavers and several others (such as Five Sisters Zoo in West Lothian) help with beaver translocations between sites.

Source: beavertrust.org/places-to-see-beavers
The River Otter is home to one of the few wild populations of Eurasian beavers in Britain

When beaver populations are called 'wild', this means the beavers are not contained and are free to roam. Some monitoring can take place, but beavers can live where they like.

Enclosed beavers are contained within an enclosure (often extensive in size) and their activity can be monitored for research purposes.
How are beavers being reintroduced to Britain?

**Translocation is the movement of beavers from one place to another.**

Beaver Trust has trained expert zoologists, licensed to trap and move beavers.

Before beavers are released to a location, veterinary procedures are carried out to check the beavers are healthy. Expert zoologists also ensure that beavers are well looked after throughout the process.
Improved water quality in rivers and streams

Dam building creates a mosaic of watery habitats

Dams store water for times of drought

Dams reduce the risk of flooding downstream

Improved water quality in rivers and streams

Beavers are ecosystem engineers, building their dams out of mud, sticks, stones, logs and vegetation.

Some benefits of beavers and dam building:

1. Dam building creates a mosaic of watery habitats
2. Dams store water for times of drought
3. Dams reduce the risk of flooding downstream
4. Improved water quality in rivers and streams
5. Dams slow the flow of the water, and this encourages river plants and algae to grow. This means beaver ponds can absorb more carbon dioxide - which helps prevent climate change!
6. Beavers create conditions that support abundant life along our rivers including frogs, kingfishers, dragonflies and otters.
A stream comes back to life

Across the U.S. West, scientists and land managers are using beaver dam analogs (BDAs) to heal damaged streams, re-establish beaver populations, and aid wildlife. In some cases, researchers have seen positive changes in just 1 to 3 years.

Adding dams
Beaver trapping and overgrazing have caused countless creeks to cut deep trenches and water tables to drop, drying floodplains. Installing BDAs can help.

Widening the trench
BDAs divert flows, causing streams to cut into banks, widening the incised channel, and creating a supply of sediment that helps raise the stream bed.

Beavers return
As BDAs trap sediment, the stream bed rebuilds and forces water onto the floodplain, recharging groundwater. Slower flows allow beavers to recolonize.

A complex haven
Re-established beavers raise water tables. Irrigate new stands of willow and alder, and create a maze of pools and side channels for fish and wildlife.

Source: Science Magazine via Beaver Trust
Why do we call them a **keystone species**?

Beavers transform the landscape and create a diverse range of watery habitats supporting vital food webs and a lot of other life, such as:

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Benefits to wildlife

**BATS**
Feeding opportunities for insectivorous bats are improved.

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Opening up of the canopy and increasing light hitting the water has been shown to increase breeding in amphibians.

**MAMMALS**
New complex wetlands behind a dam provide new habitats, increase diversity, which in turn provides breeding, foraging and shelter opportunities for mammals.
**Benefits to people**

1. **Flooding** - beaver activity can protect homes at risk of flooding, prevent flash floods and mitigate erosion. They're a cost-effective solution for these increasingly common problems.

2. **Drought** - beaver dams raise the water table, reversing the effects of land drainage.

3. **Firebreak** - beaver wetlands avoid fire damage, as seen on the right.

4. **Water quality** - beaver activity can mitigate against farm run-off, also acting as a silt and sediment filter.

5. **Carbon** - beaver meadows store carbon.

[Photo: Joe Wheaton]
Watch the animation ‘Beavers and Wildfire: A stop motion story’

https://www.youtube.com/watch?v=IAM94B73bzE
Activity

Write a script for a newsreader

Beavers are back in Britain! Write the script for a newsreader who is breaking the news that beavers are living in Britain again.

It must include:

1. Information about what beavers are and where they live
2. Reasons for why they have become extinct in the first place
3. Reasons for how we know they lived in Britain for many years prior to their extinction (for example, fossil records)
4. Information about reintroductions throughout Britain

Next step: film your TV news report or share it in assembly!