Beaver Fever

OVERVIEW

Beaver Fever follows the return of beavers to Great Britain, where they were driven extinct centuries ago. As ecosystem engineers, beavers can "heal" landscapes and restore both biodiversity and hydrology. Although reintroducing beavers is not without challenges, collaboration and a little compromise between scientists, engineers, landowners, and more can go a long way to rewilding parts of the world. Additional information can be found on this episode's webpage.

KEY CONCEPTS

- Keystone species, such as beavers, perform critical functions in their ecosystems.
- Ecosystem services, ways in which humans benefit from ecosystems, are essential for human health and well-being.
- Collaboration between different people and groups is essential for effective conservation.

BACKGROUND

Beavers are "ecosystem engineers" that can modify entire landscapes by building dams. Dams turn streams into ponds and wetlands, which are important habitats for many species — including other mammals, birds, amphibians, fish, invertebrates, and plants. Because of the biodiversity they support, beavers are considered **keystone species**, species that play an "oversized" role in their environments.

The film focuses on Eurasian beavers (*Castor fiber*) in Great Britain, where centuries of hunting and habitat loss (due to farming and urbanization) pushed the beavers to extinction. By around 1880, beaver hunting had reduced Eurasian beaver populations to about only 1,200 individuals. Hunting bans and translocation programs in many countries put the Eurasian beaver on a long but astonishing road to recovery. Since 1955, the Eurasian beaver population has increased by more than 14,000%.

For the last 400 years, there were no wild beavers in Great Britain. Around 2008, however, some were spotted in a river in England; it was unclear whether they had escaped from captivity or were deliberately released. Thanks to the efforts of a conservation group and local communities, the government agreed to keep the beavers and monitor their impacts over the next five years.

The beavers have helped rebuild ponds and wetlands, create habitat for other species, and provide flood control for downstream areas. These ecosystem functions are critical and may make the region more robust to the effects of climate change. However, the beavers can also cause problems by increasing flooding upstream from their dams. People are using creative solutions to manage the beavers' impacts, such as lowering dams or installing pipes to shunt water away from farmland and homes.

People/groups highlighted in the film include:

- Conservation organizations that are helping the beavers return.
- Scientists who are monitoring the beavers and studying the habitats created by beaver dams.
- Farmers and landowners impacted by flooding from beaver dams. Though some oppose beaver reintroductions, others are helping to educate the public about beavers.
- Rangers who help manage the beavers and their impacts.

BIODIVERSITY THREATS

Five of the biggest threats to biodiversity are represented by the acronym **HIPPO**: **h**abitat loss, **i**nvasive species, **p**ollution, **p**opulation growth (of humans), and **o**verharvesting. The HIPPO threats shown in this film include:

- **Habitat loss:** Beavers lost habitat when humans drained wetlands for farms, towns, and cities. The decline of beavers also led to habitat loss for many other species, which depended on the ponds and wetlands created by beaver dams.
- **Population growth:** The growing human population exacerbated overharvesting of the beavers and habitat loss.
- **Overharvesting:** Beavers were hunted to extinction in Great Britain and other places.

DISCUSSION QUESTIONS

- (*Before the film*) Ecosystem services, ways in which humans benefit from ecosystems, are essential for human health and well-being. Examples include when bees pollinate crops or when wetlands clean water. What ecosystem services do you think are provided by beavers?
- Create a conceptual model that illustrates how restoring beavers might affect wildlife biodiversity, water quality, and hydrology.
- Describe three specific species that could benefit from restoring beavers.
- How might beavers and the habitats they create help mitigate the local effects of climate change?
- Collaboration between different people and groups is essential for effective conservation. Describe some specific examples of collaboration in the film and how they have been successful.

REFERENCES

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CREDITS

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