

# Beavers have an impact on the climate

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Beavers have brought benefits for humans and wildlife. Credit: CC0 Public Domain

Growing beaver populations have created a large number of new habitats along rivers and ponds. Beaver dams raise the water level, enabling the dissolution of the organic carbon from the soil. From beaver ponds, carbon is released to the atmosphere. Part of the carbon settles down on

the bottom, ending up used by plants or transported downstream in the water.

"An increase in the number of [beavers](#) has an impact on the climate since a rising water level affects the interaction between beaver ponds, water and air, as well as the [carbon](#) balance of the zone of ground closest to water," says Petri Nummi, University Lecturer at the University of Helsinki.

Current estimates indicate that beaver ponds range from carbon sinks to sources of carbon. Beaver ponds and meadows can fix as much as 470,000 tons of carbon per year or, alternatively, release 820,000 tons of carbon annually. Their overlapping functions as [carbon sinks](#) and sources make landscapes moulded by beavers complex.

## **Beavers conduct continuous landscaping**

A beaver family usually changes territories once every three to five years, but can also stay in the same area as long as twenty years. After beavers abandon their territory, the dam gradually disintegrates and the [pond](#) empties. It may fill up again in, say, ten years as a result of returnees. Beaver habitats are in fact undergoing constant change between terrestrial and aquatic ecosystems.

In the beginning of the 20th century, beavers were hunted to near extinction both in Europe and the central and southern regions of North America. According to estimates, there were 10 million beavers in Europe before the hunting began, out of which only some thousand survived in small, isolated populations across the continent.

Beavers were numerous in Finland as well. For millennia, the species was popular game among ancient Finns before being hunted to extinction towards the end of the 19th century.

"People today obviously have no idea of what pond and stream ecosystems are like in their natural state, since research in the field only began after beavers were taken out of the picture," says Nummi.

Beaver numbers have incrementally risen, and five years ago the entire European population was estimated to be at least one million specimens. Most of them belong to the original Eurasian beaver species, but, for example, Finland's current beaver population has its origins in the translocations of American and Eurasian beavers carried out in the late 1930s. Eurasian and American beavers do not interbreed.

**More information:** Petri Nummi et al. Beavers affect carbon biogeochemistry: both short-term and long-term processes are involved, *Mammal Review* (2018). [DOI: 10.1111/mam.12134](https://doi.org/10.1111/mam.12134)

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