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# How Beavers, the Original Ecosystem Engineers, May Help the American West Adapt to Climate Change.

By James Gaines · 16 hours ago · weather.com

The beavers that were being kept at the old US Fish and Wildlife site had become a nuisance. They'd gotten too close to people and had been doing things like cutting down trees in orchards and damming irrigation ditches. So they were captured and taken to live in a structure that looks like a giant, narrow concrete bathtub for a few weeks.



Temporary housing at Winthrop National Fish Hatchery

(Courtesy of the Methow Beaver Project)

Here, single beavers are paired up with prospective mates, and, if they get along, workers will drive them out to a creek or stream somewhere in Eastern Washington's Methow Valley watershed. With any luck, the beavers will decide to stay, start a family, and begin to build a

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dam.

This is the work of the [Methow Beaver Project](#). The project's facilitators hope that reintroducing beavers to the landscape will bring a host of benefits — including helping humans adapt to the effects of climate change.

For the past 12 years, the Beaver Project has been working with agencies such as the Forest Service to move so-called nuisance beavers to new locations in the valley.



Beaver pair release onto public forest land  
(Methow Beaver Project)

The Methow Valley used to be prime beaver habitat, before heavy trapping in the early 1800's. In fact, before Europeans arrived, North America as a whole may have been teeming with somewhere between [60 and 300 million of the industrious rodents](#). Today, that number is down to somewhere between 3 and 6 million.

As beaver numbers declined after European colonization, their dams and ponds become more scarce as well. Beavers are natural ecosystem engineers. When beavers move into a river or stream, they construct a dam, which turns fast-moving water into ponds or wetlands. That helps water stick around longer.

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Beaver dam, Ushuaia, Argentina

(Getty Images/Manuel ROMARIS)

The work of beavers is in direct contrast to the effects of climate change, which is predicted to make water run out faster. Scientists postulate Washington State will get less rain in the summer and less snow during the winter (mountain snowpack is an important source of water during the dry months). These trends could lead to more frequent and more severe droughts in some areas.

“Storing water for the future. That was kind of the whole initial energy and funding behind the project,” says Alexa Whipple, director of the Methow Beaver Project. They’ve done about 300 re-introductions so far, she says.

In addition to the initial release, Methow Beaver Project returns each year to monitor the beavers and study their effects on the local ecosystem. They’ve used drones and satellite imagery to measure and show that beaver-made dams are increasing water stores in the valley, for instance.



Staff from Beavers Northwest releasing beavers

(Courtesy of Beavers Northwest)

One study done in a different part of Washington State found that each beaver dam held over 100,000 gallons of surface water, with three to five times as much stored as groundwater.

Whipple says they can also see the water sticking around longer in the Methow.

“There's a higher water residence time,’ is how we like to say it in the research world,” says Whipple. “Basically you're holding water longer and releasing it later into the season when things are drier.”

This could be the climate adaptation they were hoping for.

“The more we can store that water on the landscape, the more the ecological and ecosystem function can be sustained,” says Whipple.

More water sticking around on the landscape could mean more water for agriculture or wildlife. Ponds can also recharge groundwater reserves, store carbon and create wetland habitats for plants and animals.



(Getty Images/Stan Tekiela Author / Naturalist / Wildlife Photographer)

Managers of watersheds across the country are now experimenting with beaver reintroductions, for both climate adaptation as well as ecosystem restoration. Washington's Tulalip Tribe is relocating beavers to try to help improve the fish habitat, while in the United

Kingdom, officials hope [reintroducing the European beaver](#) could help slow down flooding.

Roadblocks and questions remain. A [2018 study](#) of beaver restoration projects in the American west, for instance, found that the pace of beaver reintroductions may be outpacing research on their long-term effects and viability.

Benjamin Dittbrenner, an ecologist and co-founder of [Beavers Northwest](#), a conservation and education organization based in Washington, says that studying beaver systems can be a complex task.



Beaver in a hatchery

(Courtesy of The Methow Beaver Project)

“There are a lot of moving parts,” Dittbrenner says, and working in remote areas can be especially tough. A storm during the summer of 2015, for instance, washed out roads and prevented researchers from checking up on past beaver reintroduction areas. “It can be tricky to do sufficient long-term monitoring.”

A [case study examination](#) of the Methow Beaver Project’s work documented this potential difficulty, noting how the realities of working in a real-world environment — such as the fact that beavers, being wild animals, will sometimes decide to leave the area they’re reintroduced into — can complicate efforts to study them.

Researchers and managers also need to

navigate the complex legal and social issues that can arise with wildlife reintroductions.



Beavers Northwest staff releasing beaver

(Courtesy of Beavers Northwest)

“There are definitely people who don't like beavers,” says Dittbrenner. Beavers and the dams they make can complicate the lives of people, especially farmers. Beavers Northwest often helps remove nuisance beavers from people’s property. Researchers and managers being aware of nearby farms, roads or other infrastructure is one of the keys to a smooth reintroduction.

Over the past couple hundred years, humans have reshaped our landscape and planet in increasingly dramatic ways. By looking back at how nature used to work before humans took over — how the original ecosystem engineers did their thing — we can perhaps learn how to adapt to climate change today.

“We have the hindsight to repair that damage, and beavers are one of the best ways we can do that,” says Whipple.

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