

# Partnering with Beavers to Help Tackle the Climate Change, Wildfire, and Drought Challenges

## Frequently Asked Questions



### How do beaver help with carbon sequestration?

Beavers create wetlands and wet meadows when they build and maintain dams.

Wetlands and wet meadows remove large amounts of carbon from the atmosphere, via photosynthesis, and store it in roots and decaying matter in the soil and riparian vegetation -- making them natural carbon sequestration areas. A unit volume of soil under an active beaver meadow (wetland) stores at least 3X more organic carbon than a virgin forest soil, 6X more than a secondary forest soil, and 7X more than a grassland soil. Given the 100s of thousands of miles of degraded streams in the West, there is the opportunity to bring NEW carbon sequestration zones online in less than 5 years, speed of development varying as a function of existing stream condition.

### How do beaver help with wildfires?

Beaver create and maintain wetlands, wet meadows, and ponds via their dam-building activity. These areas are natural fire breaks because the water and lush water-rich vegetation don't burn. The areas provide refuge for livestock and wildlife during fires, safety zones to flee to that make the difference between life and death. They also provide post-fire habitat which is critical for helping wildlife survive the winter. Because vegetation and beaver ponds remain, these areas trap soil eroding from surrounding hillsides post wildfire and help maintain downstream water quality. Currently natural fire breaks created by wetlands, wet meadows, and beaver ponds are limited due to past and current human land uses and ongoing beaver trapping. Wildfire frequencies and severities are predicted to increase with climate change.

### How do beaver help native fish?

Beaver create habitats that improve the function and diversity of the biological and physical systems native fish need to survive and thrive. Ponds provide critical winter rearing habitat for juvenile Coho salmon. Ponds and wetlands temporarily store surface and groundwater which later contribute to cooler stream temperatures (currently, thousands of miles of Oregon streams are too warm). Improved riparian conditions result in greater vegetation and insect life, which enhances food sources for native fish.

Stream systems with beaver ponds and elevated water tables are more ecologically stable due to the presence of stored surface and groundwater available to streams and plants. These water reservoirs contribute high-quality water during drought, help sustain stream flows and riparian vegetation, and create conditions that help keep water tables and pond levels high. Consequently, the impact of declining snowpack and changes in the timing of the spring melt on stream flows and water quality is partially offset by the slow release of the water temporarily stored in the beaver ponds and the soil.

### How do beaver help farmers and ranchers, and cities and towns?

Farmers and ranchers need water during to grow crops and raise livestock. Cities and towns need dependable high-quality water, and drinking water for many Oregonians comes from public lands such as national forests. As noted under "*How do beaver help native fish*" beaver-created habitats temporarily store water in ponds and in the soil, which is then slowly released. This temporary storage and slow release helps farmers, ranchers and cities and towns by improving water availability during drought via enhanced stream flows, by decreasing the frequency and magnitude of downstream flooding during periods of abundant snowmelt or rain, and improving the water quality (i.e. stream temperatures, turbidity).

### How do you deal with beaver-human conflicts such as blocked culverts and localized flooding?

Most beaver-human conflicts can be solved through non-lethal, co-existence strategies developed using human ingenuity and knowledge about beaver. These strategies eliminate conflicts for the long-term and are more cost-

effective than repetitive trapping because removal simply makes the habitat available to another family of beaver — thus compounding potential for infrastructure damage and costs over time. Examples of solutions to conflicts include using pond levelers to control how high the water in a beaver pond can get which eliminates flooding concerns or replacing undersized culverts with larger, appropriately sized culverts that address fish passage and stream flow issues and are not conducive to beaver dam building activity. Over the long-term changing poorly-designed or poorly-located human infrastructure, often the source of many problems, will also eliminate conflicts.

### **How many beaver are there in Oregon?**

We don't know. Less than historic numbers based on abundance of unoccupied, suitable habitat and lack of the wetland, wet meadow, pond and complex riparian and stream habitats that they create and maintain. What we do know is that from 2000-2020 over 51,200 beaver have been killed under the ODFW Furbearer Trapping and Hunting Regulations, USDA Wildlife Services has killed another 10,051 beaver, and some unknown number have been removed from private lands.

### **How valuable are beaver to Oregonians?**

Beaver are valuable to all 4.2 million Oregonians. They provide essential services to human and wild communities for free. The habitat they build and maintain enhances fishing, hunting, and wildlife viewing, creates natural fire breaks, increases water quality and stream flows, improves and expands salmon rearing habitat, and improves and expands habitat for countless other wildlife and aquatic species. A 2009 report commissioned by ODFW and Travel Oregon found that the economic returns of fishing, hunting, wildlife viewing, and shellfishing were \$2.8 billion. A 2016 report commissioned by the state legislature revealed that the majority of Oregonians are concerned about habitat loss, lack of water, low/declining fish populations, urban sprawl, and conservation and management of resources in general.

### **What would be the impact of closing Oregon's public lands to beaver trapping and hunting?**

Fifty-six percent of Oregon is public lands: state-managed (3%) and federally-managed (53%). The percent within counties varies from a low of 8% in Columbia County to a high of 78% in Malheur County. Currently, less than 200 people statewide trap and hunt beaver under the ODFW furbearer regulations as a recreational activity on Oregon's public lands. While these less than 200 people would no longer be able to do this recreational activity on public lands, over 4.2 million Oregonians and countless aquatic species and wildlife would receive the benefits described above. Benefits would be in the 100s of millions to billions of dollars.

### **How does beaver trapping and hunting hurt Oregonians and its fish and wildlife?**

Maintaining family units is key for expanding populations, successful dam building and maintenance, dispersal, and habitat creation. Trapping and hunting can eliminate entire colonies in one season. As a result, when the dams fail, they are not repaired. The ponds drain, water tables drop, water quality declines, wetlands and wet meadows begin converting to drier species and fish and wildlife habitat decreases. Even if some beaver remain, there is a lag between birth, adulthood, dispersal and finding a mate which limits creation and maintenance of habitat and its benefits. Those that remain are vulnerable to trapping and hunting pressures the following year in addition to other mortality causes.

### **How does beaver trapping and hunting differ from wild carnivore predation on beaver?**

Winter is the beaver breeding and pregnancy season and the time beaver are most safe from wild carnivores due to limited land exposure. This is also the time when ODFW furbearer regulations allow trapping and hunting to occur because the fur quality is best. Once a trap is set a trapper can leave and return at leisure leaving the trap on the landscape 24/7 until removed or an animal is caught. Whole colonies can be removed in a single season leaving dams unattended, which then fall into disrepair and fail, causing habitat benefits to be lost. Wild carnivore predation is an opportunistic kill and unlikely to remove an entire colony. Therefore, the habitat benefits remain because in many cases the remaining beaver are able to maintain their dams and expand their numbers.

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