

Grizzlies are returning to Washington's North Cascades. How will that work?

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Among the jagged peaks of the North Cascades, lush alpine meadows rich with berries and wildflowers blanket valleys carved by glaciers, some threaded with trickling creeks.

But these idyllic landscapes are missing one big thing that had helped sustain them over the millennia: grizzly bears.

That will soon change after [federal officials](#) decided last month to reintroduce grizzlies to the North Cascades, where there hasn't been a confirmed sighting of the species in nearly three decades.

Endangered species around the world face heightened risks of extinction because of climate change, which is melting glaciers, warming the ocean, and causing more frequent and intense storms and wildfires.

Yet the grizzlies are a hopeful story of recovery blooming in the North Cascades.

Some elements have changed since the bears roamed among the crags and through the meadows, but research suggests the bears might even thrive amid a changing climate.

They also have the potential to help restore balance in an ecosystem that once relied on the apex predator as gardeners—tilling soils for plants and dispersing seeds through their scat.

Federal officials plan to relocate 25 grizzlies to the mountain range. They hope the population will naturally recover to about 200 bears in a century.

Settlers hunted the grizzlies in this swath of northern Washington to local extinction, after thousands of years of coexistence with Indigenous people, recorded in North Cascades place names such as Stetattle Creek, derived from stəbtəbəl' (stub-tahb-elh), or grizzly bear, in the Lushootseed language spoken by the Upper Skagit people.

"Upper Skagit believes that we have a historical, moral obligation to

restore where we can before it's too late," said Scott Schuyler, policy representative for the Upper Skagit Tribe. "We've seen so many things disappear from the landscape over the last 150 years—since my ancestors signed a treaty. We're always going to work in that regard, to bring things back where we can restore the natural environment."

Why are grizzlies a climate change 'winner'?

Some of the best intact grizzly habitat remains here.

The U.S. portion of the North Cascades ecosystem is 9,800 square miles, and includes habitat for dens and hundreds of species of plants, animals and insects the bears feast on. Roughly 85% of the mountainous region is under federal management.

Climate change will show up in the North Cascades similarly to the rest of the Northwest: Rising temperatures, drier summers, wetter winters and springs. Decreased snowpack, and more disturbance events: fire and floods.

Using three dozen models based on different scenarios of future greenhouse gas emissions and vegetation changes, researchers found across the board, grizzly bears were an apparent "winner" in climate change.

They found that high-quality habitat for grizzly bears in the North Cascades increased across all modeling scenarios. This suggests that the carrying capacity of the ecosystem increased from initial estimates of 280 to as many as 578 bears.

On the whole, climate change poses a major threat to biodiversity, said Meade Krosby, a senior scientist with the Climate Impacts Group at the University of Washington and a co-author on the study.

"While this is not a big win for biodiversity," Krosby said, "it is a somewhat unusual good-outcome climate story for this species, at least in the North Cascades, at least in the short term."

In general, [climate change](#) means more and higher-intensity fires.

Fire is bad for all animals, but the first plants that come back, benefiting from openings in the tree canopy, are really good food for bears: huckleberry, cow parsnip and horsetail, to name a few.

As glaciers recede, woody vegetation will move up in elevation, potentially coaxing bears into those higher-elevation habitats in search of food and expanding access to high-quality habitat.

The Glacier Peak wilderness, the Chilliwack and the northern parts of the park might hold some of the best habitat, but the bears will tell us what they need and where they want to be when they arrive, said Jason Ransom, a North Cascades wildlife biologist and a co-author on the study.

"In terms of whether they can survive or not, the odds are in their favor," Ransom said. "And they're also generalists. They're really good at figuring out where the food is, and they can adjust and they're pretty flexible in their diet."

What happens when you bring them back?

It's unclear what grizzlies of the North Cascades may have eaten before they were extirpated, as little to no data is available on their diets and behaviors.

However, some research provides a small snapshot of what the bears historically ate in other parts of the region.

A study of museum samples of grizzly fur and bones collected from 1856 to 1931 from bears living in the high mountains of Idaho to Puget Sound and across Oregon found about two-thirds of their nourishment came from salmon.

For the North Cascades, scientists expect the bears will have a 90% [plant-based diet](#), based on the foods the bears rely on in the northern Continental Divide, British Columbia and other ecosystems from where they will be translocated.

But grizzlies in Alaska could potentially speak to the role the bears play in distributing nutrients in any ecosystem.

One study examining samples of spruce needles from trees growing up to 500 meters (1,640 feet) away from Alaska salmon streams found that about 17% of nitrogen 30 feet up in the air came from salmon and about 82% of it had passed through a grizzly bear.

How grizzlies engineer the forests

Reintroducing a keystone species like [grizzly bears](#) to the remote Cascades may have surprising benefits. These omnivores—in other established populations—change their diet based on seasons and availability, and in the process they move nutrients and seeds throughout the forest. While scientists don't know exactly what a grizzly bear will eat in the North Cascades, they found over 2,600 plant species they might eat based on other bears' diets, in addition to over 400 animals and insects.

If salmon can be recovered in significant numbers where bears live, they can be a critical link in moving ocean-derived nutrients into high elevation terrestrial environments, said Charles Robbins, a co-author on the studies and a professor and director of research at the Washington

State University Bear Center. This would have an effect on all plants.

Coastal bears engorge themselves on salmon runs and then disperse marine nutrients in measurable quantities.

The bears heading to the North Cascades were not taught by their mothers to search out salmon as a food source and it is unlikely to be the first thing on their mind as they discover the North Cascades, said Ransom.

That said, black bears, coyotes and even bobcats have figured out how to scavenge salmon carcasses after they've spawned, so it is reasonable to think a grizzly bear will eventually discover the food too.

Bears in the North Cascades are likely going to eat a lot of grass and some meat in the spring, and probably again in the fall when berries aren't around, Ransom said. Huckleberries and other sugar-rich, berry-producing plants are likely to be a big part of their diet.

The hungry bears might devour some huckleberries in one meadow, wander a couple of thousand feet in elevation and then leave seeds in their scat to grow elsewhere.

The bears also have a special skill—tilling soil with their claws. They dig up patches all over looking for roots and other meals. No other species is as prolific of a gardener. It's similar to what happens in avalanche chutes, when the snow melts and the soil is churned up, open for certain plants that love disturbed soils.

Each bear will have a radio collar for their first few years in their new home, offering semiregular updates on the bears' whereabouts. Ransom will also be seeking scat samples to get a better idea of what the bears are eating.

Largely, researchers don't know what a North Cascades grizzly's life will look like. It takes time.

On the Elwha River, the recovery of the river itself since dam removal has drawn ecosystem-wide benefits, with cougars hunting salmon from newly developed beaver dams.

"For 100 years, with dams, the salmon nutrients were missing, and the salmon as the base of the food web for a lot of terrestrial carnivores was missing. And it's going to take a long time for generations of animals to figure out that these nutrients are back in there, for the salmon to get back in there in numbers that are reliable to eat," said Kim Sager-Fradkin, wildlife biologist for the Lower Elwha Klallam Tribe.

"And that is something that comes back in much bigger numbers than something like a grizzly bear."

What can we learn from Yellowstone's wolves?

The reintroduction of wolves to Yellowstone was one of the greatest achievements in the history of wildlife conservation in North America, said Tom Hobbs, professor emeritus at Colorado State University and the lead author of a long-term study on the role of apex predators in restoring ecosystems. In the 1990s, about seven decades after the last wolf pack was killed in Yellowstone National Park, officials relocated 41 gray wolves to the park.

Ecological theory basically says if you have a really simple food chain—like the classic example of sea otters, urchin and kelp; one plant, one herbivore and one predator—if a predator is removed then urchins will overgraze on kelp. But bring a sea otter back and balance is restored to its original state, because the food chain is so simple.

In a more complex system like the North Cascades or Yellowstone, there are multiple apex predators, multiple herbivores, and most importantly, many plant species. If you remove one branch or layer of the food web, or change it in a meaningful way, and allow the system to reorganize without apex predators, and then you put the predators back, theory would say, Who knows what's going to happen?

Elk numbers increased dramatically after wolves and other apex predators were lost from Yellowstone. Unchecked by predators, elk browsed willows heavily, and beavers abandoned dams because there were no tall willows needed for food and dam-building materials. The absence of beaver dams accelerated the velocity of streams.

The changes in an ecosystem after losing an [apex predator](#) are often long-lasting and might not be quickly reversed by just by restoring the food web, Hobbs said.

"Ecological theory supports the idea that ecosystems that have intact, complete food webs are more resilient and generally healthier than ecosystems that don't," Hobbs said. "But please don't expect an overnight improvement in the North Cascades ecosystem."

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