
‘CASCADING EFFECTS ON SURVIVAL’

Newly listed as endangered by Washington state,
the Cascade red fox faces a bevy of threats—
and some cause for hope

TEXT AND PHOTOS BY GRETCHEN KAY STUART

High in the Cascade Range of Washington state, amid a fog-veiled, unforgiving climate, lives an elusive mountain carnivore. Cascade red fox sightings are so uncommon, scientists were surprised to find the animal still inhabited the area when Jocelyn Akins, a conservation geneticist and founder of Cascades Carnivore Project, first caught one on a trail camera in 2008.

“The subalpine zone feels completely devoid of life during winter,” Akins says. “I was thrilled to capture proof of such a rare fox existing in this harsh, desolate landscape.”

But severe weather is the least of the fox’s concerns.

Hardy but not invulnerable

Today the Cascade red fox—a unique subspecies whose ancestors arrived in North America via the Bering Land Bridge more than 300,000 years ago—is found only in Washington. There, they live in small, isolated populations 4,500 to 7,000 feet in elevation, mostly between Mount Adams and Mount Rainier—the snowiest place in the United States, with an average annual snowfall of 640 inches.

Smaller than the lowland red fox, the Cascade red fox has a thick winter coat and extra fur around its toe pads. With a diet largely consisting of snowshoe

hares, pocket gophers and voles, the fox performs several essential ecological duties: keeping rodent and insect populations in check, scavenging carrion and helping disperse the seeds of berries that feed numerous other mammals and birds.

In 15 years of study with Mount Rainier National Park scientists and volunteers, Cascades Carnivore Project has analyzed around 1,000 DNA samples, documenting only 51 individuals. Those findings contributed to the Washington Department of Fish and Wildlife listing the fox as endangered in fall 2022.

Don’t feed the foxes

While the foxes aren’t deterred by frigid weather, they’re less resilient to human encroachment, including food-conditioning. Car-strike fatalities have occurred when the animals have sought out food and trash left by visitors to Rainier and other recreational areas.

“These foxes are really smart,” says Tara Chestnut, an ecologist with the national park. “They have long-term memories, and if they’re fed even once after a long winter when food is scarce, they’ll take the easier option. Rather than hunt, they’ll go to people.”

Food-conditioning can also lead to aggression. If a fox were to bite a person, it would be Chestnut’s decision whether to euthanize the animal and test it



When it was photographed in September 2022, this 5-month-old “cross-phase” juvenile—so called for its tan and black color pattern—was the first Cascade red fox kit documented since 2018.



A Mount Rainier biological field tech (top left) finds the hair of a Cascade red fox outside a den. The hair will be DNA tested to identify the individual fox. The fox diet, including that of a red-phase female called Ginger (top right), relies heavily on voles. The late fox nicknamed Whitefoot (above) darts between cars as she begs for food. Biologists believe Snag (bottom left), a black-phase male, fathered kits with Ginger in 2022. Climate change is shrinking the foxes' habitat (middle left) of alpine and subalpine meadow, which also sees significant wildfire smoke in summer. Whitefoot (opposite) was the matriarch of her group, called a skulk. Despite food-conditioning, she lived to age 10 or older—more than twice the typical wild fox life expectancy.

for rabies. “As biologists, we’re trained to consider the population, not the individual,” she says. “But when a species gets to the point where it’s endangered, we have no choice but to consider every single individual. The loss of even one could have cascading effects on their survival long term.”

To avoid reaching that point, Chestnut has a message for the public: “Help me never have to make that horrible decision by not feeding them. Don’t be outsmarted by a fox.”

The last known food-conditioned Cascade red fox, a female nicknamed Whitefoot, hasn’t been seen begging roadside since 2021 and is believed to have died of old age. With Whitefoot’s passing, biologists hope the cycle of begging behavior taught by parent to offspring is broken, making human-fox encounters extremely rare once again.

Hope despite danger

Other threats remain. Decline in snowpack, a symptom of the warming climate, has allowed conifers to sprout in higher climes, turning subalpine meadows—which the Cascade red fox and its prey rely on—into forests. Meanwhile coyotes, a red fox predator and competitor, are reaching higher elevations via ski and snowmobile trails. What’s more, the fox’s small population size has resulted in low genetic diversity, with inbreeding potentially contributing

to poor reproductive rates, increased hereditary abnormalities and reduced ability to adapt to environmental change.

But all is not lost. Following the endangered listing, Cascades Carnivore Project and Mount Rainier National Park partnered with the Washington Department of Fish and Wildlife, the U.S. Geological Survey and the University of Washington to develop and implement a recovery plan. The Confederated Tribes and Bands of the Yakama Nation intend to join in as well. By identifying and increasing biodiversity in fire-prone forests, the Yakama Nation aims to mitigate climate change’s impact on Cascade red fox habitat.

Mark Nuetzmann, a wildlife biologist for the Yakama Nation, believes raising awareness will help. “I am humbled that Mount Adams is one of the remaining locations that the Cascade red fox inhabits,” he says.

Another glimmer of hope appeared last year, when the first Cascade red fox kit was documented since 2018. Akins sees the juvenile as a promising indicator for ongoing collaboration between local communities and scientists. “It will take a joint effort to ensure that the Cascade red fox remains in this magnificent place for generations to come,” she says. ■

Gretchen Kay Stuart is a wildlife conservation photographer based in the Pacific Northwest.

