Fascinating Fishers

A little-known animal strives to survive in the Northwest | **By Eric Lucas**

Found only in North America, and once abundant in the Northwest, fishers occupy a distinct ecological niche and are the only known regular predators of porcupines.

High on a gnarled ridge above the Idaho Panhandle's Lochsa Canyon, at the edge of a tangled thicket of ceanothus, aspen scrub and wild rose, biologist Mike Schwartz pulls down his radio-telemetry antenna and grins wryly. "There's good news and bad news," he reports.

"The good news is, she's still around, still got the collar on. The bad news is, she's over there." He points east.

We've been trying to discover the exact whereabouts of a female fisher Schwartz has collared and been electronically tracking for a year. At first glance, "over there"—a nearby ridge—seems deceptively close, but more careful inspection shows it is separated from us by a steep descent into a small, hanging-valley creekbed. The intervening slopes would be labeled, at a ski area, double black diamond. Testing grounds for the theory of gravity. Experts only.

Well, we're experts: Schwartz, a seasoned federal field biologist; his colleague Ben Jimenez, a biologist, outdoorsman and expert tracker; and me, an avid natural-history journalist who's been a lifelong hiker and backpacker in the Western wilderness. We're on the trail of an animal I've never seen, an elusive, almost mythical, predator many people have never heard of. For years, even scientists knew little about it.

Relatives of martens, and one of the larger members of the mustelid (weasel) family, at an average adult size of 6 pounds for females and 13 pounds for males, fishers are found only in North America. They are agile, secretive, powerful forest hunters that occupy a distinct ecological niche. Among other things, they are the only regular predator of porcupines, which they bring down via bites to the less-quilled face. The fisher heads down a tree toward a porcupine that is coming up, and repeatedly bites the porcupine, forcing it back down to the ground, where the porcupine often collapses, exposing its spineless belly.

Female fishers birth and rear kits in the cavities of snags and large live trees—often ones that have been excavated by pileated woodpeckers. They inhabit rugged territory in which they are rarely encountered by humans, and they are one of the most recent objects of Western wildlife study to confound the preconceptions once attached to them.

Schwartz is among a small group of researchers who have, over the past decade, broadened the field of knowledge about fishers in unexpected ways, demonstrating both the serendipitous nature of scientific advance and the wondrous possibilities of modern technology. Some of the surprises derive from ultramodern DNA analysis. For instance, it turns out that the two-dozen fishers Schwartz has trapped and tracked in the Lochsa area of the Bitterroot Mountains in Idaho are the last of a native population scientists did not know for certain was there.

Conversely, genetic analysis reviewed by a Washington state researcher, Keith Aubry, showed that another group of fishers—an isolated population of fewer than 50 animals in the Southern Oregon section of the Cascade Range—was introduced and not native, as originally thought.

The researchers and other conservation biologists have strong concerns about fisher population levels in the western United States, and in 2000, wildlife activists petitioned the U.S. Fish and Wildlife Service to protect fishers in the Pacific states under the Endangered Species Act.

In 2004, the Fish and Wildlife Service determined that listing the fishers as endangered under the Endangered Species Act was "warranted but precluded." Interpretation: The fishers are endangered, but limited agency resources mean that legally protecting them is precluded, at least for now, by the needs of other species with higher priority. The ruling gave the fishers "candidate-species" status, which means federal agencies such as the Forest Service and the Bureau of Land Management are encour-

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aged to consider how their land-use decisions affect fishers, although they are not legally required to make any changes.

The agency is supposed to review its finding annually, and future wildlife research may play a role in whether Pacific fishers are one day added to the endangered list or removed as a candidate, and whether petitions will be submitted to protect fishers in other parts of the West, such as the population Schwartz has discovered in Idaho.

Much of that research will consist of old-fashioned hard work, tromping around the landscape. The Lochsa (lock-saw) is quintessential territory for that. "Lochsa" is a Nez Perce word meaning "rough water," and it refers to the rapids of the Lochsa River, which parallels much of U.S. Highway 12 after the highway enters Idaho west of Missoula. But the land around the river is rough, too. When Lewis and Clark passed through this area, Clark complained in his journal about crossing "over Steep points rockey & buschey. ..."

We're on one of those "rockey and buschey" points, and when we head down into the creek below, the brush grows thicker still. The signal from the fisher's collar fades, and the climb to the next slope exhausts the better part of a half hour. Once atop the next ridge, above Lost Creek, we pick up the signal again. It leads us uphill (naturally), and we prowl up the ridgeline along a game trail that snakes its way through more brush, past more rocky points. Gunmetal clouds dash in and clump above, pausing before they swing northeast over the highest ridge, into the peaks of the Bitterroot Range.

The fisher's collar signal roughly indicates distance and direction, the two factors represented by the strength and frequency of the signal's "ping" as Schwartz turns the antenna. After spending an hour traipsing up and down the ridge—separating into two parties to bracket the animal and hushing our footfalls in thick fir forest, it finally dawns on us that we are, yes, on a wild goose—make that, fisher—chase.

The fisher is well aware of our presence, and is moving away accordingly. To actually come upon her, we'd have to hustle faster than she.

Here's how likely that is: No way.

Schwartz smiles and shrugs. "It's an elusive predator," he declares, in the same ironic tone with which William Clark would have said, "It's a big country."

Much as I'd like to see such a rare animal, I can't quite allow myself disappointment. If I were a fisher, I wouldn't be in any hurry to visit with humans either.

Once upon a time, fishers were numerous in Idaho, Oregon, Washington and California. Maybe there were thousands; no one is sure. Then trapping, logging and settlement decimated their numbers. One researcher found records of fisher pelts—which are dark brown and silky, especially the female pelts—that sold for $150 apiece in the 1920s, an astounding sum that in today's terms would approach $2,000. That sort of economic incentive brought huge pressure to bear on the animal, as did widespread cutting of the lowland old-growth forests the Western fisher favors. Last, but not necessarily least, came early 20th century predator-control-and-poisoning programs, such as the one designed to eliminate wolves from the Olympic Peninsula. These programs likely also affected many fishers. Today, biologists believe the fisher is almost certainly extinct in Washington state; is probably down to fewer than 100 animals in Oregon; and is likely below 500 in California.

But the fisher is still common in Canada, some Great Lakes states and the Northeast, where many fishers were reintroduced by state and federal agencies, and where more-extensive fisher-friendly forests remain or were replanted after farmers left the land in the 19th century. Still, scientists aren't sure why fishers have done better in those regions than in the West.

Because fisher populations are healthy in some states and much of Canada, and anecdotal sightings had placed fishers along the West Coast from British Columbia down to Southern California, the U.S. Fish and Wildlife Service rejected, in 1995, a previous petition seeking "threatened" status for two fisher populations in the West (Washington, Oregon, California, Idaho, Montana and Wyoming) under the Endangered Species Act.

Federal officials concluded that there wasn't substantial information indicating that fishers in the western United States were distinct populations. They believed that various North American fisher populations could interact, and thus the animals could theoretically repopulate, by migration and interbreeding, any area in which their numbers were low.

Thus it stood until Keith Aubry, a research wildlife biologist with the Forest Service's Pacific Northwest Research Station in Olympia, Washington, happened upon reports placing fishers in Southern Oregon. Aubry's area of expertise and personal interest is forest carnivores; his 1983 doctorate-degree dissertation had focused on alpine red foxes near Washington state's Mount Rainier.

He was interested to learn that researchers had set up camera traps—in which an animal going for the bait crosses an infrared beam that triggers the camera to take a shot—near the Crater Lake area of Southern Oregon. They hoped for pictures of wolverines, another elusive forest predator. Instead, they got cameos of surprised fishers.

This discovery of a resident population of fishers in the Oregon Cascades in the

Fisher Specs

Species name: *Martes pennanti*

Size: About 6 to 13 pounds, and up to 2-plus feet long, comparable to house cats

Range: Northern North America, Maine to British Columbia; known remnant native populations in California, Oregon and Idaho.

Habitat: Dense forests, with thick, high canopies. Fishers avoid open spaces.

Life span: Less than 10 years in the wild.

Diet: Small to medium birds and mammals, including porcupines; seeds, truffles, fruits. Despite their name, fishers do not seem to actively seek fish as a food source, although they will eat fish. The name "fisher" may have been bestowed by fur trappers, who used fish as bait to catch the animals, or it may have resulted because the animal resembles the European polecat, whose pelts are referred to as "fichet" in France, according to sources cited in a report by Washington Department of Fish and Wildlife fisher experts Jeffrey C. Lewis and Derek W. Stinson.

mid-1990s prompted Aubry to do a radio-telemetry study of fishers in Oregon from 1995 to 2001. He and other biologists also set camera traps and "sooted-track" detection devices throughout forested areas of the Pacific states to determine and document where fishers lived.

Sooted-track detection devices have three sections: a sooted surface, a sheet of contact paper and a chicken wing. The animal walks in, leaves soot on the contact paper and backs out with the chicken wing. Most of the soot comes off on the contact paper when the animal is on its way in, so its trip back out doesn't mess up the tracks.

The fishers seem not to have expanded their population or range. Thus, even this reintroduced population is in danger. ...

These precise tracks on paper help researchers ascertain whether a given species exists in a given area.

"A group of scientists led by Bill Zielinski, research ecologist with the Forest Service's Pacific Southwest Research Station in Arcata, California, developed very precise standardized protocols for deploying remote cameras and track-plate boxes to detect martens and fishers," Aubry says. "If you follow the protocol properly, you can expect to detect fishers if they are present in the sample area. The development of these standardized protocols was a huge advance in our ability to accurately assess the current range of these species, to determine where they are and—most importantly for conservation—where they are not."

Aubry found evidence of just two fisher populations, both in Oregon: one in the southern Cascade Range near Crater Lake National Park, the other in the Siskiyou Mountains near the California border. No others, anywhere, in Oregon or Washington. "We had anecdotal reports of fishers all over: the Olympic Peninsula, Washington Cascades, Mount Hood, Eastern Oregon," he says. "They weren't there."

I myself thought I'd once seen a fisher until Aubry kindly disabused me of the idea. I had been in a place where fishers

had never been common, and I probably saw a marten.

"Anecdotal reports, even from knowledgeable individuals, are inherently unreliable," Aubry notes.

In 2000, he did additional research that utilized DNA analysis. In the case of the fishers, the southern Cascade Range animals proved to be descendants of non-native fishers introduced from Minnesota and British Columbia in the 1970s and '80s. Timber managers hoped the fishers would control the population of tree-bark-stripping porcupines. No one tagged or otherwise followed these animals, and Aubry says no one knows whether they have kept porcupines in check or not. What he can say is that the fishers seem not to have expanded their population or range. Thus, even this reintroduced population is in danger of being extirpated.

Fishers' partially retractable claws let them climb trees, which they may do to hunt prey or to reach dens as high as 85 feet or more in the cavities of large trees. The female rears two or three kits, weaning them at about 6 to 8 weeks.

The Siskiyou fishers were the only native remnants, and although the Siskiyou and Cascade Range groups are separated by just 50 miles, it is 50 miles of civilization that includes an interstate highway and an urban area, so there has been no interaction. Indeed, there are significant differences: The Siskiyou fishers are quite a bit smaller than the Eastern and Canadian fishers, with Siskiyou males weighing less than 9 pounds, on average, compared with an average of more than 13 pounds for the non-native Cascade Range animals.

Meanwhile, Schwartz got wind of Aubry's work. An ecologist at the Forest Service's Rocky Mountain Research Station in Missoula, Montana, Schwartz had some funding to study predator populations along the U.S. 12 corridor in Lochsa Canyon, and he decided to seek out fishers.

In a deep woods along Lochsa Canyon's Colt Killed Creek—so named by Lewis and Clark when they were forced to kill and eat a colt to keep from starving to death in 1805 mountain snowstorms—Schwartz and fellow biologist Jimenez show off one of the traps they used to capture and collar the Idaho fishers.

Made of sturdy logs, it rests beneath a 3-foot-diameter cedar—peppered with holes made by pileated woodpeckers—that would be ideal habitat for fishers. Once an animal entered, the door dropped to contain it without harm so that the researchers could weigh it, do blood tests and put on a transmitter collar.

Baited with deer and beaver meat, the trap yielded seven fishers during Schwartz's study, which took place each winter over four years, starting in 2002. Why so many right here?

"We have no idea." Schwartz shrugs. "There's just a lot we don't know about these animals."

What they do know is that there are probably about 50 fishers in the 50-mile-by-10-mile Lochsa study corridor, and some of them are part of a native group genetically distinct from those in Minnesota and British Columbia—and from those in Oregon and California. The biologists know all this only by sheer happenstance.

Schwartz and his colleagues gathered fur samples for DNA analysis from each fisher they captured. His lab in Missoula is one of the most advanced wildlife-DNA-analysis sites in the United States, and is often called upon to settle legal issues in poaching cases.

Initial DNA screens developed by Schwartz and University of Montana graduate student Ray Vinkey showed that while some of the fishers were non-native animals—from populations wildlife workers had reintroduced, using animals from British Columbia—other Lochsa fishers were not genetically matched with any others known in North America. But how to prove these Lochsa fishers were native? No historical samples of Montana/Idaho fishers could be found in the two states, so on a whim, Vinkey made some calls back east. Many Ivy League universities had sent expeditions west more than a century ago. You just never know.

Amazingly, Vinkey learned of a fisher skull at Harvard. It was from the Northern Rockies, collected in 1896. Perfect. Schwartz traveled to Harvard, took a sample, brought it home, analyzed its DNA and compared it to that of the native Lochsa animals. The DNA matched.

Neither Aubry nor Schwartz will (or can, professionally) discuss the policy implications of their discoveries. Are these irreplaceable, unique animals? Should protection and enhancement programs be undertaken? Should these fisher populations be designated endangered subspecies of the overall species?

"My information is out there for anyone to use as they wish," says Schwartz. "Get seven biologists in a room and you'll get seven different definitions of 'species' and 'subspecies.' "

There is ample precedent for identifying distinct populations of animals and protecting them accordingly. Numerous races of salmon have been given endangered-species status. Oregon is the home of the Columbian white-tailed deer, an ungulate that has been protected and has made a notable comeback over the past 20 years. But salmon and deer are conspicuous species found close to human settlement. Fishers are ghosts of the wilderness.

"Is the Pacific fisher a keystone animal [an animal crucial to the overall health of an ecosystem or whose population gains and losses are evidence of an ecosystem's health or decline]?" Aubry says. "We just don't know."

A coalition of environmental groups has filed suit in federal court demanding that the federal government list Pacific fishers—those on the West Coast, including in the Siskiyous—as endangered. As in most such lawsuits, any sort of resolution is

probably years away. Meanwhile, Aubry was recently named the chair of the federally funded Fisher Science Team, charged with providing scientific guidance on conservation questions such as where animals should be captured for potential future introductions.

Although many questions remain to be answered, what Aubry and Schwartz have discovered so far is clear: There are few fishers left in the Northwest, and there may be only two native populations: the group whose range includes the Siskiyous, and the group in the Bitterroot Range of the Rockies. The wide-ranging interplay of fishers that federal officials presumed in their 1995 ruling simply does not exist.

The two researchers have exhausted the original funding that supported their two studies. Schwartz recently got funding from the U.S. Forest Service for a further study that would delve into the rugged, rarely visited Selway-Bitterroot Wilderness, whose heart is 30 miles south of the Lochsa, for genetic studies of fishers there. Perhaps that wilderness holds a healthy, large population of indigenous Northwest fishers, a unique native group that would stand as testament to the vigor of wild creatures left to their own devices.

"We will be surveying in some of the most beautiful, rugged, unexplored terrain imaginable," Schwartz says. "Who knows what genetic secrets we will find there?"

Wildlife research isn't always quite that exotic. Descending from the heights above Lochsa Canyon's Lost Creek, we come upon the site of a recent wildlife drama: Some predator caught a grouse. Feathers are flung in the brush like confetti. Schwartz and Jimenez drop to their knees and devote 15 minutes to an intense search for fur or scat, anything that will reveal what carnivore had dinner here. No fur is found; a few tidbits that may be scat go in an envelope.

"When you're in a study like this, with an animal as elusive as the fisher, you have to beg or borrow every scrap of data you can get," says Schwartz.

I fantasize that while we're casting about for a tuft of predator fur, the fisher we've been seeking has paused on the slope above us, both puzzled and bemused by the bewildering behavior of the humans who've been tracking her. Then she drops down from her perch in a fir, turns, and heads up into utterly untracked ground. ■

Eric Lucas lives in Seattle.

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