ELUSIVE

Citizen scientists help locate Wyoming's wolverines in multi-state study of one of the most mysterious wilderness dwellers

BY KELSEY DAYTON

Wyoming Game and Fish biologists Ryan Kindermann and Lee Tafelmeyer look for a site in the Buffalo Fork drainage that gives them the best chance to detect a wolverine, an animal that can travel hundreds of miles in search of food and mates.
Photo by Mark Gocke/WGFD

Wyoming Game and Fish researchers are hoping to capture a photo this year like this one taken during work from fall 2015 to spring 2016.
Photo by WGFD trail cam

Despite her snowshoes, with each step Gwyn McKee sank several feet into the fresh powder. The 3-mile round-trip journey into the Bighorn Mountains on Dec. 27 would have been an adventure on any winter day. But a storm had blown through during the Christmas weekend, leaving behind several feet of new snow, bitter temperatures and Wyoming's infamous wind. In spite of the conditions, McKee was giddy. It was slow going, but she and four other volunteers finally dropped into the trees; at least there the wind abated. After days of unrelenting cold, a temperature in the teens actually felt pleasant.

The group slogged on toward a camera station in the South Tongue River area of the Bighorn National Forest, using ski poles for balance as they hoisted themselves over fallen trees. They moved gingerly on the steep sections slick with snow and ice, where a slip could result in a twisted ankle, or worse, a tumble over the rocky ledge.

Gwyn McKee is one of several volunteers helping Wyoming Game and Fish biologists detect wolverines in the Bighorn Mountains. *Photo courtesy of Gwyn McKee*

McKee knew the chance of even seeing sign of a wolverine, the animal they were giving their time this winter to help research, was slim. But it was enough to keep excitement boiling inside her.

McKee is one of more than 25 citizen scientists helping the Wyoming Game and Fish Department search for these muscular animals known for their strength, ferocity and elusiveness. It's part of a two-year statewide study and a larger multi-state collaboration to better understand wolverines and the habitat they use. It is a challenging project given the rugged terrain in which wolverines choose to live, the vast size of the animal's range and their solitary nature. Some researchers spend whole careers studying the animals and rarely glimpse them, even on cameras. Volunteers like McKee provide important data to supplement this time- and resource-intensive research.

SEARCH FOR TRACKS, FACTS

Wyoming biologists have studied wolverines in isolated areas, but this is the first effort to understand how the animals are distributed across the Bighorn Range and the northwest mountains in the state.

In November, biologists set up 26 cameras throughout northern Wyoming in the Bighorn, Absaroka and Teton mountain ranges, as well as in Yellowstone National Park, in hopes of sighting and studying the mysterious animals, said Zack Walker, the Game and Fish nongame bird and mammal program supervisor.

The sites were selected using data from previous studies that modeled wolverine habitat throughout the West. Based on that information, sample sites were randomly placed in habitat where wolverines were likely to be found.

Bait tied in a tree — like road-kill deer, beaver carcasses donated by Wyoming trappers, and stinky mixes of skunk essence and other smells soaked into a sponge — lure the elusive carnivores to the study site. Hair snares on the tree collect samples for DNA analysis and cameras snap evidence of the animals that visit each site. It's research that works much better in the winter, when other predators like bears are less likely to investigate and possibly steal the stinky bait. But winter also brings more challenges for researchers to get into the areas wolverines might frequent. These challenges are met with snowshoes, snowmobiles, cross-country skis and plenty of warm layers.

In 2015, Game and Fish surveyed sites in the Wind River, Absaroka, Teton, Gros Ventre, Salt River and Wyoming ranges. Researchers documented at least three unique wolverines, distinguishable because of their coloring, and saw a potential fourth. One of those was the first wolverine confirmed in the Gros Ventre Range, Walker said. DNA from collected hair will hopefully inform researchers how many wolverines were spotted during the study.

Research isn't only happening in Wyoming. Idaho, Montana and Washington also launched wolverine studies this year. Working together, researchers will share data to gain, for the first time, an understanding of the large-scale distribution of an animal known for traveling hundreds of miles across state boundaries, said Lee Tafelmeyer, a Game and Fish wolverine project biologist.

"This is pretty groundbreaking," he said. "What scientists and wildlife managers know about wolverines is lacking, compared to what we know about other, more common animals."

That's why biologists and citizen scientists like McKee

Lee Tafelmeyer, a Wyoming Game and Fish biologist, ties scent lure to an Engelmann spruce in the Cleark Creek drainage northeast of Moran Junction. The lure includes a variety of ingredients, such as skunk essence, which helps attract wolverines to the bait site, where a camera is waiting to capture their photo. *Photo by Mark Gocke/WGFD*

The Council for the Bighorns organized citizen scientists, including Gwyn McKee, second from right, to monitor three sites in the Bighorn Mountains that Game and Fish wouldn't be able survey without help. *Photo courtesy of Jeff Vollmer*

Wolverine goals

The ultimate goal is to establish a self-sustaining wolverine population in Wyoming, and that means having evidence of females breeding in the state, said Nichole Bjornlie, a Wyoming Game and Fish Department nongame mammal biologist.

While female wolverines can reproduce every year and have one to four kits, they usually go at least a year between litters. Reproduction is also dependent on health and body condition, which is directly linked to the availability of food sources, said Zack Walker, the Game and Fish nongame bird and mammal program supervisor. There aren't any confirmed cases of recent wolverine reproduction in the state, he said. In fact, the only documented reproduction was in 2005, when Bob Inman and the Wildlife Conservation Society were researching wolverines in the Tetons and found a wolverine den with two female kits.

However, some of the map's grid cells where biologists and volunteers are currently searching for the animals line up with areas that have been studied previously. Bjornlie said she hopes this year to see signs of a previously collared female captured on camera in 2013 just outside the eastern boundary of Yellowstone National Park.

That wolverine had distinctive coloring — a white paw with a black dot on it. Because scientists had previously captured and collared it, they knew it was a female when they saw the image in 2013. If they see it again, they'll know it is staying in the same area, which might mean it is reproducing, Bjornlie said.

Researchers are also looking for females that return to the same site multiple times in one winter, which could mean there is a den nearby. They also will be looking to see if any females captured on camera are lactating when climbing to reach the bait.

Any of these signs could mean a female is reproducing in the state, which would be an important discovery and a promising sign for the future of wolverines in Wyoming.

—Kelsey Dayton

Above: The search for this elusive member of the weasel family takes wolverine project biologist Lee Tafelmeyer to compelling locations. Overlooking the Buffalo Fork on a warm day like this isn't common. Treks to remote camera sites usually require snowshoes, skis, a snowmobile or a combination of all three. Below: Wolverines serve as an indicator species for high-elevation ecosystem health. Biologists frequently travel by snowmobile in order to access these remote areas. *Photos by Mark Gocke/WGFD*

revel being outdoors, combing the frozen landscape. Wolverines are mysterious, but they are also just cool.

"It's a unique opportunity for Wyoming to manage and conserve a rare species — and not only a rare species, but a charismatic, super interesting, rare species," Tafelmeyer said.

Wolverines live an independent existence, traveling solo and sometimes hundreds of miles, scavenging and looking for carcasses of animals killed in avalanches or felled by other predators, Tafelmeyer said. Found throughout the northern polar regions of the world, they serve as an indicator species for high-elevation ecosystem health. Wolverines thrive when they can find food and desirable areas to reproduce. Find them and it's a good sign of a healthy environment.

A DIFFICULT HEAD COUNT

No one knows what the peak population of wolverines was in Wyoming and the Rocky Mountain West or when that occurred. Throughout the northern Rockies, wolverine numbers were low early in the last century but have since increased. In Wyoming, data is limited and difficult to come by since wolverines usually choose to live at elevations of 8,000 feet or higher. Though not always the case, females seem to prefer areas that hold snowpack longer into the spring for denning, Tafelmeyer said. These are not usually areas easily accessible for researchers.

Wolverines also move hundreds of miles, often undetected since they are about the stature of a medium-sized dog. A wolverine captured and collared on Togwotee Pass in 2008 was found crossing the Red Desert before moving into Colorado and then North Dakota, where it was shot in May 2016, said Nichole Bjornlie, a Game and Fish nongame mammal biologist.

"There really isn't such a thing as a Wyoming population of wolverines," she said. The animals constantly roam between borders and jurisdictions. And sightings are extremely rare. Most often, reports

Above: Volunteers Jeff Vollmer, left, Rob Davidson, right, follow the same protocol and procedures as Game and Fish by checking the stations every 30 days for three months. Below: Even one picture of a wolverine, like this one Game and Fish cameras caught last year, would be a success for the year. *Top photo courtesy of Gwyn McKee. Bottom photo by WGFD trail cam*

> In 2015, Game and Fish surveyed sites in the Wind River, Absaroka, Teton, Gros Ventre, Salt River and Wyoming ranges. Researchers documented at least three unique wolverines.

of wolverine sightings are cases of mistaken identity that turn out to be a marmot, another small mammal that lives at high elevations, she said.

What is known, however, is that the wolverine population took a major dive in the 1800s when unregulated trapping allowed too many animals to be harvested for their coveted fur. Then, in the early 20th century, wolverines were hunted and poisoned as part of broad-scale predator eradication efforts, Tafelmeyer said.

According to the U.S. Fish and Wildlife Service, wolverines made a "remarkable recovery." But the animal may be facing new threats, including climate change. Wolverine dens in the U.S. and Canadian Rockies have usually been found in areas with persistent late spring snow. "Deep snow acts as a blanket and provides security while females are rearing their young," Walker said.

In 2013, the Fish and Wildlife Service proposed listing wolverines as a threatened species under the Endangered Species Act, due to projected habitat loss from climate change that would increase snowmelt. The following year the Fish and Wildlife Service decided not to list the wolverine after a comment period that included extensive input from state wildlife agencies in the West. But conservation groups sued and, in 2016, a U.S. District Court in Montana ordered the Fish and Wildlife Service to review the decision once more. During the review, the wolverine is again considered a species proposed for listing as threatened throughout its range

of suitable habitat in the contiguous United States. Threatened species are those deemed likely to become endangered in the near future. An endangered species is one at risk of extinction in all or a significant portion of its range.

While the high-elevation areas where wolverines live aren't often threatened by development, the animal faces other hurdles when journeying through large areas to get to preferable habitat. These movements are necessary as young animals disperse to look for territory and a mate. If habitat fragmentation prevents wolverines from moving from one mountain range to another, populations could suffer, particularly those that live in small ranges, Walker said. Wolverines in Wyoming likely come from northern populations, including those in Canada and Montana. If biologists better understand how and how many wolverines are moving through Wyoming, they can look for ways to conserve and protect the habitat the animals use to move across the landscape, Walker said.

If biologists better understand how and how many wolverines are moving through Wyoming, they can look for ways to conserve and protect the habitat the animals use to move across the landscape.

HELP FROM FRIENDS

Trying to understand wolverines within the state boundaries is a big job for Game and Fish, and volunteers help make that job more manageable. While the agency is monitoring the 26 camera sites, the Council for the Bighorns also has organized citizen scientists to monitor an additional three sites in the Bighorn Mountains.

They cover grid cells on the map that Game and Fish wouldn't be able to look at without help, Bjornlie said. "Those areas are extra data we weren't anticipating getting."

Rob Davidson, director of Council for the Bighorns, has participated in citizen science projects before in the Bighorn Mountains, helping on a stream health study, documenting recreational impacts and conducting a campsite census. He's drawn to projects that collect data for management in the beloved Bighorn Mountains where he recreates.

When Davidson learned about the wolverine study, it seemed like the perfect project for the Council for the Bighorns, which advocates for nongame species in the area. He organized 22 volunteers to set up and monitor three camera stations. The volunteers follow the same protocol and procedures as Game and Fish — the stations are checked every 30 days for three months by volunteers who make the trek to the remote sites on skis, snowshoes or by snow machine. Several other volunteers work to compile the data once it's in hand.

The project is run on a variety pack of volunteers, from a father and his teenage son, to people in their 60s and every age in between, Davidson said. They also come from diverse backgrounds including some, like McKee, with research experience.

McKee, who owns Great Plains Wildlife Consulting Inc., is a professional biologist interested in wolverines. With an extensive wildlife background, she was realistic when she signed up to volunteer. She reminded herself that, even if they didn't see a wolverine, she'd get to explore the mountains in winter and meet like-minded people in the area.

Yet in the truck on Dec. 27, carpooling to the trailhead with other volunteers, she couldn't help but get a little caught up in the excitement. Christmas was two days past and it felt like she was about to open the best present yet.

"What would be on the camera?" she said. "We were pretty excited just to see something."

There weren't any wolverine tracks at the site, but McKee harbored hope. Back at the truck a few hours later, the sun was out and the temperature had climbed to 24 degrees. The volunteer crew was so excited to review the memory card from the camera, they headed to the Branding Iron in Dayton to look at the pictures immediately. But, over cheeseburgers and pie, the memory card became a harsh reminder of the wolverine's elusiveness. The only images were of a short-tailed weasel scurrying up the tree and a Clark's nutcracker pecking away at the suspended deer leg bait.

But McKee remained optimistic. There were still three more chances to visit the site — at the end of January, February and March. Plus, there were the other sites, too.

"I think everybody is hopeful that one of those many cameras out there is going to catch a wolverine," she said.

Even one image on one camera would be a success for the project, Bjornlie said. It would add evidence to findings that are taking years to amass, but that allow McKee to remain hopeful.

One of these moments came last year, when Callie Domek, from Lander, volunteered with the study. A seasonal worker for the U.S. Forest Service, Domek has some biology field-work training.

"I'm just interested in wolverines," she said. "They are so mysterious."

On one outing, she used a snow machine to travel from the Elkhart Park trailhead with Clint Atkinson, a Game and Fish wolverine technician. From there, they skied to a remote camera site.

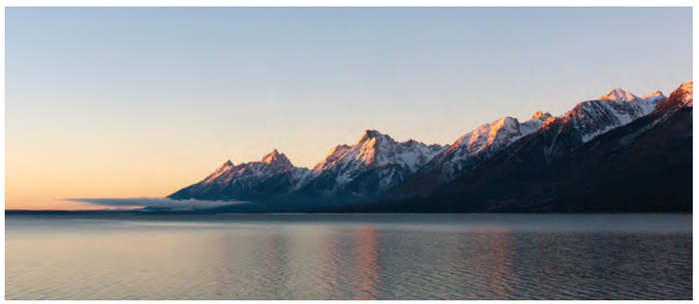
They fumbled in the cold with the digital camera, quickly scanning the pictures. They'd seen martens, foxes and even a moose at this site. And then, something different flashed across the screen. After seeing so many other animals that had triggered the camera, she was certain she'd scanned by another marten. Only it wasn't.

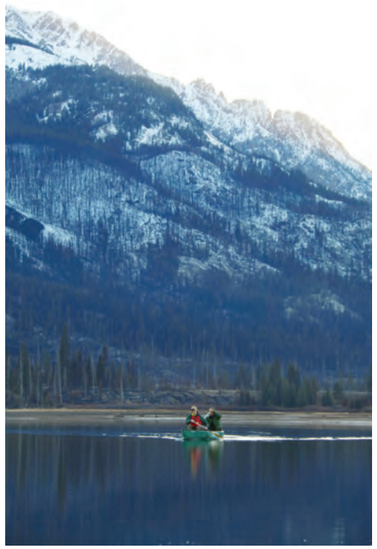
There it was in the picture — a wolverine. It had been right where she was standing. All the work had been worth it.

"They are here," she said. "We have the proof."

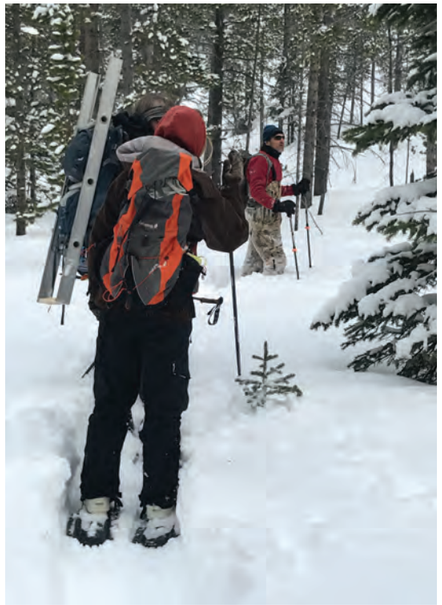
—Kelsey Dayton is a freelance writer and editor of Outdoors Unlimited, *the magazine of the Outdoor Writers Association of America.*

Idaho, Montana and Washington launched their own wolverine studies this year. The researchers will share data to gain a sense of the large-scale distribution of an animal known for traveling hundreds of miles across state boundaries.
Stock photo





Wolverines in Wyoming likely travel here from northern populations, including places in Canada and Montana. The trek to set up remote camera sites can include river and lake crossings, like the one that started near Jackson Lake, above. Once in the backcountry, biologists set up cameras and bait in hopes a wolverine will come investigate.
Photos by Mark Gocke/WGFD



Left: Rachel Keller, foreground, Don Crecelius, middle, Jeff Vollmer, far right, volunteered with the Council for the Bighorns, which advocates for nongame species in the area, to check sites in the Bighorn Mountains once a month. Above: Wolverines serve as an indicator species for high-elevation ecosystem health.
Left photo courtesy of Jennifer (Jenny) Vollmer, above photo by Mark Gocke/WGFD