Montana Fish, Wildlife & Parks

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Fisher on Region 2 survey site on December 11, 2018.

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The Region 2 Wildlife Quarterly is a product of Montana Fish, Wildlife & Parks; 3201 Spurgin Road; Missoula 59804. Its intent is to provide an outlet for a depth of technical information that normally cannot be accommodated by commercial media, yet we hope to retain a readable product for a wide audience. While we strive for accuracy and integrity, this is not a peer-refereed outlet for original scientific research, and results are preliminary. October 2015 was the inaugural issue.

Fisher Habitat . . .

. . . is big timber, with cavities, like this old Western Red Cedar, growing west of Missoula. Alex Mattson, FWP Game Warden in Mineral County, provides a size perspective.

In the winter of 2018-19, wildlife biologists, game wardens and volunteers in northern Idaho and western Montana are collaborating in a first-of-its-kind survey for fishers across their historic range.

Results of the survey are months away, but it's not too soon to describe the goals and techniques of the survey, and not to soon to share a selection of pictures from the remote cameras that are deployed at sampling sites in Region 2.

The Weasel Family in Montana

Marten

The standard fisher-survey protocol requires that field personnel set remote cameras at a fixed distance (5-6 meters) from the bait tree. Among other, more important advantages, this allows readers of the *Quarterly* to compare the relative sizes of the visitors to the bait, without excessive distortion due to irregular camera placement. The American marten is clearly the smallest of "the big three" weasels in Montana. According to Kerry R. Foresman in his book, *Mammals of Montana* (2012), marten like forests dominated by subalpine fir, Douglas-fir and lodgepole pine, particularly older stands. The diet is wide-ranging, including birds, eggs, insects, small mammals and berries. They usually give birth in tree cavities. Marten have been common visitors to the fisher bait stations so far.

Fisher

Fishers are the goal of this survey and are intermediate in size between marten and wolverine. (For a size perspective, the plastic band beneath the bait on the tree is about 8 feet above the ground.) According to Foresman (2012), their color is uniformly dark brown or black, with the occasional exception of white spotting on the chest. Fisher like mature forests with big trees, like Western Red Cedar, Engelmann spruce and Douglas-fir, and downfall. Ponderosa pine and lodgepole pine rank at the bottom of the fisher's list of favored habitats. Their diet includes snowshoe hares, deer carrion, mice and voles, porcupines (if available), red squirrels and flying squirrels. Most den sites are in cavities within large, living or dead trees.

Wolverine

The wolverine is the largest of "the big three" weasels in Montana. Wolverines have blond-reddish bands of fur along the sides of their bodies and white-yellowish throat markings are often present (Foresman 2012).

> *Seventy percent of the radiotelemetry locations from a population in western Montana were in subalpine fir forests with scattered mature timber. In Idaho, subalpine cirque habitats were of primary importance. Talus fields in such cirques were used for thermal cover, as a source of small prey species, and for den sites. Habitats with . . . spring snow cover [are] essential.*
>
> —Foresman(2012)

See the Nov-Dec 2018 *Montana Outdoors* magazine for an FWP update on the wolverine in Montana.

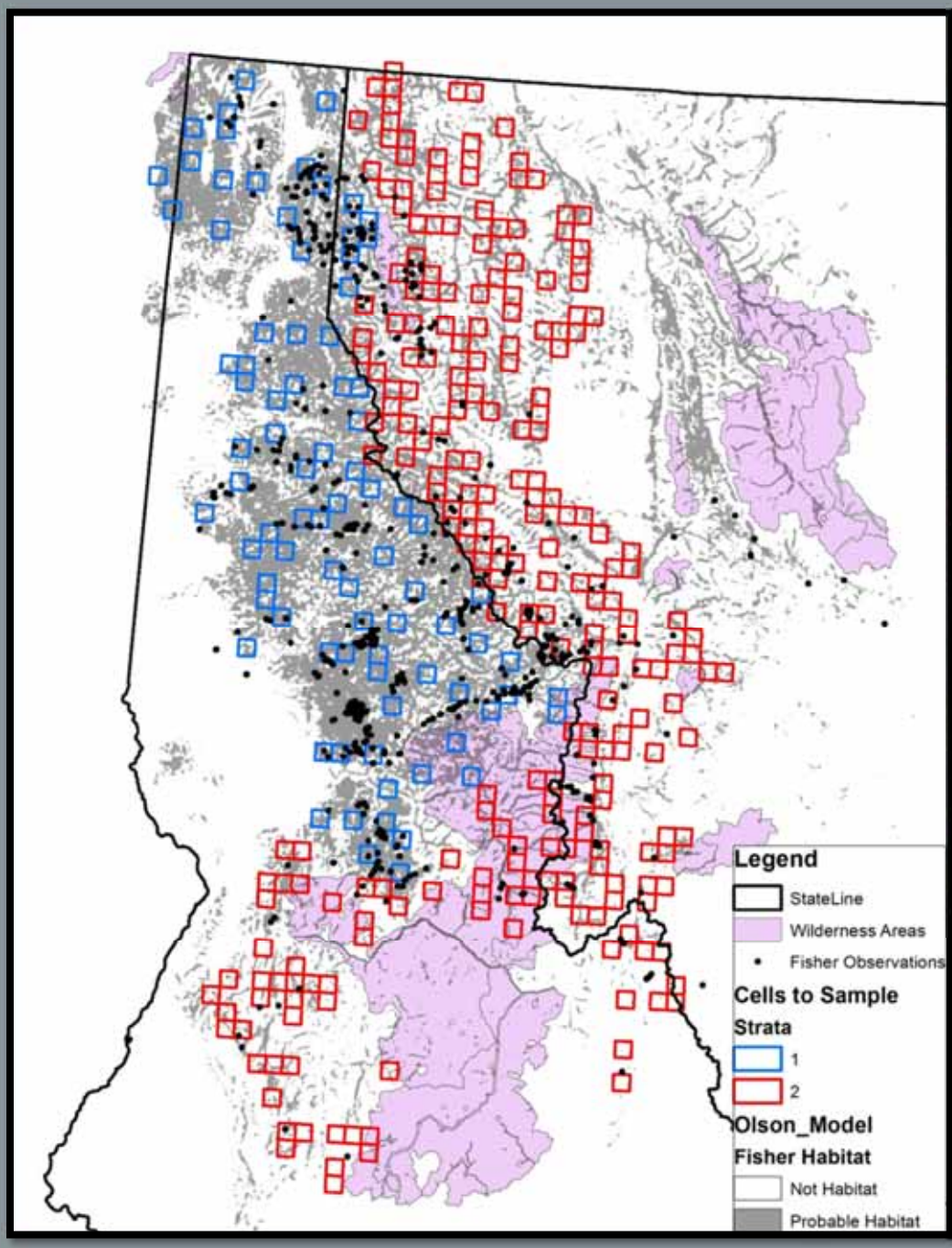
NOT Members of the Weasel Family . .

. . . But, they do climb trees. FWP Game Wardens Chris Hamilton (left) and Derek Schott set a fisher scent station in western Region 2 in late-fall 2018. The scent station is a variant of the bait stations; the scent station is deployed in remote locations that won't be revisited and re-baited during the winter, due to their inaccessibility in deep snow. Following the Standard Operating Procedures for Camera-DNA Stations, Version 3, of the Northern Rockies Fisher Working Group:

> *Follow all the same steps as for an Accessible location, with the following exceptions: 1. Do not use meat bait. Substitute a cow femur and scent dispenser. Fill scent dispenser reservoir to its capacity (~25 ounces) with a long call lure. 2. Use climbing steps and a climbing harness to get 8-12 feet above ground level on the tree to account for snow accumulation. 3. Attach a scent dispenser in its protective housing at this 8-12 foot height. 4. Cable (not wire) one domestic cow femur bone to the tree immediately below the scent dispenser parallel to the bole of the tree using strong cable and cable locks. 5. Position the dispenser to drip directly onto the cow bone.*

FWP Wildlife Biologist, Rebecca Mowry, serves as the Region 2 coordinator for the fisher survey and was the photographer in the instance pictured at left. Rebecca reports that "This one was so far up the drainage we had to mountain bike and hike all day to get it up and get out before nightfall."

Why a Fisher Survey?[1]



A fisher captured by a camera at a bait station in Region 2 on December 11, 2018.

Figure 1 (left). Geographic distribution of fisher sampling cells across probable fisher habitat in the Northern Rocky Mountains, including portions of Montana, Idaho and Washington.

Fishers existed in the Northern Rocky Mountains (NRM) historically, as indicated by a genetic marker that is unique to animals in this region (Vinkey et al. 2006, Schwartz 2007). The population appears to have been nearly extirpated, but more recent records indicate a substantial rebound by the latter half of the twentieth century.

An important step in successfully conserving fishers in the NRM will be understanding where fisher can and cannot exist in productive populations over the long term. The historical distribution of fishers in the NRM, and thus the range of habitat conditions that the species can occupy here, is unclear due to the virtual absence of historical records. Translocations of fishers into Montana and Idaho during the 1950s-60s further muddied the picture of historical and potential distribution. Decades later, fishers appear to be absent from most of the translocation areas, with possible explanations including over-trapping and/or lack of sufficient habitat quality to support fishers long-term.

[1]The information in this section is excerpted and adapted from FWP's 2018 application for a grant of federal aid to help fund Montana's portion of the Northern Rocky Mountain fisher survey.

The fisher study will provide information to directly inform the conservation of fishers across the NRM, including Montana. The primary biological management goal for fishers across their Northern Rocky Mountain range is to maintain their distribution across suitable habitat. This survey is being designed to provide an estimate of the proportion and location of fisher habitat that is occupied, and it will therefore provide information on the current state of fisher distribution as well as serving as a baseline for repeated, rigorous monitoring of distributional change into the future.

This project is being closely coordinated with staff from Idaho Fish and Game (IDFG), the United States Forest Service (USFS) Northern Region, the USFS Rocky Mountain Research Station, the University of Montana, and the Washington Department of Fish and Wildlife (WDFW). The methods described in this grant proposal were developed jointly during a series of meetings and workshops conducted over the course of 2016-18.

In the fall of 2018 we deployed baited remote camera/hair traps throughout predicted fisher habitat (Olson et al. 2014, Sauder and Rachlow 2014) in the NRM using a 7.5-km^2 grid sampling design (Figure 1). The 7.5 km^2 cell size was determined based on fisher home range size (Sauder 2014) and compatibility with the multi-state wolverine monitoring program initiated in winter 2016/2017. Within each cell, we established one site to monitor fisher presence. Sites were located by field crews within suitable fisher habitat using field judgements, within the area of each cell that is predicted by Olsen et al. (2014) or Sauder and Rachlow (2014) to contain fisher habitat. Sites were deployed by December 1 and will remain active until mid-March. In addition to a camera, all sites contain gun brushes to snag hair for DNA. Gun brushes are arrayed on corrugated polypropylene plastic "collars" that are attached to the bole of a tree.

University of Montana graduate student, Jess Krohner, positions the camera on a tree while pilot Trever Throop (right) works on the bait tree, affixing a plastic collar with gun brushes to snag hair when fishers or other wildlife climb past them to reach the bait. Rebecca Mowry (center) is FWP's wildlife biologist in Hamilton, and is the FWP Region 2 lead for the NRM fisher project.

Noninvasive DNA Collection

Fisher hair is snagged on gun brushes that are arrayed on corrugated polypropylene plastic "collars" that are attached to the bole of a tree. Above the gun brushes is the bait, and above the bait is a yellow sponge soaked with fisher scent lure. At left, a volunteer secures the collar with gun brushes on a tree, 8-12 inches below the bait to promote body contact with the gun brushes while the fisher is working the bait. At right, FWP Region 2 Wolf Specialist, Tyler Parks, pauses before dismounting from a refreshed set during the midwinter check of cameras and bait.

A Fisher Leaving DNA on Gun Brushes . . .

. . . and Rewarded for Participating

And Another Fisher . . .

. . . Or the Same One? The DNA Will Tell

Other Species at Fisher Stations

Bobcats were fairly common visitors at the fisher bait stations in December and January, says FWP Wildlife Biologist, Liz Bradley, in Missoula. "Once a bobcat finds the bait, it pretty much stays put and goes back and forth to the bait until it's gone." It makes us wonder whether these bait stations could be used to survey bobcats.

More Species at Fisher Stations

Wolf detections by remote cameras help Region 2 Wolf Specialist, Tyler Parks, test and refine his understanding of wolf numbers and pack distribution across the region. The colors and relative sizes of individuals help identify pack members. One advantage of a survey design that requires random sampling is that it forces the biologist to look in places where he or she probably would never look otherwise.

Other Species at Fisher Stations

Mountain lions tend to kill their own prey and are not known as scavengers, but they are not above taking an easy meal. FWP has prepared a *Draft Montana Mountain Lion Management Strategy,* which the Montana Fish and Wildlife Commission will consider at its bimonthly meeting on February 13. The "strategy" also relies on DNA surveys of mountain lion abundance to help predict the outcomes of possible harvest levels on lion populations. Repeated DNA surveys of mountain lions in future years would help test and refine the predictive model, which in turn would improve harvest precision. Whether the fisher method of DNA collection could be part of the lion monitoring method is an open question for the future.

Other Species at Fisher Stations

Moose would seem to be a bonus. They showed no interest in the meat or scent, but fisher habitat overlaps with moose habitat in drainage bottoms. The Golden Eagle, on the other hand, clearly set its sights on a meal—a little something for Christmas Eve, as it turned out. Golden Eagles overwinter in Montana, and while overwintering locations west of the Divide are documented, they are not overly abundant in the Montana Natural Heritage Program database. It's another example of how our knowledge about a variety of wildlife can be expanded with cameras.

Are Fishers Found *Here*?[1]

What stinks? Is it the bait, or is it the burned fisher habitat? These students and leaders of B.E.A.R., a nonprofit organization whose goal is to get kids outside, are helping find answers. They are posing here for FWP Wildlife Biologist Rebecca Mowry, after helping set a fisher bait station in the Bitterroot.

Pre-existing habitat models predict some fisher habitat in Montana, but there are drier areas along the edges of predicted suitable habitat where fishers have historically been harvested. In addition, fisher habitat in Montana has been broadly altered by recent wildfires. These areas stand out as areas that strain model predictions.

Expanding outward from central and northern Idaho, habitat is predicted to be sparse to non-existent according to the available models; nonetheless some areas in drier habitats in Montana show consistent harvest records over time, including harvest of adult fisher. Fishers within the Bitterroot Mountains of Montana, which includes drier habitat types than the core of central Idaho, also exhibit a unique native genetic signature, suggesting possible long-term presence and resilience of the species in this region (Vinkey et al. 2006).

FWP biologists theorize that the rugged, rocky canyons of the Bitterroot range may provide survival benefits not observed in Idaho, such as decreased predation risk, which may compensate for supposed habitat limitations. The long-term observations of fisher in these relatively unique habitats begs the question—Are fishers thriving in the Bitterroot Mountains, as well as other, similar, drier habitats? If so, more of Montana, Idaho, and Washington may be suitable for fishers than presently modeled and assumed.

However, the Bitterroot Mountains also adjoin the largest area of NRM fisher habitat in central Idaho. If drier habitat types further away from the inland maritime forests of central and northern Idaho are instead home only to transient individual fishers that spill over from larger blocks of core habitat, current habitat models are likely accurate enough to delineate areas where fisher conservation should be prioritized.

[1]The information in this section is excerpted and adapted from FWP's 2018 application for a grant of federal aid to help fund Montana's portion of the Northern Rocky Mountain fisher survey.

Graduate Student Research

Jessica Krohner (below) is earning her Masters of Science degree from The University of Montana (UM) by delving deeper into particular aspects of this fisher project. While the details of her research emphasis are currently under review at UM and are subject to change, her focus generally is on the utility and performance of the cameras for collecting scientifically defensible data on wildlife distribution. The fundamental issues with wildlife surveys—whether using cameras, DNA or airplanes—is understanding what can and cannot be said about the data. For instance, when a camera takes a picture of a fisher, we know that a fisher was there. But what does it mean when the camera doesn't take a picture of a fisher? Does it mean that fisher are not present in the area? Not necessarily. Jess's work will contribute to the advancing science of noninvasive wildlife surveys, hoping to devise survey methodologies that can reliably assess secretive wildlife populations. Jess and her partners in FWP and others are trying to move beyond the "gee whiz" value of remote camera photography and further into the realm of scientific precision and defensible conclusions about conservation status. But, we reserve the right to say, "gee whiz" anyway.

Jess Krohner installs a remote camera and positions it to capture fisher and other wildlife activity on the bait, on the bait tree and on the ground beside the bait tree. Any mistake in positioning, arming the camera, and maintaining the camera and memory card will result in lost data when the camera is revisited at the end of the survey season.

Just for Fun

More Wolverines

Fisher Bait Station 3-2-5. FWP Game Warden Alex Mattson, Wildlife Biologist Liz Bradley and Wolf Specialist Tyler Parks signal to the camera that this site is ready to detect fishers.

Find the Quarterly online at fwp.mt.gov/ regions/r2/WildlifeQuarterly