

Final Report on 2014 and 2015 ISSSP Pacific Fisher Inventory on the Willamette and Umpqua National Forests

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Summary

*A detection of a fisher (*Pekania pennantia*) at the southern end of the Middle Fork Ranger District, Willamette National Forest (NF), in January 2014 initiated an Interagency Sensitive and Strategic Species Program (ISSSP) project to survey that area with baited camera sets and hair snares for the remainder of the winter. In FY15, the ISSSP project expanded to survey for fisher in 6th field watersheds including and surrounding the 2014 detection and also expanded to conduct surveys on adjoining Umpqua NF watersheds and other areas on the Umpqua NF where fisher are suspected to occur.*

From 26 January through 15 March 2014, a large fisher, thought to be a male, was located on 14 different days/nights at one camera station in Paddy's Valley (Willamette NF). No testable hair samples were obtained so the origin of the individual is unknown. It is thought to be the first confirmed record of a fisher on the Willamette NF since the 1940's. In the winter of 2014-2015, a total of 1,021 camera nights were obtained at 19 stations in six 6th-field watersheds surrounding the 2014 detection on the Willamette NF, and no fishers were detected.

The Umpqua National Forest monitored for fisher during the winter of 2014-2015 for a total of 1,311 camera nights across eight camera stations located on the North Umpqua, Diamond Lake and Tiller Ranger Districts. A total of eight 6th field watersheds were sampled which resulted in one fisher detection at Donegan Prairie on 27 March 2015 on the Tiller Ranger District. This fisher detection is the first photo documentation in over 15 years on the Umpqua NF. Hair samples from this individual were obtained and analyzed.

*Mountain lions (*Puma concolor*) and bobcats (*Lynx rufus*), two known predators on fishers, were detected at 18.5% and 33%, respectively, of the camera stations on both forests in FY15 (n= 27).*

Introduction:

Historically fisher are thought to have occurred in dense forest habitat throughout the Oregon Cascades (Lofroth et al. 2010), although museum evidence documenting this occurrence is sparse (one record provided by Verts and Carraway 1998). In Washington the museum records indicate fisher primarily occurred below 1,000 meters elevation on the westside of the Cascades (Aubry and Houston 1992) and it is similarly thought they preferred lower elevation habitat in the western Cascades of Oregon. Even in the early 1900's it seems fishers were greatly reduced in numbers in the Cascades and elsewhere in Oregon (Kebbe 1961, Aubry and Lewis 2003). For example, during the winter of 1913-14, only nine fishers were reported trapped in Oregon, including three in Lane County and one in Douglas County (Kebbe 1961). Legal trapping of fishers ended in Oregon in 1937 and the last reliable observation of native fishers in the Cascades is thought to be 1949 (Kebbe 1961). Over-trapping and habitat loss due to logging are thought to be factors responsible for their extirpation (Aubry and Lewis 2003).

Oregon Department of Fish and Wildlife (ODFW) reintroduced fisher from British Columbia in areas northwest of Klamath Falls and around Crater Lake at various times from 1961 to 1980 (Aubry and Lewis 2003). In 1981, the last reintroduction occurred with 13 fishers from Minnesota released northwest of Crater Lake. Aubry and Lewis (2003) have noted that these reintroductions were rather poorly documented and monitored. It is known that fisher established in the general area of the releases, but, more than three decades after the last reintroduction, there is no documentation that the population has expanded its range beyond that area.

The Umpqua NF conducted regular carnivore surveys since the early 1990's to as recently as 2011 and continues to informally sample for carnivores today. Fishers were detected during photo bait stations conducted in 1994 through 1997. Research conducted by Aubry and Raley (2006) captured and collared 22 fishers in the surrounding areas of the Rogue River National Forest and Crater Lake National Park. Genetic testing showed these captured fishers to be from the reintroduced population from British Columbia. Several of these reintroductions occurred on the Umpqua National Forest (Tiller and Diamond Lake RD). The last documented sighting of a fisher on the Umpqua was in 1995 by ODFW during carnivore photo bait surveys. Current distribution of fisher on the Umpqua National Forest is unknown.

In January 2014, ODFW wildlife biologists obtained pictures of a large fisher (presumed to be a male) at a baited camera set in the Paddy's Valley watershed of the Upper Middle Fork of the Willamette River at the very southern end of the Willamette NF (Figures 1 and 2). This bait station occurred at an elevation of 3,600 feet. This is thought to be the first verified record of fisher on the Forest since the 1940's and immediately raised some questions. 1) Is this occurrence a transient male or is there a resident fisher population on the Forest? 2) Are native fishers still present in the Cascades or did this animal originate from the reintroduction? Finding either native Cascade fishers or established reintroduced fishers on the Willamette National Forest and/or on the Umpqua National Forest would be extremely important information relative to the recovery of fisher in Oregon.

As a result of this detection the Middle Fork Ranger District began working with ODFW to conduct additional monitoring with cameras and hair snares for fishers in this area. This work was supported by ISSSP funding. In FY15, the ISSSP project expanded to sample the entire Paddy's Valley 6th-field watershed and adjoining watersheds on the Willamette NF and to conduct surveys on the Umpqua NF. See Figure 3 for distribution of camera bait stations. This report summarizes the FY14 and FY15 survey work on these two forests.



Figure 1. Fisher photos taken in the winter of 2014 by Springfield Office, Oregon Department of Wildlife, at baited camera set in Paddy's Valley, Middle Fork Ranger District. This is thought to be the first confirmed detection of fisher on the Willamette National Forest since the 1940's.



Figure 2. See description for Figure 1.

Winter 2014-2015 ISSSP Fisher Monitoring, Willamette and Umpqua NF's

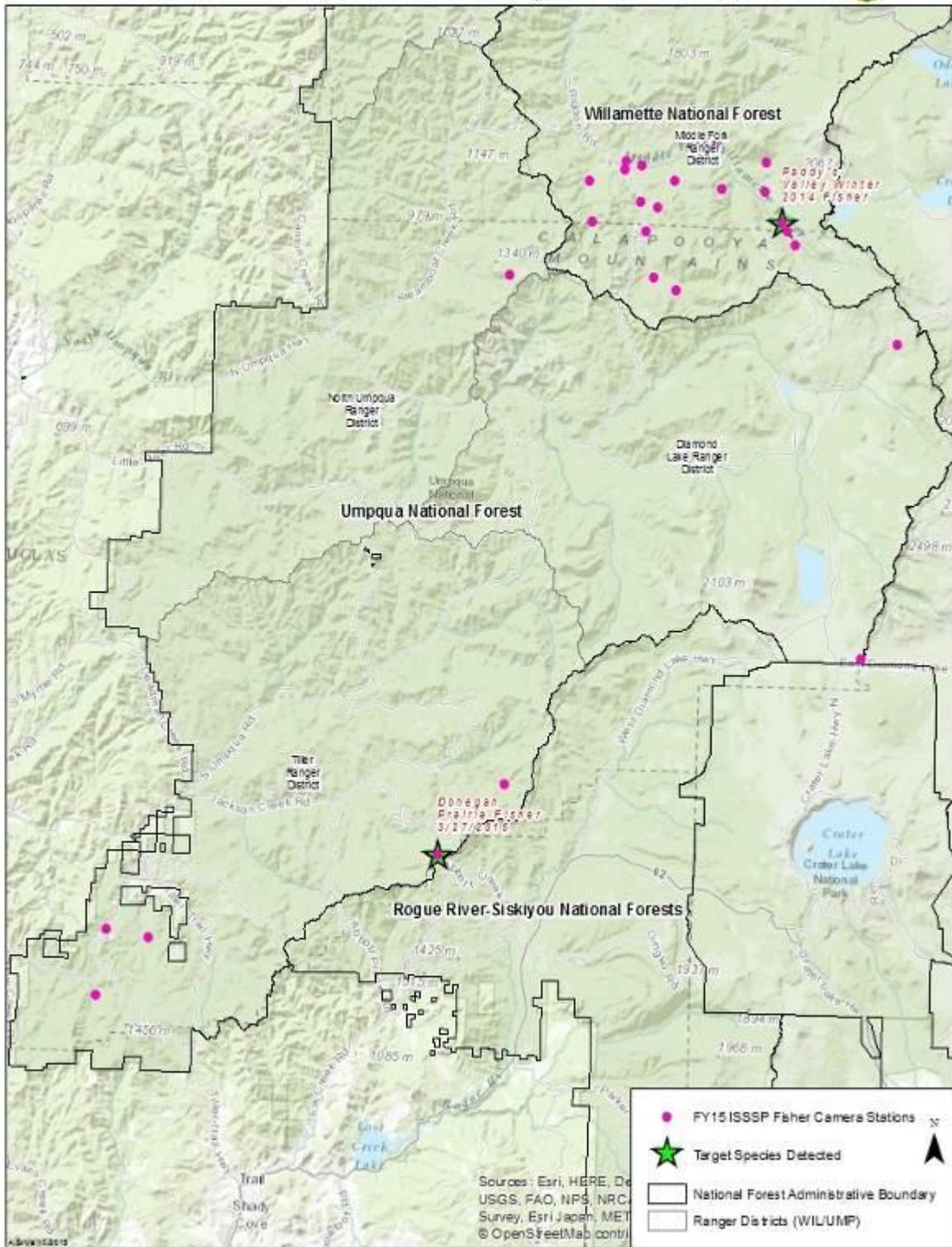


Figure 3: Overview map of the 2015 ISSSP fisher monitoring stations and target species locations on the Willamette and Umpqua National Forests

Methods:

Willamette NF

In February 2014 the Middle Fork RD established two additional stations in Paddy's Valley watershed. Those stations plus the original ODFW station were monitored until April 2015. Hair samples from the fisher detection station were collected and sent to Mike Schwartz and Kristy Pilgrim at the U. S. Forest Service Rocky Mountain Research Station Genetics Lab in Missoula, Montana, for identification. The 2014 and 2015 surveys were done in partnership with Brian Wolfer and Chris Yee, Oregon Department of Fish and Wildlife, Springfield.

From December 2014 to May 2015, a total of 19 camera stations were established and monitored in six 6th-field watersheds surrounding the 2014 fisher detection location (Figures 4 and 5). All the cameras were located at elevations $\leq 4,000$ feet. All cameras were located within forested or semi-forested habitat, but there was no major effort to focus on microsite habitat characteristics within the camera station area. This choice was based on a discussion with Jeff Stephens, Medford BLM Fisher Biologist, who stated that as long as you used long-distance lure, like Gusto, if the animals were in the area, they would be attracted to the station. In fact, the camera station where the fisher was detected January-March 2014, was in a stand that would not be classified as suitable fisher habitat. The stand is fairly open with patches of 20' tall conifers. It is a clearcut that failed to regenerate properly where groundcover contains abundant non-native forbs.

In the 2014/2015 winter survey, each camera bait station included a stationary trail camera (Bushnell Trophy Cam HD Model) set to trigger on motion or infrared targets and take two rapid photos followed by a 15-second video. The minimum interval between triggers was ten seconds.

The camera was located within 20-30 feet of the target which was a heavy-duty PVC tube with gun brushes and bait inside (Figure 6). The tubes are made from PVC Schedule 10 material and are 6" diameter by 12" long. The gun brushes located below the bait at the open end of the tube were meant to snag fur for DNA analysis. Chicken legs were the bait. This camera bait station design was recommended by Jeff Stephens, Wildlife Biologist with Medford BLM. He has used it successfully to document fisher and found that it was fairly successful at limiting damage by bears, cougars, and bobcats. The bait stations also contained at least two film canisters with holes drilled and cotton inside to disperse Gusto lure. The canisters were hung from branches within 50 feet of the bait station. The camera stations were checked every two weeks. With the exception of the Paddy's Valley fisher location, if there was no fisher detected on the cameras within a given watershed in six weeks, they were taken down and moved to the next adjacent watershed. The Paddy's Valley bait station with the previous winter's fisher detection was monitored for 162 days in FY15.

The locations of all camera survey stations were entered into the NRIS Wildlife Database along with the survey observations.

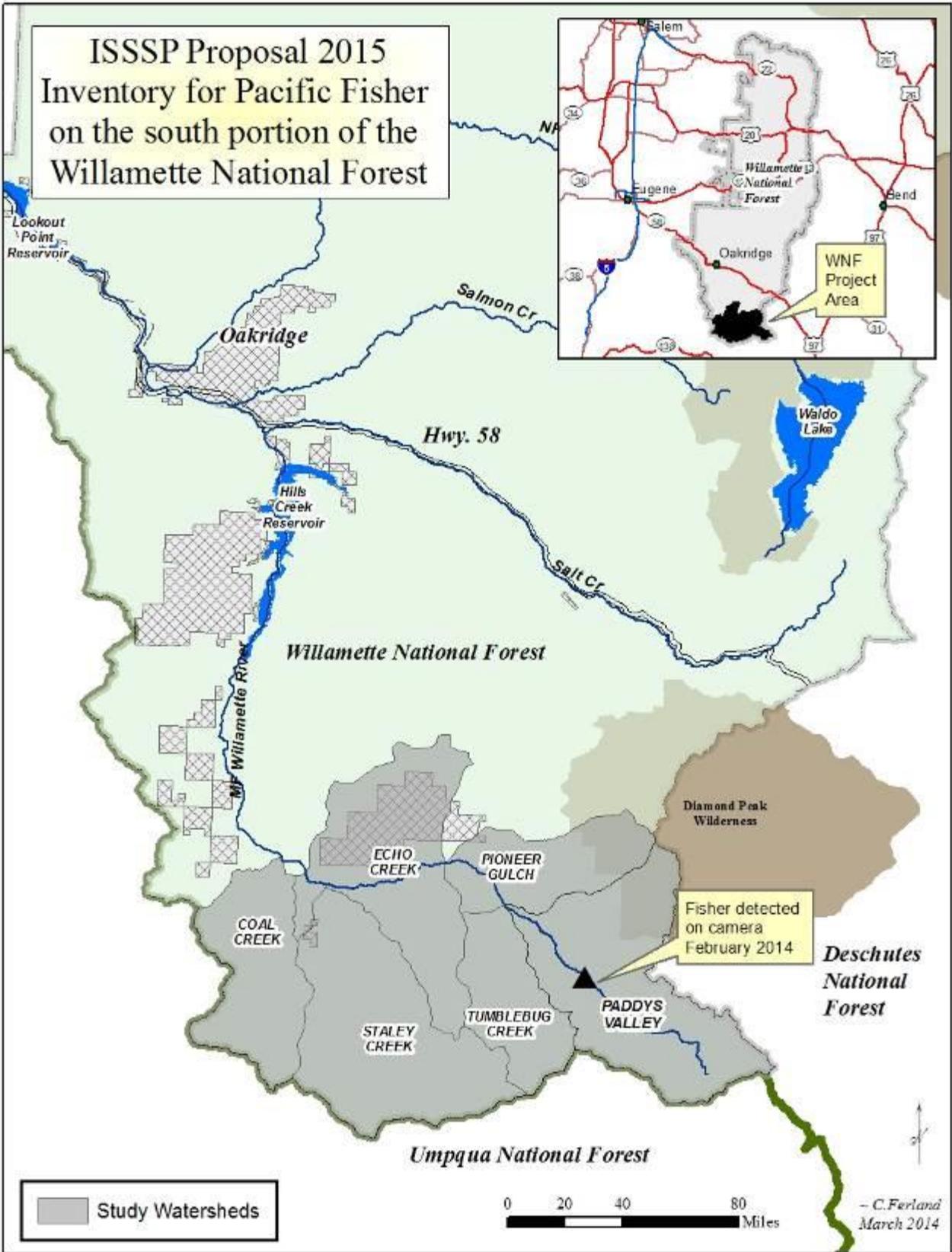


Figure 4. Study watersheds included in the winter 2014/2015 Willamette fisher surveys.

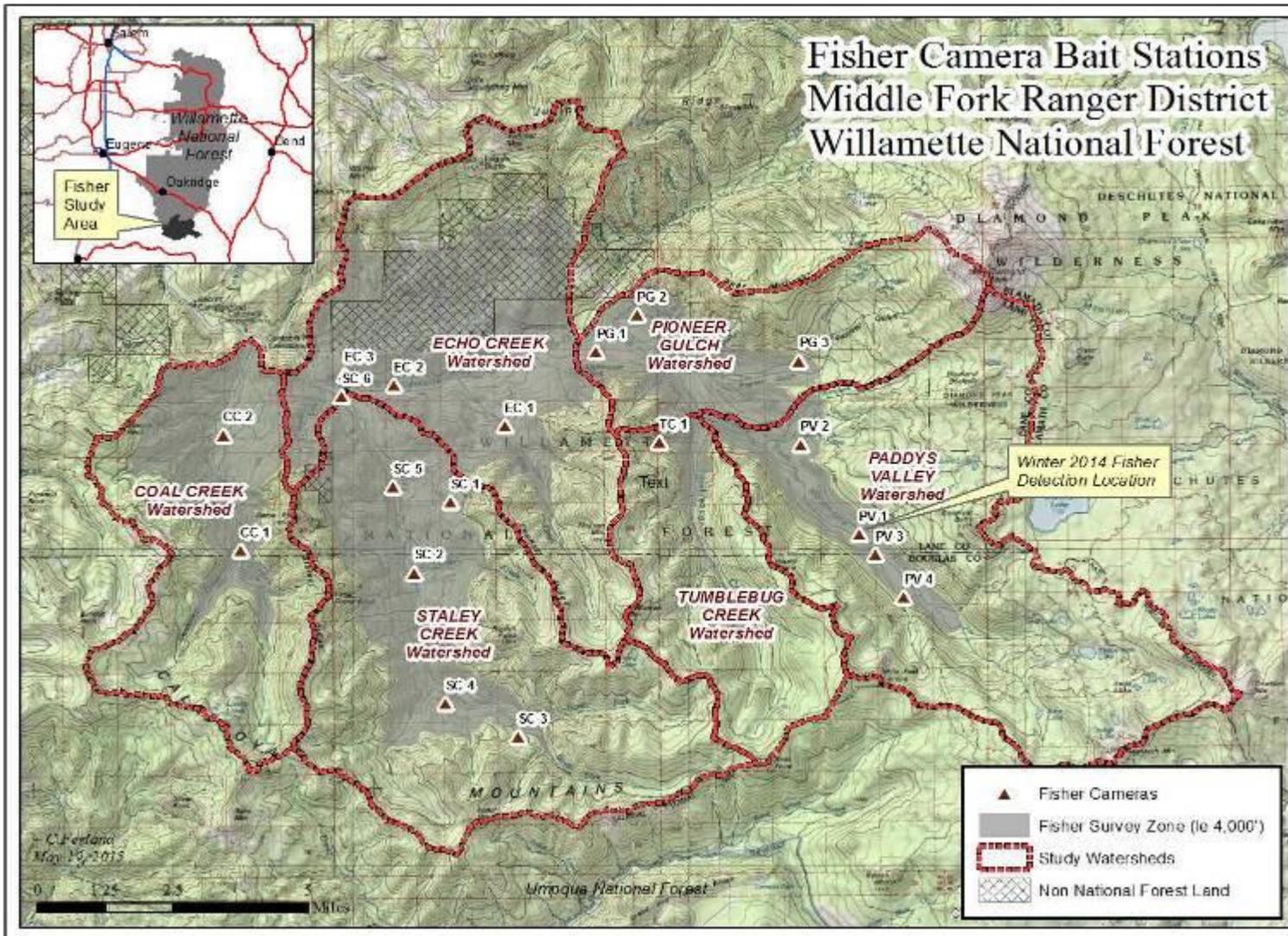


Figure 5. Winter 2014/2015 Fisher camera bait station locations. Willamette NF.



Figure 6. Willamette NF Fisher camera bait station setup with fisher PVC tube as target.

Umpqua NF

A total of eight baited camera stations were selected based on field visits, past occurrence of fisher, other carnivore data, and habitat suitability. Habitat was thought to be suitable if the area was an older, contiguous forest stand with hardwood components, copious amounts of large down wood, snags, water sources within ½ mile, and generally under 4,500 feet in elevation. Due to past fisher occurrence records and information from the Rogue River-Siskiyou NF, some stations were intentionally located within higher elevations.

Bait used at all stations included deer, chicken and beaver. Chicken was only used at one station (Donegan Prairie) because that station was intended to monitor for Sierra Nevada red fox and fisher. Gusto was utilized as a long distance carnivore attractant at all stations and typically applied high in the tree (in the furrows of the bark) or mixed with a half a bottle of water and left attached to the tree (with puncture holes) for slow release of scent. Stations were rebaited and checked between two and eight weeks.

The stations were set up following an elevated ground method, which was originally designed for wolverine or red fox (Magoun et al. 2011). This non-invasive method includes placing two off-set horizontal corrugated plastic belts on a tree with gun brushes attached which act as hair snares (Figure 7). The bait is then suspended against the tree above the hair snare belts at approximately 1.5 meters. This is intended to encourage an animal to cross over the belts as they attempt to pull the bait from the tree. Bait is completely wrapped in a chicken wire casing in hopes that the bait would not be rapidly consumed. A game camera is placed on an opposite tree ranging from 10-20 feet away in order to capture the base of the tree and surroundings. We used Bushnell HD, Reconyx Hyperfire, and Stealth Cam No-Glo cameras. All camera models used were infrared capable and were set up to take three different picture bursts spaced apart by one second.

In the late fall of 2013, the Tiller Ranger District installed two baited camera stations (no particular protocol followed although similar to the one described above) at two different locations. One station was located at Donegan Prairie and the other was near Drew Creek within the Elk Creek 5th field watershed. These early winter 2014 stations were baited with deer and long distance lure (Gusto). Photo documentation recovered from these cameras is included in this report and the same areas were sampled again as part of the 2014-2015 survey effort. An additional three camera stations were set up on the Tiller District totaling five stations named Sandstone Trailhead, Callahan Creek drainage, South Fork Cow Creek, Donegan Prairie, and Drew Creek, respectively. Three other cameras were set up during the period of October 2014 and July 2015. One was on the North Umpqua Ranger District near Reynolds Shelter and two were on the Diamond Lake Ranger District at Wendigo Pass and along the North Crater Trail.

Some stations were not set up until the summer of 2015 and we acknowledge that this effort could have gone more smoothly with adequate staffing. Despite the later monitoring effort for some of the stations, the target species was found. All results of this monitoring effort have been entered into the NRIS Wildlife Database.



Figure 7: Typical baited camera station set up used for 2014-2015 ISSSP Fisher monitoring on the Umpqua NF –elevated ground methodology. Beaver encased in chicken wire with hair snare belts directly below bait. Drew Creek Baited Camera Station.

Results and Discussion:

Willamette NF

In FY14, a large fisher believed to be a male was detected on January 26, daily from February 15-25, and on March 15 and 16 at the original ODFW bait station in Paddy’s Valley (elevation 3,600 feet). No detections of fishers were obtained at the other two stations in that watershed that winter. A mountain lion was often present at the ODFW site which likely affected when the fisher visited the site. Hair samples thought to be fisher were collected at this site but DNA analysis identified them as beaver which was one of the baits used. Contamination from the bait led us to redesign the hair snare and bait set-up used in 2015.

During the next winter of 2014-2015, a total of 1,021 camera nights were surveyed at 19 stations in six 6th-field watersheds in the Upper Middle Fork of the Willamette River (Table 1). No

fishers were detected. Mountain lions and bobcats, two predators of fisher, were found at about 21 and 37% of the stations. Other carnivores detected include black bear, coyote, spotted skunk, striped skunk, and northern flying squirrels. The most frequent species documented were spotted skunks, which apparently can climb, unlike striped skunks. See the Appendix A for sample photos of other species detected.

A high priority of the project in FY15 was re-detecting the original fisher or detecting a new one and obtaining a DNA sample in order to determine the population of origin but we did not succeed. We felt like we implemented a pretty rigorous survey effort in the winter of 2014-2015 and suggest that the lack of detection of a fisher this past winter is likely due to the absence of a resident population in this area. The winter 2013-2014 fisher was a male detected just prior to breeding season and was likely an individual prospecting outside of his normal home range. This fisher was found within 50 kms of existing populations in Oregon (Figure 8). Winter snowpack may have affected the travels of this individual too with some of the lowest snowfall amounts in recent record. Perhaps low snow levels at pass elevations facilitated travel from the south. Our hope is that existing populations will continue to expand their range and recolonize the Willamette National Forest. Based on the locations of existing known populations, the watershed where we detected a fisher (Paddy's Valley) seems the most likely to become occupied first.

An off-shoot of the fisher inventory is that it helps define the distribution of marten. No marten were detected at any of the stations, which were located from about 2,200 to 4,000 foot elevation. Past work has suggested that the lower elevation range for marten on the Willamette NF is about 4,000 feet. When the data from this study are combined with other camera set data gathered since 2012, 90% of camera stations set above 4,000 foot elevation across the Willamette have detected marten (n=31) compared to 0% of the stations below 4,000 foot elevation (n=34).

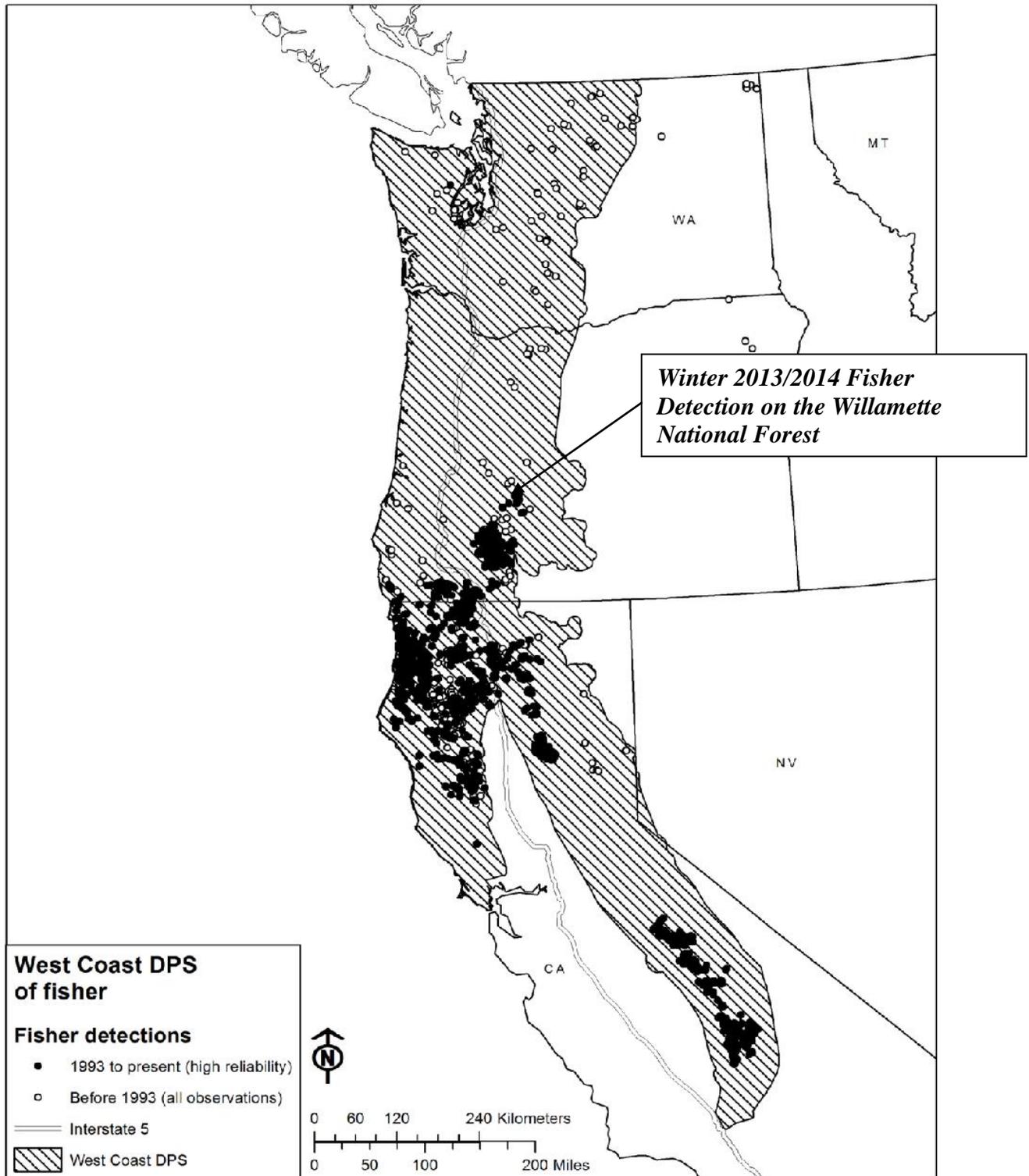


Figure 8. USFWS map of fisher detections from: <http://www.fws.gov/cno/es/fisher/PDFs/External-Questions-Answers-WestCoastFisherDPSProposed-Listing.pdf> (2014) and location of 2014 Willamette NF detection.

Table 1. Results of fisher monitoring during winter 2014-2015, Middle Fork Ranger District, Willamette NF,

6th Field Watershed	Number of Camera Stations	Elevation Range (ft)*	Range of Dates Cameras Deployed	Total Camera Nights**	Minimum number detected***			
					Fisher	Bobcat	Mountain Lion	Marten
Paddy's Valley	4	3500 - 3900	12/04/2014 - 5/15/2015	429	0	1	1	0
Tumblebug Creek	1	3600	12/18/2014 - 1/31/2015	44	0	0	1	0
Staley Creek	6	2184 - 4020	12/04/2014 - 1/15/2015	248	0	4	2	0
Pioneer Gulch	3	2840 - 3750	1/01/15 - 2/13/15	90	0	1	0	0
Echo Creek	3	2420 - 2800	2/26/2015 - 4/16/2015	150	0	1	0	0
Coal Creek	2	2300 - 3200	4/16/2015 - 5/15/2015	60	0	1	0	0

* Elevation range of camera sets

** Number of nights with a functioning camera set summed for all stations in the watershed.

*** Minimum Number of individuals of each species detected at a camera station summed for all stations in the watershed. For example if one bobcat was seen at Station 1 and one was seen at Station 3, then the total is 2 bobcats, even if they may have been the same animal. Other species detected included black bear, coyote, black-tailed deer, elk, spotted skunk, striped skunk, woodrat, Douglas squirrel, northern flying squirrel, gray squirrel, snowshoe hare, turkey vulture, varied thrush, gray jay, and sooty grouse.

Umpqua NF:

Carnivore species observed through winter 2014-2015 monitoring efforts include fisher, bobcat, mountain lion, coyote, spotted skunk, striped skunk, marten, and grey fox. Other species observed at the stations include: elk, black-tailed deer, opossum, Douglas squirrel, grey squirrel, northern flying squirrel, wild turkey, grey jay, turkey vulture and common raven. See Table 2 for monitoring results by location.

The target species was observed on March 27th, 2015 from 0806 to 0811 (Figures 9 and 10) at Donegan Prairie (elevation 5,400 feet). This animal was not detected again at the Donegan Prairie camera station and no other fishers were detected for the duration of monitoring on the Umpqua NF. From the Donegan Prairie photos, this fisher appears to be a male. As mentioned in the introduction, fishers were introduced on the Tiller and Diamond Lake Ranger Districts of the Umpqua NF and to the east within Crater Lake National Park. We assume that animals on the Umpqua NF are those which have been introduced and maintain a population in the area.

Ten hair samples obtained from Donegan Prairie were sent to Mike Schwartz and Kristine Pilgrim at the U.S. Forest Service, Rocky Mountain Research Station Genetics Lab in Missoula, Montana. According to the unpublished DNA analysis report provided by the genetics lab, results show that hair samples from Donegan Prairie contain a mitochondrial DNA (mtDNA) haplotype known as Drew-haplotype-9 (Unpublished report, Oct 2015). The report mentions that this haplotype was identified from previous studies (Drew et al. 2003; Vinkey et al. 2006) and is common in populations found in British Columbia. These results are consistent with DNA evidence previously found in translocated fishers in southwestern Oregon. The detection of the target species after 15 years is exciting for the Umpqua NF and indicates that fisher persist on the District and perhaps further north on other Ranger Districts of the Umpqua NF. This ISSSP monitoring effort has greatly assisted the Umpqua NF in confirming habitat use by the fisher on the Tiller RD and raises the question of where these animals are distributed on the Forest. Additional surveys are needed to answer that question.

It is important to note that the fisher was recorded at 5,400' elevation during an extremely mild winter when snow was likely absent at that elevation. There was approximately 6-inches to 1-foot of snow at Donegan Prairie in the winter of 2014-2015, which is much lower than the long-term average at that location. Wildlife personnel from adjacent units report frequent fisher activity on the High Cascades RD of the Rogue River –Siskiyou NF, and we were informed that it was likely that fisher occur regularly on the Tiller RD (D. Clayton, personal communication, 2013). Also of note is a detection of marten at 2,300' elevation which is the lowest known record for the Umpqua NF. Two stations near the Middle Fork District (Reynolds Shelter and Windigo Pass, Table 2) were monitored for a total of 529 camera nights and no fishers were detected. This supports the Willamette NF working hypothesis that a resident fisher population does not occur in this area.



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Figure 9: Donegan Prairie Fisher (Tiller RD Wildlife Program). This photo is the first photo documentation of a Fisher in over 15 years on the Umpqua NF.



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Figure 10: Donegan Prairie Fisher

Table 2: Umpqua National Forest Winter – Early Summer Fisher Monitoring 2014-2015										
6th Field Watershed	Station	Deployment Date Range	Elevation (ft.)	Total Camera nights	Species Detected					
					Fisher	Mountain Lion	Marten	Bobcat	Bear	Coyote
Squaw Creek	Donegan Prairie 2015	1/29/2015 -6/24/2015	5,400	145	1	0	0	0	0	2
Squaw Creek	Donegan Prairie 2014	11/29/2013 – 5/30/2014	5,200	156	0	1	0	1	3	2
Jackson Headwater	Sandstone Trailhead	6/1/2015 - 7/22/2015	3,800	51	0	0	0	0	0	0
Drew Creek	Drew Creek 2015	6/9/2015 – 7/13/2015	2,300	34	0	0	1*	1	2	0
Drew Creek	Drew Creek 2014	12/18/2013 - 2/6/2014	2,400	49	0	0	0	1	0	0
Lower Elk Facial	Callahan-3230	6/1/2015 - 6/22/2015	2,600	21	0	0	0	0	1	0
South Fork Cow Creek	S. Fork Cow -3232	6/1/2015 – 7/16/2015	3,250	45	0	0	0	0	3	0
Big Bend Creek	Reynolds Shelter	11/25/2014- 7/31/2015	4,000- 5,000	248	0	1	0	1	0	0
Lake Creek	Wendigo Pass	10/23/2014- 7/31/2015	4,500- 5,000	281	0	0	1	0	0	0
Pumice Desert	North Crater Trailhead	10/23/2014- 7/31/2015	5,000- 5,500	281	0	0	1	0	0	0

*Lowest elevation recorded for this species on the Umpqua.

Acknowledgements

Jeff Stephens, Wildlife Biologist, Medford BLM, provided invaluable information relevant to camera bait stations that work for fisher. Allysa Dawson and Peter Sanzenbacher provided volunteer assistance checking, rebaiting, and re-luring camera stations. In particular, they demonstrated extreme courage handling the skunk/gusto lure!

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Appendix A. Select photos of wildlife species detected at camera stations



Figure 11. Black bear at fisher camera bait station (Tumblebug Creek-1).



Figure 12. Black-tailed deer and snowshoe hare at fisher camera bait station (Staley Creek-2)



Figure 13. Bobcat at fisher camera bait station (Staley Creek-1)



Figure 14. Mountain lion at fisher camera bait station (Staley Creek-1)



Figure 15. Spotted skunk at fisher camera bait station (Echo Creek-1)



Figure 16: Reynolds Shelter, North Umpqua RD. Bobcat.



Bushnell M 64°F17°C 06-09-2015 23:01:28

Figure 17: Drew Creek -Tiller RD, lowest elevational occurrence record for marten on the Umpqua (2,300ft.)



Bushnell M 59°F15°C 06-10-2015 03:51:40

Figure 18: Drew Creek- Tiller RD. Bobcat



Figure 19: Callahan Creek- Turkey vulture. Tiller RD.



Figure 20: Callahan Creek-Tiller RD. Black bear