

CITIZEN WILDLIFE MONITORING PROJECT

2016-2017 WINTER FIELD SEASON REPORT



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Cover photo by Joe Kiegel. A volunteer photo documents an American marten on the Snopass transect.

Partners: Conservation Northwest, Wilderness Awareness School, I-90 Wildlife Bridges Coalition

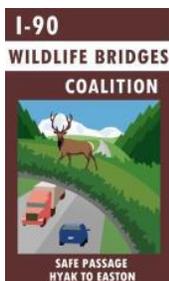


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Executive Summary

The Citizen Wildlife Monitoring Project uses trained volunteers to record the presence and movement of wildlife through snow tracking surveys and remote camera installations in the Washington Cascades and other wildlands across Washington State and British Columbia. This report summarizes snow-tracking efforts for the winter of 2016-2017. This field season marked the eleventh winter of snow-tracking along Interstate 90, east of Snoqualmie Pass.

This year we had an increased number of transects visited compared to the low snow winters of some recent years. The higher levels of snowfall made for good tracking conditions but created a separate set of challenges concerning weather conditions including heavy snow or bad weather. In addition, teams faced traffic delays on Snoqualmie Pass due to highway closures for avalanche control that truncated a small number of survey days. In spite of these difficulties, 78 observations were made.

We successfully piloted a new transect west of Snoqualmie Pass to help broaden our understanding of landscape connectivity for this important wildlife corridor. In addition, we began surveys to detect American marten in the study area outside of ongoing transects.

Project Overview

The Citizen Wildlife Monitoring Project (CWMP) is a joint project led by Conservation Northwest, I-90 Wildlife Bridges Coalition, and the Wilderness Awareness School. The program utilizes remote cameras year-round to document rare and sensitive species throughout core areas in the Cascades, as well as for more common species in strategically important locations. During the winter months, trained CWMP volunteers use snow tracking to monitor the presence, location, and movement of wildlife near proposed

wildlife crossing sites east of Snoqualmie Pass along Interstate 90 in the Washington Cascades. Since its inception, CWMP has remained an asset to wildlife agencies and professionals by providing supplemental monitoring efforts in areas identified as either potential core habitat or vital connectivity corridors between core habitats for some of our region's rarest wildlife. Our main project objectives are:

1. To engage and educate citizens about the detection and monitoring of sensitive wildlife species and in critical habitat areas; [SEP]
2. To record wildlife presence in the I-90 corridor and along the I-90 Snoqualmie Pass East Project in strategic locations and in core habitat through remote cameras and snow tracking; [SEP]
3. To record the presence of rare and sensitive species that regional and national conservation efforts aim to recover including fisher, gray wolf, grizzly bear, lynx, and wolverine; [SEP]
4. To facilitate the exchange of information about wildlife, including data from monitoring efforts, between public agencies, organizations, and interested individuals.

CWMP is designed to support the conservation of our region's wildlife and wildlands by enhancing our knowledge of wildlife-habitat connections in our region, supporting the monitoring and management efforts of transportation and wildlife agencies, and providing engaging educational field experiences for volunteers.

The winter portion of CWMP is focused on snow-tracking along a 15-mile corridor on I-90 and providing data for the I-90 Snoqualmie Pass East Project. The I-90 Snoqualmie Pass East Project is a 15-mile highway improvement project that includes measures for connecting wildlife habitat, such as the construction of wildlife crossings. Construction on the first phase of the I-90 Snoqualmie Pass East Project has started with funding from the Washington State Legislature. Completion is projected for 2018. Near the Gold Creek transect, an underpass in this first phase section is now being used by wildlife. Construction in phase two has begun and includes an overpass near the Price Nobel transect. Construction activities were not active during the snow-tracking season. A complete description of the Citizen Wildlife Monitoring Project's goals and methods, as well as a record of previous season reports, is available online at www.conservationnw.org/monitoring.

Methodology

Study Area

Snoqualmie Pass (3022 feet, 921 meters) is the lowest pass in the Washington Cascades. Interstate 90 traverses the pass from west to east as a divided highway with two to four lanes of traffic in each direction throughout the study area. A large downhill ski complex sits at the summit of the pass, along with associated human infrastructure. A few miles east of the pass, a large irrigation water reservoir on the headwaters of the Yakima River fills much of the valley bottom. The human footprint at the pass along with the high speed and heavily trafficked interstate highway makes Snoqualmie Pass the most tenuous wildlife

corridor in the Washington Cascades. Ongoing reconstruction by the Washington Department of Transportation on Interstate 90 east of Snoqualmie Pass has been designed to improve road safety for motorists and increase the permeability of the road for wildlife.

Field Methods

CCWMP employs trained volunteers to walk transects adjacent to the interstate and track wildlife. Set transects are monitored three times over the course of the winter on average and are established at locations where crossing structures either exist and are being improved or have been targeted for installation. Transects run parallel to the highway about 150 meters from the roadbed. Field teams document tracks and signs of any mammal species larger than a snowshoe hare found along the route. At least one set of tracks is trailed on each transect per visit in an attempt to document the animal’s relationship to the interstate. Observations are photo-documented in the field and all photos are reviewed by expert observers out of the field to assess observer reliability. All species of high conservation value are thoroughly documented, including photo-documentation, to ensure the accuracy of identification.

Results and Discussion

Summary of 2017 Transect Data

This year we recorded 78 observations of six species (coyote, bobcat, elk, American marten, raccoon, mule deer) across all five transects (Table 1). Most observations were tracks (74). Non-track observations included one live sighting of an elk at Price Noble South, and elk marking behavior (4). No Priority One species were detected during our survey period. Coyote was the primary species found within and across all transects (32 observations; 42 %), followed by bobcat and elk (13 observations each; 17 %). Elk were the second most common species detected (along with bobcat), even though the snowpack was significantly higher this year than last. Price Noble continues to have the most detections (31 observations; 39 %) and species (American marten was the only species not detected), highlighting the importance of the overpass being constructed currently in that area. American marten was only detected at Snoqualmie Pass, the highest transect of the five, and only north of the highway. The south transect of Snoqualmie Pass continues to be depauperate of species with only one coyote observation – highlighting the impact of the highway and surrounding development on mammal presence.

Table 1. The distribution of species observations across the five transects surveyed during the 2017 monitoring season.

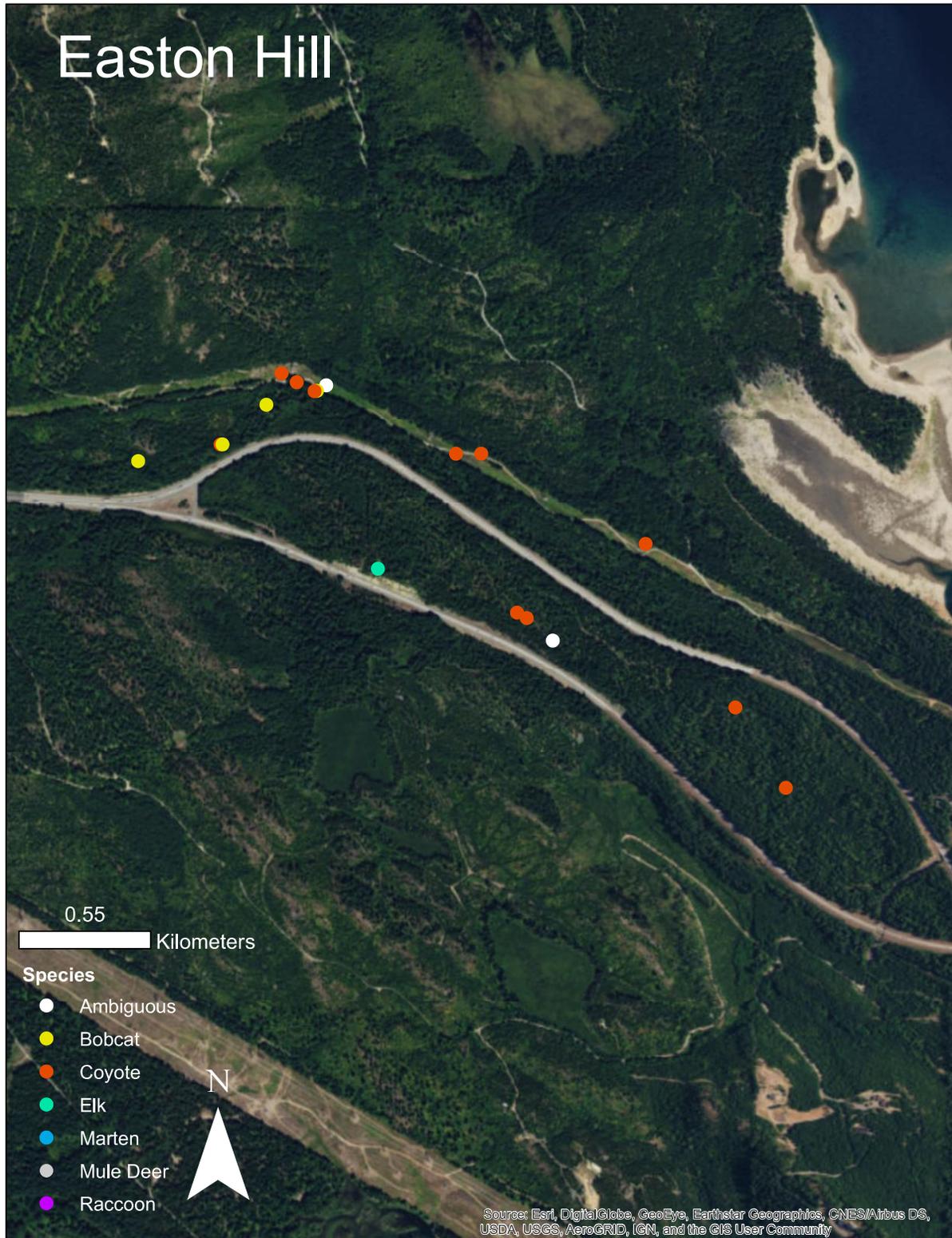
Species	Denny Creek	Transect												Total
		Easton			Gold Creek			Price Noble			Snoqualmie Pass			
		N	S	Both	N	S	Both	N	S	Both	N	S	Both	
Coyote		7	5	12	4	2	6	5	5	10	3	1*	4	32
Ambiguous		3	1	4		1	1	3	2	5	3		3	13
Bobcat		4		4	2		2	4	1	5	2		2	13

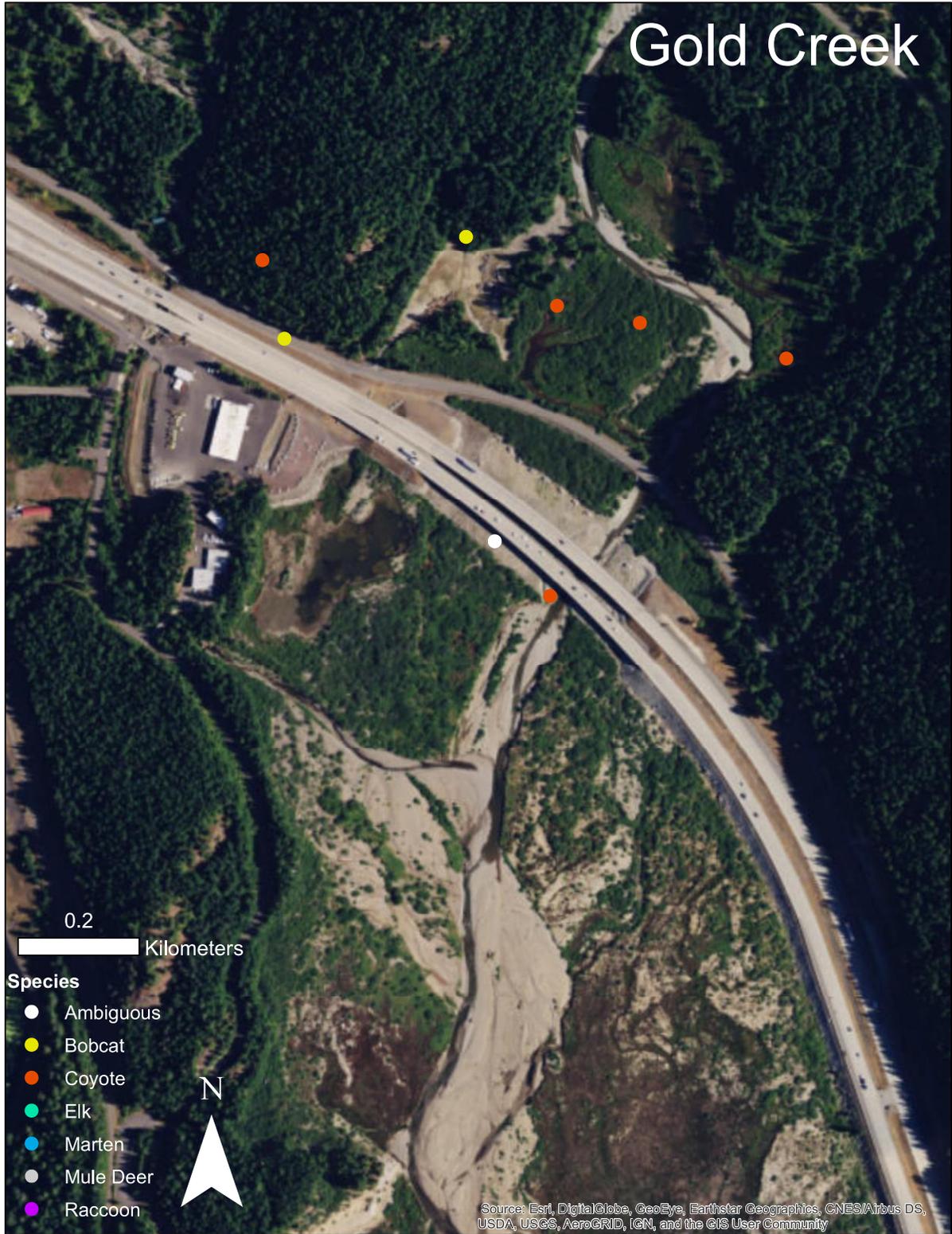
Elk	3	1	1					5	4	9			0	13
American marten											3		3	3
Raccoon									1	1	2		2	3
Mule deer								1		1				1
Total Observations	3	15	6	21	6	3	9	18	1	31	13	1	14	78
Total Species	1	3	1	3	2	1	2	4	4	5	4	1	4	6

Denny Creek

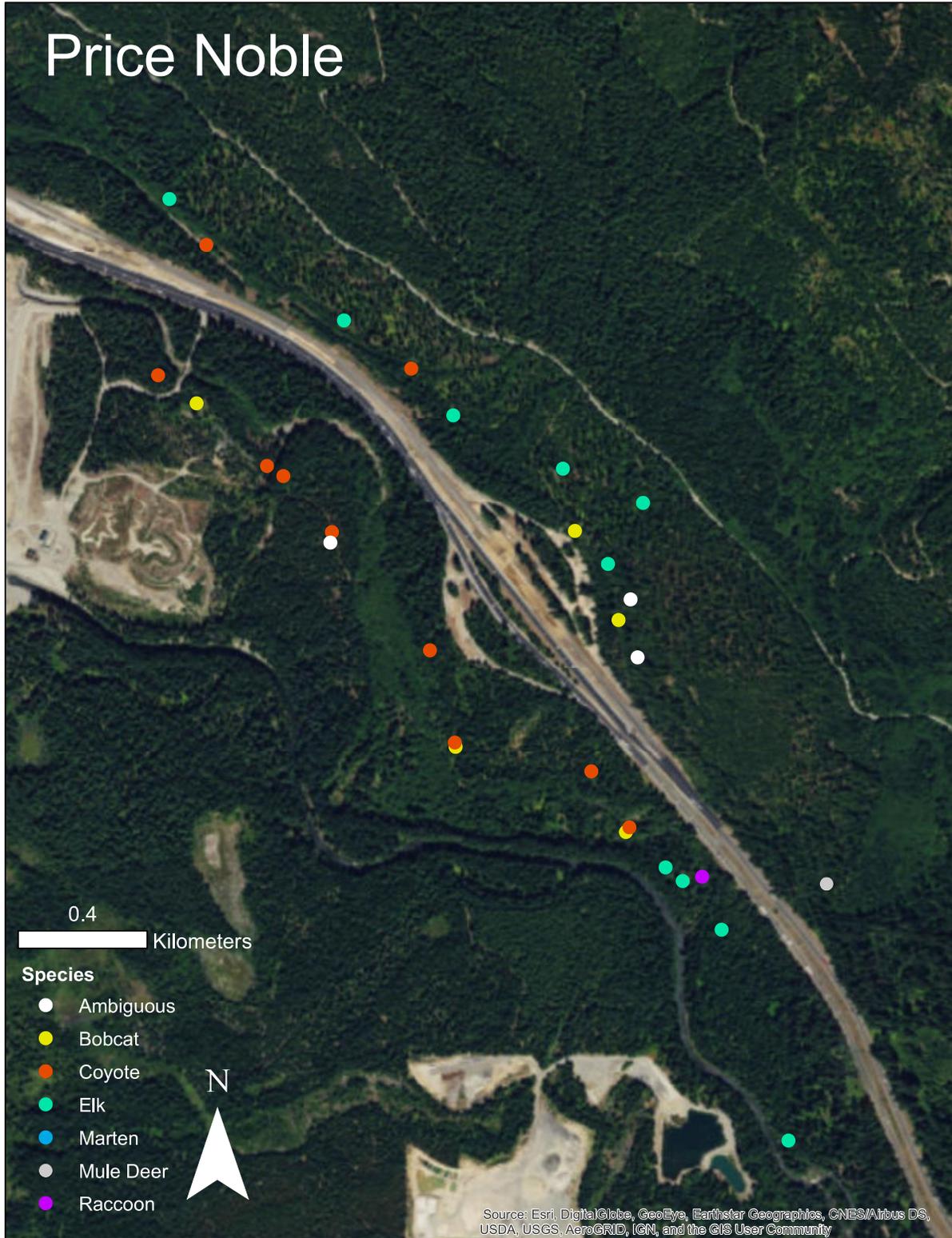


Easton Hill





Price Noble



Snoqualmie Pass



Summary of 2017 Trailing Data

Citizen scientists trailed animals 14 times over the course of the monitoring period, and trailed five separate species (Table 2). Of these trailing events, three recorded an animal crossing or entering the highway: a pair of coyotes crossed Eastbound I-90 at Easton, a single coyote entering the Easton tree island (along the Easton South transect) from Westbound I-90, and a coyote crossing from the Snoqualmie Pass Underpass. Three trailing events followed elk at Denny Creek and Price Noble. At both transects, elk were foraging along the highway, with no effort to cross I-90 detected. Foraging and marking sign suggests elk are wintering along the highway. Please refer to Appendix III for maps displaying the distribution of trailing events across the five transects.

Table 2. The number of species trailed across the five transects. * denotes trailing events documenting an animal crossing I-90.

Species	<i>n</i> trailing events	Transect									
		Denny Creek		Easton		Gold Creek		Price Noble		Snoqualmie Pass	
		N	S	N	S	N	S	N	S		
Bobcat	4			1		1		1			
Coyote	4				3*						1*
Elk	3	1					2				
Marten	2									2	
Mule Deer	1						1				

American Marten Surveys

For the 2015-2016 Annual Winter Report, we reviewed all of the American marten detection data collected over the duration of this project as well as the results of other recent survey efforts for this species in the study area carried out by others. Based on this review, we suggested that recent land use changes, specifically ski resort expansion at Snoqualmie Pass, may have decreased the permeability of the landscape for American marten. Additionally, while we documented the species just off of Interstate 90 north of the roadway at our SnoPass transect, we have no documentation of the species close to the roadway anywhere to the south, though we do have repeated observations from well off the highway from the now terminated Hyak-Silver Fir transect. In total, our findings and review further suggest that currently the Interstate and associated human development adjacent to it may be acting as a complete separation for American marten populations north and south of the road.

Based on this review, this winter we piloted snow track surveys specifically for American marten in areas outside of our ongoing transects in order to increase our understanding of areas currently occupied by marten on both sides of the highway. Based on habitat, accessibility for observers, and proximity to the interstate, field teams were assigned an area to survey. During that survey, the team would snowshoe through the area, selecting a route that was both logistically feasible and attempting to cover as much of the assigned area as possible. If marten tracks were discovered they were recorded as per observations for transects. A GPS track was recorded of the survey route to record the actual route surveyed and keep track of our survey effort.

Four surveys were scheduled for this winter, however only two were completed due to field conditions and team leader availability. Both completed surveys, carried out south of the interstate, detected American marten tracks. These limited results suggest a more robust survey effort could help increase our understanding the occupancy of the study area by this species. Additionally, volunteers who participated in these two surveys responded positively to the experience. For numerous volunteers who have been with the project for many years, providing a novel field objective appears to be a value added experience for their participation with the project.

In the coming year, we will increase the number of these surveys and focus on locations west of the pass. East of the pass we have never detected American marten on any of our transects which are at lower elevation, out of the subalpine habitat the species is strongly associated with in the Cascades. Having just begun surveying a single site west of the pass this field season, we currently have no information about presence of American marten there. Human infrastructure development at Snoqualmie Pass continues to expand. It currently appears that there may not be any connection between populations of marten north and south of the pass. It appears likely that there are no marten using the lower elevation habitat east of the pass. Determining the presence and landscape use by the species west of the pass is critical for understanding the overall impact of the highway corridor on this species.

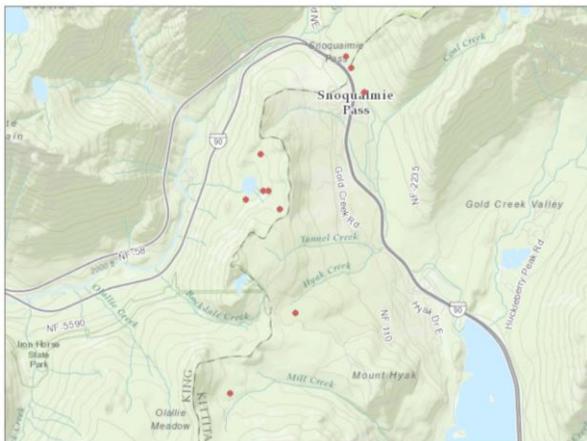


Figure 1 Marten detections from 2017

Denny Creek Pilot Transect

Last year CWMP engaged in a pilot survey of a location along the interstate west of Snoqualmie Pass at Denny Creek. The pilot was undertaken in collaboration with the Washington Department of Transportation Habitat Connectivity Biologist Kelly McAllister. A transect was scouted and established on the north side of the highway. This year, the transect was surveyed three times. Teams reported that the transect was successfully piloted and should be integrated into the project. Reports from the field indicate that clarifying the route, possibly moving it closer to the creek, would be beneficial. The next step in fully establishing this transect is to locate access to a route for the south side half.

Citizen Science

This year we had an increased number of total volunteer transect days and volunteer hours compared to low snow winters of the past few years. Volunteers faced challenges including teams not being able to complete transects due to heavy snow, bad weather and traffic delays on Snoqualmie Pass.

Volunteers spent fewer hours on administration and entering data sheets manually, thanks to increased efficiency provided by use of a mobile phone app that is able to synchronize our data from the field and be saved online. General tasks have become more efficient as well, meetings are done as conference calls and returning volunteers have strengthened the expertise of the project. Our long-term partnership with the Wilderness Awareness School has provided consistently high quality wildlife trackers as our team leaders for the project, helping to maintain the reliability of the data collected.

Table 3, Summary of Winter 2016-2017 Volunteer Participation

Number of Volunteer Team Leaders	11
Number of Volunteers Team Members	30
TOTAL PROJECT VOLUNTEERS	41
Number of Transect Field Days	18
Number of Transect Volunteer Days	88
Winter Training Team Leader Hours	120
Winter Training Team Member Hours	350
Project Leadership Volunteer Hours	50
Transect Volunteer Hours	450
TOTAL VOLUNTEER HOURS	970

Recommendations for Next Field Season

1. **Denny Creek transect:** Develop the second half of this transect on the north side of the interstate for the coming field season.

2. **American marten surveys:** Expand our effort with our piloted American marten surveys with a focus on areas west of Snoqualmie Pass. Provide specific field training for track identification for this species to improve team leader confidence in positive identification. Add “marten survey” as an option under the list of transect options in collector.
3. **Price-Noble Transects:** The north side of these transects continue to be an access challenge with the alterations to the highway from construction. Be sure to highlight the physically demanding nature of these surveys and make sure to assign capable field teams to complete them.

Acknowledgements

We appreciate supportive grants from Icicle Fund, the WDFW ALEA Cooperative Grants Program, and The Orvis Company. Once again, SnoValley Coffee in Snoqualmie, Washington generously stored our field equipment and offered an excellent meeting location for our field teams for the duration of the season. We thank individual advisory council members, and project collaborators for the talent, time, and guidance they provide to the project (see Appendix 1 for a complete list of our advisory council members).

Most importantly, we are grateful for our volunteers, whose hard work and commitment to quality in and out of the field made this season possible. Without the ongoing volunteer commitments and leadership of Mallory Clarke and Adam Martin the quality of this project would be impossible to maintain.

Team Leaders: Evan Adkins, Annabel Brennan, Brian Booth, Mallory Clarke, Jeremy Cobb, Joe Kiegel, Adam Martin, Brooke Nelson, David Snair, and Andrew Stratton.

Team Members: April Barrera, Cesare Bartorelli, Laurel Baum, Ayden Catry-Bauer, Dusty Cavaliere, Grace Coale, Bob Cox, Nichole Crosson, Bailey Dalton, Kyle Dewey, Robin Doolin, Tricia Enfield, James Gesluk, Erik Hagstrom, Kathryn Hansen, Andy Held, Hans Heuer, Tanner Humphries, Rich Johnson, Glen Kalisz, Rohan Kensey, Kurt Kiefer, Peter Loft, Denise McElhinney, Jack McLeod, Kurtis Messingale, Emily Pixie, Grace Rivera, Guthrie Schrengohst, Lindsey Smith, Rob Stait, Doug Stevens, Siana Stutchbury, Amber Valett, Aaron Van Geem, and Mary Williamson.

We have many volunteers and active supporters who contribute their time and expertise in various ways throughout the course of the program and the potential to miss people ever looms. Thank you to any we have missed!

Appendix I: Advisory Council

Jocelyn Akins (Cascades Carnivore Project), Keith Aubrey (USDA Forest Service, PNW Research Station), Scott Becker (WA Dept. of Fish and Wildlife), Michael Borysewicz (Colville National Forest), Craig Broadhead (WA Department of Transportation), Carol Chandler (Gifford Pinchot National Forest), Roger Christophersen (North Cascades National Park), Scott Fitkin (WA Department of Fish and Wildlife), William Gaines (Conservation Science Institute), Patty Garvey- Darda (Okanogan-Wenatchee National Forest), John Jakubowski (Gifford Pinchot National Forest), Gregg Kurz (US Fish and Wildlife Service), Chris Loggers (Colville National Forest), Robert Long (formerly Western Transportation Institute, Woodland Park Zoo), Andrea Lyons (Okanogan-Wenatchee National Forest), Paula Mackay (formerly Western Transportation Institute), Kelly McAllister (WA Dept. of Transportation), Jesse McCarty (Okanogan-Wenatchee National Forest), William Moore (WA Department of Fish and Wildlife), Chris Morgan (Western Wildlife Outreach and BearTrek), Sonny Paz (Mt. Baker Snoqualmie National Forest), Jesse Plumage (Mt. Baker-Snoqualmie National Forest), Cathy Raley (USDA Forest Service, PNW Research Station), Jo Ellen Richards (Okanogan-Wenatchee National Forests), Regina M. Rochefort, Ph.D. (North Cascades National Park), John Rohrer (Okanogan-Wenatchee National Forest), Jay Shepard (WA Dept. of Fish and Wildlife), Joan St. Hilaire (Okanogan-Wenatchee National Forest), David Volsen (WA Dept. of Fish and Wildlife), Aja Woodrow (Okanogan- Wenatchee National Forest), Don Youkey (Okanogan-Wenatchee National Forest), and Josh Zylstra (WA Department of Transportation).

Appendix II: Species Priority List

Tracking priority for this study in descending order

Level 1

Wolverine Fisher Lynx Wolf Marten Grizzly Bear Cougar Mountain Goat

Level 2

Elk Mule Deer Mountain Red Fox

Level 3

Black Bear Bobcat Coyote Raccoon River Otter Beaver Any other wild mammals larger than a snowshoe hare encountered in the field

Do Not Record

Snowshoe hare and smaller animals

KEY

Level 1 species should be trailed wherever possible. In the case of the top 5 species (wolverine, fisher, lynx, wolf and marten), these can be trailed even before a transect is completed because they are critical rare species. Level 2 species should be trailed in the absence of Level 1 species, after completing the outward leg of your transect and where time is available. Level 3 species should only be trailed if there are no Level 1 or Level 2 species present on the transect.

Appendix III: Trailing Maps



Easton Hill



Gold Creek





Price Noble

