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# **Pacific Fisher Annual Report**

## **2017**

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**June 1, 2017**



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Cover photo: Pacific Fisher at bait pack at Hely Creek.

## Project Description

**Title:** Pacific Fisher Annual Report 2017

**Purpose:** Habitat conservation plan monitoring

**Date Initiated:** March 1999

**Projected End Date:** Ongoing

**Managers:** Sal Chinnici, Manager Forest Sciences, and Brad Mauney, Lead Wildlife Biologist

## Executive Summary:

The Pacific fisher (*Pekania pennanti*) is a medium-sized carnivore in the weasel family. It is one of 17 covered species of the HRC Habitat Conservation Plan (HCP). The Pacific fisher is no longer a Federal or State Candidate for listing under the respective Endangered Species Acts. For California, the California Fish and Game Commission on August 5, 2015, made the finding that listing the Southern Sierra Nevada Evolutionarily Significant Unit (ESU) as threatened is warranted, and that listing the Northern California ESU is not warranted. Relative to the Federal Proposal, the U.S. Fish and Wildlife Service on April 18, 2016 withdrew their proposed rule to list the West Coast Distinct Population Segment of fisher as a threatened species under the Endangered Species Act of 1973. The fisher remains a California Species of Special Concern.

The HCP conservation strategy for the Pacific fisher is a combination of a habitat-based approach with an additional structural component element. The management objective is to maintain enough suitable habitat to contribute to a sustainable population of the species in the northern California coastal province. Conservation measures include retention of late seral habitat, aquatic resource protection, measures to retain and recruit habitat structural components, and old growth habitat reserves (i.e., the Marbled Murrelet Conservation Areas or MMCAs).

Monitoring for this species is through forest carnivore surveys to establish continued occupancy of HRC lands, and tracking of seral stage distribution in Watershed Assessment Areas (WAAs). No changes in the monitoring strategy are recommended at this time.

**Project Managers / Primary Authors**



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**Sal Chinnici, Brad Mauney**

Project document distribution list.

Susan Sniado  
CA Dept. of Fish & Wildlife  
Northern California - North Coast Region  
610 2nd Street  
Eureka, CA 95501

James Bond  
U.S. Fish and Wildlife Service  
Arcata Fish and Wildlife Office  
1655 Heindon Rd.  
Arcata, CA 95521

Matt Goldsworthy  
NOAA Fisheries  
1655 Heindon Rd.  
Arcata, CA 95521

Kurt McCray  
Cal Fire  
118 Fortuna Blvd.  
Fortuna, CA 95540

Dominik Schwab  
Cal Fire  
135 Ridgway  
Santa Rosa, CA 95401

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## INTRODUCTION

### PURPOSE

The HCP conservation strategy for the Pacific fisher (*Pekania pennanti*) is a combination of a habitat-based approach with an additional structural component element. The management objective (HCP 6.8.1) is to maintain enough suitable habitat to contribute to a sustainable population of the species in the northern California coastal province. Conservation measures (HCP 6.8.2) include retention of late seral habitat, aquatic resource protection, measures to retain and recruit habitat structural components, and old growth habitat reserves (i.e., the Marbled Murrelet Conservation Areas or MMCAs). Seral stage distribution is to be tracked and reported.

In order to generate more robust information about fisher distribution in the HCP area, a forest carnivore survey methodology was developed in 1999-2000, and implementation of the strategy began in 2000. Remote baited camera sets were used according to the methods of Zielinski and Kucera (1995). The 2000-2005 baseline survey established the occupancy of fisher in survey units in most WAAs across HRC lands. Beginning in 2010 a second survey cycle of HRC lands was initiated according to the same methods. This report summarizes the 2000-2005 survey, current results of the second cycle, compares occupancy of the survey units, and reports seral stage distribution.

## **BASELINE SURVEY (2000-2005)**

### **METHODS**

In accordance with the methods developed for the Pacific fisher research/monitoring project, a property-wide assessment to determine possible fisher presence and distribution on HRC lands was completed in 2005. The assessment occurred over a five-year period (2000-2005), including a total of 119 sample units, according to Zielinski and Kucera (1995) methods. All lands covered under the HCP (approximately 210,000 acres) comprised the pool from which the sample units were selected for the duration of the project (Table 1).

The sample units are four square mile areas, following the alignment of section lines. This unit size was designed to take in the known variations in Pacific fisher home range, and to be consistent with other studies being conducted within the Pacific Northwest (Zielinski and Kucera 1995). Each of these sample units received either two TrailMaster 1500 single sensor photographic stations, two TrailMaster 550 dual sensor photographic stations, or a combination of the two, for a minimum of 35 sample nights.

### **RESULTS**

The sample units scheduled for the final season of the initial assessment were completed by April 2005 (Table 2). This completed the requirements of the HCP for the property-wide assessment for Pacific fisher monitoring.

Results of the baseline survey included the establishment of Pacific fisher presence in all of the large Watershed Assessment Areas (WAAs) on HRC lands, with the exception of the Van Duzen WAA. Subsequently we found that Green Diamond Resource Company had reported presence of fisher in this WAA.

We have also recorded “incidental detections” that consist of documented fisher sightings within the sample unit, but not at the camera trap.

There were relatively few detections overall, with presence established in 15 sample units. There were 118 sample units completed during the initial five year survey, at a rate of 70 camera nights per unit (2 cameras per unit), for a total of 6,370 sample nights. Survey unit 118 could not be done as the PALCO property in that unit was sold prior to the survey. The 15 detections from 118 sample units resulted in a detection rate of 0.13. Thus, fisher may be well distributed spatially on HRC lands, but may occur in relatively low numbers based on the sample results.

**Table 1. Order of units sampled over the initial five-year period for the Pacific fisher (*Pekania pennanti*).**

| Unit Sampling Order |             |             |             |             |
|---------------------|-------------|-------------|-------------|-------------|
| (2000-2001)         | (2001-2002) | (2002-2003) | (2003-2004) | (2004-2005) |
| 10                  | 19          | 18          | 114         | 57          |
| 111                 | 53          | 67          | 54          | 60          |
| 116                 | 88          | 59          | 24          | 74          |
| 23                  | 71          | 94          | 72          | 9           |
| 22                  | 110         | 4           | 16          | 103         |
| 96                  | 40          | 64          | 15          | 65          |
| 80                  | 90          | 45          | 76          | 2           |
| 107                 | 115         | 55          | 75          | 69          |
| 87                  | 68          | 83          | 41          | 79          |
| 105                 | 92          | 34          | 11          | 102         |
| 33                  | 97          | 32          | 66          | 77          |
| 7                   | 6           | 117         | 31          | 30          |
| 112                 | 20          | 118*        | 106         | 13          |
| 49                  | 27          | 46          | 43          | 14          |
| 29                  | 8           | 89          | 108         | 26          |
| 28                  | 85          | 37          | 5           | 36          |
| 73                  | 109         | 17          | 101         | 82          |
| 50                  | 44          | 52          | 70          | 38          |
| 42                  | 3           | 100         | 48          | 12          |
| 58                  | 56          | 84          | 95          |             |
| 61                  | 119         | 104         | 62          |             |
| 1                   | 47          | 21          | 93          |             |
| 81                  | 35          | 25          | 39          |             |
| 91                  | 98          | 99          | 113         |             |
| 63                  | 51          | 86          | 78          |             |

Units not surveyed due to active harvesting, access problems, or end of survey season. These units were sampled at the end of successive years in numerical order, time and weather permitting, or they were sampled in the 5<sup>th</sup> year of the study (except 118).

Surveyed in year 2

Surveyed in year 3

\* Unit 118 (Redway) was sold by PALCO, and was not surveyed.

**Table 2. Fisher detections, all methods, 2000 - 2005.**

| Sample Unit | Detection Year | Zone | Sample Order | Contact Type |
|-------------|----------------|------|--------------|--------------|
| 32          | 2000           | II   | 11           | Incidental   |
| 43          | 2000           | II   | 14           | Incidental   |
| 97          | 2001           | IV   | 11           | Incidental   |
| 24          | 2002           | I    | 3            | Incidental   |
| 27          | 2002           | II   | 14           | Camera       |
| 85          | 2002           | IV   | 16           | Camera       |
| 115         | 2002           | V    | 8            | Incidental   |
| 17          | 2003           | I    | 17           | Camera       |
| 25          | 2003           | I    | 23           | Camera       |
| 37          | 2003           | II   | 16           | Camera       |
| 37          | 2003           | II   | 16           | Incidental   |
| 41          | 2003           | II   | 9            | Incidental   |
| 5           | 2004           | I    | 16           | Camera       |
| 11          | 2004           | I    | 10           | Camera       |
| 95          | 2004           | IV   | 20           | Camera       |

## **SECOND SURVEY CYCLE 2010-2017**

### **METHODS**

The methods for this resurvey begun in 2010 are similar to the initial property-wide survey of 2000-2005. The schedule of the resurvey mirrors the original survey (Table 3).

During the 2010-2011 season each of the sample units received either two Bushnell Trophy Trailcam monitoring systems, two TrailMaster 550 dual sensor photographic stations, or a combination of the two, for a minimum of 35 sample nights. Bait packs (~10kg) were wired to a tree in a suitable location within the four square mile units. Gusto (added to lanolin for ease of field application) was also used as an extra attractant or lure. Camera stations were checked weekly and bait packs replaced as necessary and any adjustments, repair, camera film, SD card or battery replacement would occur at that time.

During this period, five sample units were surveyed using the older style Trailmaster 550 cameras. No fishers were detected using these trail monitoring systems. Black bear activity was very high in November through December 2010, but tapered off significantly by mid-January 2011. Damage to the Trailmaster camera sets from black bears is common (e.g. severed cords) and can reduce camera effectiveness, possibly leading to false negatives.

To reduce such problems, in January 2011 we purchased Bushnell Trophy Trailcam camera monitoring systems to phase in and eventually replace the Trailmaster 550 cameras. The Bushnell Trailcams are a digital camera without the peripheral equipment (e.g. connecting cords) that can lead to problems with the Trailmaster systems.

The new camera traps appeared to yield positive results almost immediately. We used the first two Bushnell cameras in the upper watershed of Bear River in unit 96. There was a fisher detection on 22 February 2011 that occurred in plot 96 B (just north of the Chisum Pond) and appeared to be a female or juvenile based on the relatively small size. Another fisher was detected on 20 May 2011 in the Larabee Creek drainage at unit 80 B. The new camera systems seemed to work efficiently, required less maintenance, and appeared to provide excellent feedback.

By the 2011-2012 survey season we had converted our camera traps entirely to the Bushnell Trophy Trailcam systems. Other than the change in camera systems, surveys have continued during the current reporting period using the same methods as for the previous surveys.

**Table 3. Proposed order of units to be sampled over a five-year period (2010 – 2015) for the Pacific fisher (*Pekania pennanti*) on HRC property.**

| Unit Sampling Order |             |             |             |             |
|---------------------|-------------|-------------|-------------|-------------|
| (2010-2011)         | (2011-2012) | (2012-2013) | (2013-2014) | (2014-2015) |
| 10                  | 19          | 18          | 114         | 57          |
| 111                 | 53          | 67          | 54          | 60          |
| 116                 | 88          | 59          | 24          | 74          |
| 23                  | 71          | 94          | 72          | 9           |
| 22                  | 110         | 4           | 16          | 103         |
| 96                  | 40          | 64          | 15          | 65          |
| 80                  | 90          | 45          | 76          | 2           |
| 107                 | 115         | 55          | 75          | 69          |
| 87                  | 68          | 83          | 41          | 79          |
| 105                 | 92          | 34          | 11          | 102         |
| 33                  | 97          | 32          | 66          | 77          |
| 7                   | 6           | 117         | 31          | 30          |
| 112                 | 20          | 118*        | 106         | 13          |
| 49                  | 27          | 46*         | 43          | 14          |
| 29                  | 8           | 89          | 108         | 26          |
| 28                  | 85          | 37          | 5           | 36          |
| 73                  | 109         | 17          | 101         | 82          |
| 50                  | 44          | 52          | 70          | 38          |
| 42                  | 3           | 100         | 48          | 12          |
| 58                  | 56          | 84          | 95          |             |
| 61                  | 119*        | 104         | 62          |             |
| 1                   | 47          | 21          | 93          |             |
| 81                  | 35          | 25          | 39          |             |
| 91                  | 98          | 99          | 113         |             |
| 63                  | 51          | 86          | 78          |             |

\* Units 46, 118 and 119 are no longer part of HRC property and will not be surveyed.

## RESULTS

During the 2010 - 2017 survey period all 116 units (232 camera traps) have been surveyed to date for a total of 8,120 camera nights. Camera trap results from 2010 - 2017 surveys include detections of 29 different species (Table 4). There were no observable detections at 31 traps (twenty one units).

Unidentifiable rodent (four traps) and unidentifiable other species (one trap) were also detected.

Pacific fishers were detected at 53 of the camera traps (total = 232 camera traps), covering 42 of the 116 surveyed sample units, for a trap detection rate of 0.25, a slightly higher rate than 2016, but nearly twice the 0.13 rate for the total baseline survey results. The fisher unit detection rate is now 0.40, slightly higher

than reported in 2016. There have been a total of three Pacific fisher detections during the 2016 – 2017 season to date. The Pacific fisher trap detection rate is now second only to black bear and blacktail deer (Table 4). Black bears (*Ursus americanus*) were the most commonly detected species (0.67 trap, 0.88 unit), followed by blacktail deer (*Odocoileus hemionus*, 0.26, 0.43), fisher (0.25, 0.40), and then gray fox (*Urocyon cinereoargenteus*, 0.19, 0.30). Gray fox detection rates increased slightly. The Virginia opossum (*Didelphis virginiana*) trap detection rate increased slightly for the trap rate at 0.13, and a slight increase from 0.19 to 0.21 for the unit detection rate. Bobcat (*Lynx rufus*) trap detections remained the same with a trap detection rate of 0.13, and a unit rate of 0.19. Bobcats are a known predator of fishers (e.g. Lofroth et al. 2010).



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**Figure 1. Photo of golden eagle at camera trap in North Fork Mattole River Unit 101.**

**Table 4. Species Detected by Camera Trap and Unit 2010-2017.**

| Species                  | Scientific Name                     | # of Traps Where Detected | Trap Detection Rate | # of Units Where Detected | Unit Detection Rate |
|--------------------------|-------------------------------------|---------------------------|---------------------|---------------------------|---------------------|
| Black Bear               | <i>Ursus americanus</i>             | 139                       | 0.67                | 92                        | 0.88                |
| Blacktail Deer           | <i>Odocoileus hemionus</i>          | 54                        | 0.26                | 45                        | 0.43                |
| <b>Pacific Fisher</b>    | <b>(<i>Pekania pennanti</i>)</b>    | <b>53</b>                 | <b>0.25</b>         | <b>42</b>                 | <b>0.40</b>         |
| Gray Fox                 | <i>Urocyon cinereoargenteus</i>     | 39                        | 0.19                | 31                        | 0.30                |
| None                     | NA                                  | 31                        | 0.15                | 21                        | 0.20                |
| Coyote                   | <i>Canis latrans</i>                | 28                        | 0.13                | 24                        | 0.23                |
| Bobcat                   | <i>Lynx rufus</i>                   | 27                        | 0.13                | 21                        | 0.20                |
| Virginia Opossum         | <i>Didelphis virginiana</i>         | 27                        | 0.13                | 22                        | 0.21                |
| Western Spotted Skunk    | <i>Spilogale gracilis</i>           | 25                        | 0.12                | 23                        | 0.22                |
| Turkey Vulture           | <i>Cathartes aura</i>               | 23                        | 0.11                | 17                        | 0.16                |
| Western Gray Squirrel    | <i>Sciurus griseus</i>              | 15                        | 0.07                | 12                        | 0.12                |
| Raccoon                  | <i>Procyon lotor</i>                | 11                        | 0.05                | 11                        | 0.11                |
| Mountain Lion            | <i>Puma concolor</i>                | 10                        | 0.05                | 10                        | 0.10                |
| Ringtail                 | <i>Bassariscus astutus</i>          | 6                         | 0.03                | 6                         | 0.06                |
| Douglas' Squirrel        | <i>Tamiasciurus douglasii</i>       | 6                         | 0.03                | 6                         | 0.06                |
| Wild Pig                 | <i>Sus scrofa</i>                   | 5                         | 0.02                | 4                         | 0.04                |
| Roosevelt Elk            | <i>Cervus canadensis roosevelti</i> | 5                         | 0.02                | 5                         | 0.05                |
| Steller's Jay            | <i>Cyanocitta stelleri</i>          | 5                         | 0.02                | 5                         | 0.05                |
| Unknown Rodent           | NA                                  | 4                         | 0.02                | 4                         | 0.04                |
| Gray Jay                 | <i>Perisoreus canadensis</i>        | 3                         | 0.01                | 3                         | 0.03                |
| Domestic Dog             | <i>Canis familiaris</i>             | 3                         | 0.01                | 3                         | 0.03                |
| Domestic Cattle          | <i>Bos taurus</i>                   | 3                         | 0.01                | 3                         | 0.03                |
| Varied Thrush            | <i>Ixoreus naevius</i>              | 2                         | 0.01                | 2                         | 0.02                |
| Common Raven             | <i>Corvus corax</i>                 | 2                         | 0.01                | 2                         | 0.02                |
| Least Chipmunk           | <i>Tamias minimus</i>               | 1                         | 0.00                | 1                         | 0.01                |
| Red-tailed Hawk          | <i>Buteo jamecensis</i>             | 1                         | 0.00                | 1                         | 0.01                |
| Wild Turkey              | <i>Meleagris gallopavo</i>          | 1                         | 0.00                | 1                         | 0.01                |
| Northern Flying Squirrel | <i>Glaucomys sabrinus</i>           | 1                         | 0.00                | 1                         | 0.01                |
| Unknown                  | NA                                  | 1                         | 0.00                | 1                         | 0.01                |

A complete summary of the 2010-2017 surveys to date is provided in **Error! Not a valid bookmark self-reference..** Unit locations are shown on the Pacific Fisher Map accompanying this report.



Table 5. 2010-2017 Pacific fisher survey summary (fisher detections in bold font).

| Unit       | Order    | Setup Date       | Pull Date        | Fisher Detections | Species Detected   |
|------------|----------|------------------|------------------|-------------------|--|
| 10A        | 1        | 12/3/2010        | 1/7/2011         | No                | black bear, gray fox                                       |
| 10B        | 1        | 12/3/2010        | 1/7/2011         | No                | black bear, gray fox                                       |
| 111A       | 2        | 12/7/2010        | 1/11/2011        | No                | blacktail deer, gray fox, black bear                       |
| 111B       | 2        | 12/7/2010        | 1/11/2011        | No                | black bear   |
| 116A       | 3        | 12/9/2010        | 1/13/2011        | No                | black bear, gray fox, blacktail deer                       |
| 116B       | 3        | 12/9/2010        | 1/13/2011        | No                | black bear   |
| 22A        | 4        | 12/10/2010       | 1/14/2011        | No                | black bear, gray fox                                       |
| 22B        | 4        | 12/10/2010       | 1/14/2011        | No                | black bear, gray fox                                       |
| 23A        | 5        | 12/13/2010       | 1/17/2011        | No                | none   |
| 23B        | 5        | 12/13/2010       | 1/17/2011        | No                | black bear, gray fox                                       |
| 105A       | 10       | 1/26/2011        | 3/2/2011         | No                | mountain lion, spotted skunk, gray fox                     |
| 105B       | 10       | 1/26/2011        | 3/2/2011         | No                | gray fox   |
| 96A        | 6        | 2/3/2011         | 4/7/2011         | No                | mountain lion, gray fox, ringtail                          |
| <b>96B</b> | <b>6</b> | <b>2/3/2011</b>  | <b>4/7/2011</b>  | <b>Yes</b>        | <b>mouse spp., gray squirrel, Pacific fisher</b>           |
| <b>80A</b> | <b>7</b> | <b>5/17/2011</b> | <b>6/21/2011</b> | <b>Yes</b>        | <b>black bear, Pacific fisher</b>                          |
| <b>80B</b> | <b>7</b> | <b>5/17/2011</b> | <b>6/21/2011</b> | <b>Yes</b>        | <b>opossum, black bear, Pacific fisher</b>                 |
| 107A       | 8        | 6/3/2011         | 7/8/2011         | No                | opossum, black bear  |
| 107B       | 8        | 6/3/2011         | 7/8/2011         | No                | opossum, black bear  |
| 87A        | 9        | 7/18/2011        | 8/22/2011        | No                | black bear, Stellers jay, bobcat, northern flying squirrel |
| 87B        | 9        | 7/18/2011        | 8/22/2011        | No                | black bear   |
| 33A        | 11       | 9/7/2011         | 10/12/2011       | No                | none   |
| 33B        | 11       | 9/7/2011         | 10/12/2011       | No                | none   |
| 112A       | 13       | 9/8/2011         | 10/13/2011       | No                | raccoon, gray squirrel, opossum, black bear, spotted skunk |

| Unit       | Order     | Setup Date        | Pull Date         | Fisher Detections | Species Detected   |
|------------|-----------|-------------------|-------------------|-------------------|--|
| 112B       | 13        | 9/8/2011          | 10/13/2011        | No                | black bear, gray squirrel, blacktail deer, wild pig, opossum                               |
| <b>49A</b> | <b>14</b> | <b>11/1/2011</b>  | <b>12/6/2011</b>  | <b>Yes</b>        | <b>black bear, blacktail deer, Pacific fisher</b>  |
| 49B        | 14        | 11/2/2011         | 12/7/2011         | No                | black bear, bobcat   |
| 29A        | 15        | 11/7/2011         | 12/12/2011        | No                | black bear   |
| 29B        | 15        | 11/8/2011         | 12/13/2011        | No                | blacktail deer, gray fox, black bear   |
| 28B        | 16        | 11/15/2011        | 12/20/2011        | No                | blacktail deer, unk spp., black bear, bobcat   |
| <b>28A</b> | <b>16</b> | <b>11/15/2011</b> | <b>12/20/2011</b> | <b>Yes</b>        | <b>black bear, bobcat, Pacific fisher, blacktail deer, Stellers jay, Douglas' squirrel</b> |
| 73A        | 17        | 12/16/2011        | 1/20/2012         | No                | bobcat, black bear, varied thrush, gray squirrel, spotted skunk, blacktail deer, opossum   |
| 73B        | 17        | 12/17/2011        | 1/21/2012         | No                | opossum  |
| 42A        | 19        | 12/27/2011        | 1/31/2012         | No                | opossum, blacktail deer  |
| 42B        | 19        | 1/3/2012          | 2/7/2012          | No                | blacktail deer, spotted skunk  |
| 58A        | 20        | 1/12/2012         | 3/5/2012          | No                | spotted skunk  |
| 58B        | 20        | 1/12/2012         | 3/5/2012          | No                | spotted skunk, gray squirrel, bear or deer, mountain lion                                  |
| <b>7A</b>  | <b>12</b> | <b>2/28/2012</b>  | <b>4/3/2012</b>   | <b>Yes</b>        | <b>spotted skunk, Pacific fisher</b>   |
| <b>7B</b>  | <b>12</b> | <b>2/28/2012</b>  | <b>4/3/2012</b>   | <b>Yes</b>        | <b>Pacific fisher</b>  |
| 61A        | 21        | 3/16/2012         | 4/20/2012         | No                | turkey vulture   |
| 61B        | 21        | 3/16/2012         | 4/20/2012         | No                | blacktail deer, turkey vulture   |
| <b>1B</b>  | <b>22</b> | <b>3/21/2012</b>  | <b>4/25/2012</b>  | <b>Yes</b>        | <b>Pacific fisher</b>  |
| 1A         | 22        | 3/21/2012         | 4/25/2012         | No                | none   |
| 81A        | 23        | 3/26/2012         | 4/30/2012         | No                | black bear   |
| <b>81B</b> | <b>23</b> | <b>3/26/2012</b>  | <b>4/30/2012</b>  | <b>Yes</b>        | <b>Pacific fisher, ringtail, black bear, blacktail deer</b>                                |
| 63A        | 25        | 4/13/2012         | 5/18/2012         | No                | coyote, opossum  |
| <b>63B</b> | <b>25</b> | <b>4/13/2012</b>  | <b>5/18/2012</b>  | <b>Yes</b>        | <b>Pacific fisher, coyote, raccoon, blacktail deer, turkey vulture</b>                     |
| 91A        | 24        | 5/25/2012         | 6/29/2012         | No                | black bear   |
| 91B        | 24        | 5/25/2012         | 6/29/2012         | No                | black bear, raccoon, turkey vulture  |
| 50A        | 18        | 7/13/2012         | 8/17/2012         | No                | Roosevelt elk, blacktail deer, black bear, gray fox  |
| 50B        | 18        | 7/13/2012         | 8/17/2012         | No                | Roosevelt elk, blacktail deer, bobcat, coyote  |
| 19A        | 1         | 8/8/2012          | 9/12/2012         | No                | black bear   |

| Unit | Order | Setup Date | Pull Date  | Fisher Detections | Species Detected   |
|------|-------|------------|------------|-------------------|--|
| 19B  | 1     | 8/8/2012   | 9/12/2012  | No                | black bear, bobcat   |
| 53A  | 2     | 10/11/2012 | 11/15/2012 | No                | black bear   |
| 53B  | 2     | 10/11/2012 | 11/15/2012 | No                | none   |
| 88A  | 3     | 10/23/2012 | 11/27/2012 | No                | gray fox, blacktail deer, opossum, bobcat  |
| 88B  | 3     | 10/23/2012 | 11/27/2012 | Yes               | black bear, gray fox, Pacific fisher   |
| 71B  | 4     | 10/26/2012 | 11/30/2012 | No                | black bear, opossum, blacktail deer, spotted skunk   |
| 71A  | 4     | 10/26/2012 | 11/30/2012 | Yes               | black bear, gray fox, gray squirrel, blacktail deer, Roosevelt elk, coyote, Pacific fisher |
| 110A | 5     | 12/7/2012  | 1/11/2013  | No                | black bear   |
| 110B | 5     | 12/7/2012  | 1/11/2013  | No                | blacktail deer, black bear, Stellers jay   |
| 40A  | 6     | 12/12/2012 | 1/16/2013  | Yes               | black bear, coyote, bobcat, Pacific fisher   |
| 40B  | 6     | 12/12/2012 | 1/16/2013  | Yes               | black bear, spotted skunk, gray fox, coyote, Pacific fisher                                |
| 90A  | 7     | 12/18/2012 | 1/22/2013  | Yes               | Pacific fisher, ringtail, black bear, gray fox   |
| 90B  | 7     | 12/18/2012 | 1/22/2013  | Yes               | Pacific fisher   |
| 60A  | 8     | 1/22/2013  | 2/26/2013  | No                | none   |
| 60B  | 8     | 1/22/2013  | 2/26/2013  | No                | none   |
| 115A | 9     | 2/4/2013   | 3/11/2013  | No                | wild pig, wild turkey, bobcat, coyote  |
| 115B | 9     | 2/4/2013   | 3/11/2013  | No                | wild pig, bobcat   |
| 92A  | 11    | 2/5/2013   | 3/12/2013  | No                | gray fox, spotted skunk  |
| 92B  | 11    | 2/5/2013   | 3/12/2013  | Yes               | Pacific fisher   |
| 97B  | 10    | 2/6/2013   | 3/13/2013  | No                | none   |
| 97A  | 10    | 2/6/2013   | 3/13/2013  | Yes               | Pacific fisher, mountain lion  |
| 6A   | 12    | 3/5/2013   | 4/9/2013   | No                | gray jay   |
| 6B   | 12    | 3/5/2013   | 4/9/2013   | No                | gray jay, turkey vulture, common raven   |
| 20A  | 13    | 3/20/2013  | 4/24/2013  | Yes               | Pacific fisher, bobcat, black bear   |
| 20B  | 13    | 3/20/2013  | 4/24/2013  | Yes               | Black Bear, Bobcat, Blacktail deer, Pacific fisher   |
| 27A  | 14    | 3/20/2013  | 4/24/2013  | Yes               | Pacific fisher, bobcat, black bear   |
| 27B  | 14    | 3/20/2013  | 4/24/2013  | Yes               | Pacific fisher, black bear   |
| 8A   | 15    | 6/11/2013  | 7/16/2013  | No                | Black Bear   |
| 8B   | 15    | 6/11/2013  | 7/16/2013  | No                | Black bear   |
| 85A  | 16    | 5/14/2013  | 6/18/2013  | No                | black bear   |
| 85B  | 16    | 5/14/2013  | 6/18/2013  | Yes               | Pacific fisher, black bear, coyote, mountain lion  |
| 3A   | 19    | 7/31/2013  | 9/4/2013   | No                | black bear   |
| 3B   | 19    | 7/31/2013  | 9/4/2013   | No                | black bear, douglas' squirrel  |

| Unit       | Order     | Setup Date        | Pull Date         | Fisher Detections | Species Detected  |
|------------|-----------|-------------------|-------------------|-------------------|---|
| 44A        | 18        | 8/12/2013         | 9/16/2013         | No                | black bear  |
| 44B        | 18        | 8/12/2013         | 9/16/2013         | No                | black bear, Roosevelt elk   |
| 56A        | 20        | 9/17/2013         | 10/22/2013        | No                | none  |
| 56B        | 20        | 9/17/2013         | 10/22/2013        | No                | black bear, coyote, gray fox, spotted skunk, turkey vulture, common raven |
| 47A        | 22        | 9/19/2013         | 10/24/2013        | No                | domestic dog, blacktail deer, opossum                                     |
| 47B        | 22        | 9/19/2013         | 10/24/2013        | No                | black bear  |
| 35A        | 23        | 10/15/2013        | 11/19/2013        | No                | raccoon, coyote   |
| 35B        | 23        | 10/15/2013        | 11/19/2013        | No                | blacktail deer, black bear  |
| 51A        | 25        | 11/11/2013        | 12/16/2013        | No                | bobcat, raccoon, opossum  |
| 51B        | 25        | 11/11/2013        | 12/16/2013        | No                | domestic dog, bobcat, coyote, blacktail deer, racoon, opossum             |
| <b>18B</b> | <b>1</b>  | <b>11/13/2013</b> | <b>12/18/2013</b> | <b>Yes</b>        | <b>Pacific fisher, gray squirrel, blacktail deer, bobcat</b>              |
| 18A        | 1         | 11/13/2013        | 12/18/2013        | No                | black bear, bobcat, varied thrush, gray squirrel                          |
| 98A        | 24        | 11/19/2013        | 12/24/2013        | No                | blacktail deer, gray squirrel, coyote, opossum, black bear                |
| 98B        | 24        | 11/19/2013        | 12/24/2013        | No                | none  |
| 67A        | 2         | 11/21/2013        | 12/26/2013        | No                | blacktail deer, bobcat, Douglas' squirrel, least chipmunk                 |
| 67B        | 2         | 11/21/2013        | 12/26/2013        | No                | blacktail deer, bobcat, coyote, mountain lion, gray fox                   |
| 94A        | 4         | 11/22/2013        | 12/27/2013        | No                | blacktail deer  |
| 94B        | 4         | 11/22/2013        | 12/27/2013        | No                | black bear, blacktail deer, coyote, gray fox                              |
| <b>59A</b> | <b>3</b>  | <b>12/26/2013</b> | <b>1/30/2014</b>  | <b>Yes</b>        | <b>bobcat, Pacific fisher</b>   |
| 59B        | 3         | 12/26/2013        | 1/30/2014         | No                | none  |
| 4A         | 5         | 1/3/2014          | 2/7/2014          | No                | none  |
| 4B         | 5         | 1/3/2014          | 2/7/2014          | No                | none  |
| 64A        | 6         | 1/6/2014          | 2/10/2014         | No                | gray fox, spotted skunk   |
| 64B        | 6         | 1/6/2014          | 2/10/2014         | No                | opossum   |
| <b>45B</b> | <b>7</b>  | <b>1/16/2014</b>  | <b>2/20/2014</b>  | <b>Yes</b>        | <b>Pacific fisher, Douglas' squirrel, mouse spp.</b>                      |
| 45A        | 7         | 1/16/2014         | 2/20/2014         | No                | blacktail deer  |
| 109A       | 17        | 2/3/2014          | 3/10/2014         | No                | pig   |
| 109B       | 17        | 2/3/2014          | 3/10/2014         | No                | spotted skunk   |
| <b>32A</b> | <b>11</b> | <b>3/5/2014</b>   | <b>3/25/2014</b>  | <b>Yes</b>        | <b>coyote, Pacific fisher</b>   |
| <b>32B</b> | <b>11</b> | <b>3/5/2014</b>   | <b>3/25/2014</b>  | <b>Yes</b>        | <b>blacktail deer, turkey vulture, Pacific fisher</b>                     |
| 55A        | 8         | 3/14/2014         | 4/18/2014         | No                | opossum   |
| 55B        | 8         | 3/14/2014         | 4/18/2014         | No                | none  |
| <b>83B</b> | <b>9</b>  | <b>3/18/2014</b>  | <b>4/23/2014</b>  | <b>Yes</b>        | <b>black bear, turkey vulture, blacktail deer, Pacific fisher</b>         |
| 83A        | 9         | 3/18/2014         | 4/23/2014         | No                | mountain lion, spotted skunk, gray squirrel, mouse spp.                   |
| 34B        | 10        | 3/25/2014         | 5/7/2014          | No                | black bear, gray fox, blacktail deer, domestic cow                        |

| Unit       | Order     | Setup Date        | Pull Date         | Fisher Detections | Species Detected  |
|------------|-----------|-------------------|-------------------|-------------------|---|
| 117A       | 12        | 3/26/2014         | 4/30/2014         | No                | turkey vulture, black bear  |
| 117B       | 12        | 3/26/2014         | 4/30/2014         | No                | turkey vulture, black bear  |
| <b>34A</b> | <b>10</b> | <b>3/27/2014</b>  | <b>5/8/2014</b>   | <b>Yes</b>        | <b>Ringtail, opossum, gray fox, Pacific fisher</b>  |
| 89A        | 15        | 4/21/2014         | 5/26/2014         | No                | turkey vulture, black bear, blacktail deer  |
| 89B        | 15        | 4/22/2014         | 5/27/2014         | No                | none  |
| <b>37A</b> | <b>12</b> | <b>4/24/2014</b>  | <b>5/29/2014</b>  | <b>Yes</b>        | <b>black bear, Pacific fisher</b>   |
| <b>37B</b> | <b>12</b> | <b>4/24/2014</b>  | <b>5/29/2014</b>  | <b>Yes</b>        | <b>black bear, Pacific fisher, gray jay</b>   |
| 52A        | 18        | 5/8/2014          | 7/8/2014          | No                | black bear, blacktail deer, elk, coyote   |
| 52B        | 18        | 5/8/2014          | 7/8/2014          | No                | black bear, raccoon, spotted skunk, coyote  |
| <b>84A</b> | <b>20</b> | <b>5/19/2014</b>  | <b>6/18/2014</b>  | <b>Yes</b>        | <b>Pacific fisher, black bear</b>   |
| 104A       | 21        | 6/19/2014         | 7/28/2014         | No                | black bear, blacktail deer  |
| 104B       | 21        | 6/19/2014         | 7/28/2014         | No                | gray fox, blacktail deer, black bear  |
| 100A       | 19        | 6/20/2014         | 8/15/2014         | No                | black bear, coyote, blacktail deer, turkey vulture, domestic cow  |
| 17A        | 17        | 6/25/2014         | 8/18/2014         | No                | black bear, turkey vulture  |
| 17B        | 17        | 6/25/2014         | 8/18/2014         | No                | mountain lion, black bear, turkey vulture, raccoon  |
| 100B       | 19        | 6/27/2014         | 8/6/2014          | No                | Ringtail, black bear  |
| 99A        | 24        | 7/18/2014         | 8/22/2014         | No                | black bear, coyote, gray fox, raccoon, turkey vulture, red-tailed hawk,                                       |
| 99B        | 24        | 7/18/2014         | 8/22/2014         | No                | black bear, gray fox, turkey vulture  |
| <b>86A</b> | <b>25</b> | <b>8/5/2014</b>   | <b>9/9/2014</b>   | <b>Yes</b>        | <b>black bear, gray fox, Pacific fisher</b>   |
| 86B        | 25        | 8/5/2014          | 9/9/2014          | No                | black bear, gray fox  |
| 54A        | 2         | 8/6/2014          | 9/10/2014         | No                | blacktail deer  |
| 54B        | 2         | 8/6/2014          | 9/10/2014         | No                | black bear  |
| 114A       | 1         | 8/27/2014         | 10/8/2014         | No                | gray squirrel, wild pig (piglet), black bear, opossum   |
| 114B       | 1         | 8/27/2014         | 10/8/2014         | No                | Douglas' squirrel, spotted skunk, opossum, black bear, striped skunk, mountain lion, gray fox, blacktail deer |
| 24A        | 3         | 9/4/2014          | 10/9/2014         | No                | black bear  |
| <b>24B</b> | <b>3</b>  | <b>9/4/2014</b>   | <b>10/9/2014</b>  | <b>Yes</b>        | <b>Pacific fisher</b>   |
| <b>72A</b> | <b>4</b>  | <b>9/9/2014</b>   | <b>10/14/2014</b> | <b>Yes</b>        | <b>black bear, gray squirrel, Pacific fisher</b>  |
| 72B        | 4         | 9/9/2014          | 10/14/2014        | No                | gray fox, gray squirrel, black bear   |
| 16A        | 5         | 9/16/2014         | 10/21/2014        | No                | black bear  |
| 16B        | 5         | 9/16/2014         | 10/21/2014        | No                | gray fox, gray squirrel, blacktail deer   |
| 15A        | 6         | 9/29/2014         | 11/3/2014         | No                | black bear  |
| 15B        | 6         | 9/29/2014         | 11/3/2014         | No                | black bear, spotted skunk   |
| <b>76A</b> | <b>7</b>  | <b>10/10/2014</b> | <b>11/14/2014</b> | <b>Yes</b>        | <b>black bear, blacktail deer, spotted skunk, Pacific fisher</b>  |
| <b>76B</b> | <b>7</b>  | <b>10/10/2014</b> | <b>11/14/2014</b> | <b>Yes</b>        | <b>blacktail deer, spotted skunk, coyote, bobcat, gray squirrel, Douglas' squirrel, Pacific fisher</b>        |

| Unit | Order | Setup Date | Pull Date  | Fisher Detections | Species Detected  |
|------|-------|------------|------------|-------------------|---|
| 41A  | 9     | 11/3/2014  | 12/8/2014  | Yes               | opossum, black bear, bobcat, Pacific fisher   |
| 41B  | 9     | 11/3/2014  | 12/8/2014  | No                | black bear, blacktail deer  |
| 75A  | 8     | 11/7/2014  | 12/12/2014 | Yes               | Pacific fisher, black bear  |
| 75B  | 8     | 11/7/2014  | 12/12/2014 | No                | none  |
| 11A  | 10    | 11/12/2014 | 12/17/2014 | No                | blacktail deer  |
| 11B  | 10    | 11/12/2014 | 12/17/2014 | No                | none  |
| 66A  | 11    | 12/19/2014 | 1/23/2015  | No                | opossum   |
| 66B  | 11    | 12/19/2014 | 1/23/2015  | No                | bobcat, mountain lion, black bear   |
| 31A  | 12    | 12/22/2014 | 1/26/2015  | Yes               | Pacific fisher  |
| 31B  | 12    | 12/22/2014 | 1/26/2015  | No                | none  |
| 43A  | 15    | 12/26/2014 | 1/30/2015  | Yes               | gray fox, Pacific fisher, blacktail deer  |
| 43B  | 15    | 12/26/2014 | 1/30/2015  | Yes               | Pacific fisher, blacktail deer  |
| 108A | 15    | 4/13/2015  | 5/18/2015  | No                | none  |
| 108B | 15    | 4/13/2015  | 5/18/2015  | No                | none  |
| 5A   | 16    | 4/13/2015  | 5/18/2015  | No                | black bear  |
| 5B   | 16    | 4/13/2015  | 5/18/2015  | No                | none  |
| 70A  | 18    | 4/13/2015  | 5/18/2015  | No                | none  |
| 70B  | 18    | 4/13/2015  | 5/18/2015  | No                | none  |
| 101A | 17    | 5/13/2015  | 6/17/2015  | No                | none  |
| 101B | 17    | 5/15/2015  | 6/19/2015  | No                | none  |
| 106A | 17    | 5/6/2015   | 6/10/2015  | No                | black bear  |
| 106B | 17    | 5/6/2015   | 6/10/2015  | No                | black bear  |
| 101A | 17    | 5/13/2015  | 6/17/2015  | No                | gray fox  |
| 101B | 17    | 5/15/2015  | 6/19/2015  | No                | golden eagle, spotted skunk, bobcat, gray fox, raccoon, gray squirrel, least chipmunk |
| 113A | 24    | 6/18/2015  | 7/23/2015  | No                | black bear , turkey vulture   |
| 113B | 24    | 6/18/2015  | 7/23/2015  | No                | black bear , turkey vulture   |
| 62A  | 21    | 7/10/2015  | 8/14/2015  | No                | black Bear, opossum   |
| 62B  | 21    | 7/10/2015  | 8/14/2015  | Yes               | Pacific fisher, black bear, turkey vulture  |
| 78A  | 25    | 7/10/2015  | 8/14/2015  | No                | black bear  |
| 78B  | 25    | 7/10/2015  | 8/14/2015  | No                | black bear, spotted skunk, oppousm  |
| 95A  | 20    | 7/28/2015  | 9/1/2015   | No                | black bear  |
| 95B  | 20    | 7/28/2015  | 9/1/2015   | No                | black bear  |
| 39A  | 23    | 10/29/2015 | 12/3/2015  | Yes               | Pacific fisher, black bear  |
| 39B  | 23    | 10/29/2015 | 12/3/2015  | No                | black bear  |
| 93A  | 22    | 10/30/2015 | 12/4/2015  | No                | black bear, gray fox  |
| 93B  | 22    | 10/30/2015 | 12/4/2015  | No                | black bear, spotted skunk, Douglas squirrel   |
| 57A  | 1     | 11/5/2015  | 12/10/2015 | No                | nothing-bait not disturbed  |
| 57B  | 1     | 11/5/2015  | 12/10/2015 | No                | black bear  |

| Unit | Order | Setup Date | Pull Date  | Fisher Detections | Species Detected  |
|------|-------|------------|------------|-------------------|---|
| 48A  | 19    | 11/19/2015 | 12/24/2015 | Yes               | Pacific fisher  |
| 48B  | 19    | 11/19/2015 | 12/24/2015 | No                | black bear  |
| 60A  | 2     | 12/1/2015  | 1/5/2016   | No                | nothing-bait not disturbed                                |
| 60B  | 2     | 12/1/2015  | 1/5/2016   | No                | bobcat, bear  |
| 74A  | 3     | 12/1/2015  | 1/5/2016   | No                | nothing-bait not disturbed                                |
| 74B  | 3     | 12/1/2015  | 1/5/2016   | Yes               | black bear, spotted skunk, blacktail deer, Pacific fisher |
| 9A   | 4     | 1/13/2016  | 2/17/2016  | Yes               | Coyote, Pacific fisher                                    |
| 9B   | 4     | 1/13/2016  | 2/17/2016  | Yes               | coyote, domestic dog, black bear, Pacific fisher          |
| 65A  | 6     | 3/1/2016   | 4/5/2016   | No                | gray fox, blacktail deer                                  |
| 65B  | 6     | 3/1/2016   | 4/5/2016   | No                |   |
| 2A   |       | 3/1/2016   | 4/5/2016   | Yes               | Pacific fisher, tukey vulture, bobcat                     |
| 2B   |       | 3/1/2016   | 4/5/2016   | No                | coyote, bobcat  |
| 69A  | 8     | 4/19/2016  | 5/24/2016  | No                | nothing-bait not disturbed                                |
| 69B  | 8     | 4/19/2016  | 5/24/2016  | No                | coyote, racoon  |
| 103A | 5     | 4/23/2016  | 5/28/2016  | No                | black bear, domestic cow, blacktail deer                  |
| 103B | 5     | 4/23/2016  | 5/28/2016  | No                | black bear, blacktail deer                                |
| 79A  | 9     | 4/27/2016  | 6/1/2016   | No                | black bear, opossum, turkey vulture                       |
| 79B  | 9     | 4/27/2016  | 6/1/2016   | No                | ringtail, turkey vulture                                  |
| 21A  | 22    | 6/3/2016   | 7/8/2016   | No                | black bear  |
| 25A  | 23    | 6/21/2016  | 7/26/2016  | No                | turkey vulture, black bear                                |
| 25B  | 23    | 6/21/2016  | 7/26/2016  | No                | black bear, rodent spp.                                   |
| 21B  | 22    | 6/27/2016  | 8/1/2016   | No                | black bear  |
| 77A  | 11    | 7/27/2016  | 8/31/2016  | No                | black bear  |
| 77B  | 11    | 7/27/2016  | 8/31/2016  | No                | black bear  |
| 102A | 10    | 8/2/2016   | 9/6/2016   | No                | black bear, gray fox                                      |
| 102B | 10    | 8/2/2016   | 9/6/2016   | No                | black bear  |
| 13A  | 13    | 8/5/2016   | 9/9/2016   | No                | black bear  |
| 13B  | 13    | 8/5/2016   | 9/9/2016   | No                | black bear, racoon  |
| 30A  | 12    | 9/19/2016  | 10/24/2016 | No                | nothing-bait not disturbed                                |
| 30B  | 12    | 9/19/2016  | 10/24/2016 | No                | black bear  |
| 14A  | 14    | 9/20/2016  | 10/25/2016 | No                | spotted skunk, black bear                                 |
| 14B  | 14    | 9/20/2016  | 10/25/2016 | No                | black bear  |
| 26A  | 15    | 10/7/2016  | 11/11/2016 | No                | black bear  |
| 26B  | 15    | 10/7/2016  | 11/11/2016 | Yes               | black bear, Pacific Fisher                                |
| 36A  | 16    | 10/21/2016 | 11/25/2016 | No                | opossum   |
| 36B  | 16    | 10/21/2016 | 11/25/2016 | Yes               | blacktail deer, Pacific Fisher, black bear                |

| Unit | Order | Setup Date | Pull Date  | Fisher Detection? | Species Detected                            |
|------|-------|------------|------------|-------------------|---|
| 82A  | 17    | 10/25/2016 | 11/29/2016 | No                | black bear, spotted skunk, coyote, gray fox |
| 82B  | 17    | 10/25/2016 | 11/29/2016 | No                | black bear                                  |
| 38A  | 18    | 11/1/2016  | 12/6/2016  | No                | black bear                                  |
| 38B  | 18    | 11/1/2016  | 12/6/2016  | No                | black bear                                  |
| 12A  | 19    | 12/1/2016  | 1/5/2017   | No                |   |
| 12B  | 19    | 12/1/2016  | 1/5/2017   | Yes               | Pacific Fisher, coyote                      |

Table 6 provides a comparison of results of the baseline (2000 - 2005) surveys and current (2010-2017) surveys. As discussed above, 116 of the 119 (three units are OFF HRC ownership) sample units have been resurveyed to date, with a total of 42 fisher (unit) detections. Twelve sample units (1, 2, 9, 24, 27, 32, 37, 41, 43, 45, 85, and 97) were occupied by fisher on the baseline and have also shown current occupancy (1.00 occupancy rate). Fifty-three sample units had negative results on both the baseline and current survey. Interestingly, 30 sample units had negative results on the baseline survey, but had fisher detections on the current survey. Conversely, six units (5, 11, 17, 25, 95, and 115) were occupied on the baseline survey, but did not have fisher detections on the current survey. Final analysis will include a comparison of baseline survey and current survey results.

**Table 6. Comparison of Baseline (2000 - 2005) and Current (2010 -2017) Surveys.**

| Pacific fisher sample Unit # | Pacific fisher detections 2000-2005 surveys | Pacific fisher detections 2010-2017 surveys |
|------------------------------|---|---|
| 1                            | Yes   | Yes   |
| 2                            | Yes   | Yes   |
| 3                            | No  | No  |
| 4                            | No  | No  |
| 5                            | Yes   | No  |
| 6                            | No  | No  |
| 7                            | No  | Yes   |
| 8                            | incidental                                  | No  |
| 9                            | Yes   | Incidental sighting and survey              |
| 10                           | No  | No  |
| 11                           | incidental and survey                       | No  |
| 12                           | No  | Yes   |
| 13                           | No  | No  |
| 14                           | No  | Incidental sighting                         |
| 15                           | No  | Incidental sighting                         |
| 16                           | No  | Incidental sighting                         |
| 17                           | Yes   | No  |
| 18                           | No  | Yes   |
| 19                           | No  | No  |



| Pacific fisher sample Unit # | Pacific fisher detections 2000-2005 surveys | Pacific fisher detections 2010-2017 surveys |
|------------------------------|---|---|
| 20                           | No  | Yes   |
| 21                           | No  | No  |
| 22                           | No  | Incidental                                  |
| 23                           | No  | No  |
| 24                           | incidental and survey                       | Yes   |
| 25                           | incidental                                  | No  |
| 26                           | No  | Yes   |
| 27                           | Yes   | incidental and survey                       |
| 28                           | No  | incidental and survey                       |
| 29                           | incidental                                  | No  |
| 30                           | No  | No  |
| 31                           | No  | Yes   |
| 32                           | incidental and survey                       | incidental and survey                       |
| 33                           | No  | No  |
| 34                           | No  | Yes   |
| 35                           | No  | No  |
| 36                           | No  | Yes   |
| 37                           | incidental and survey                       | Yes   |
| 38                           | Incidental                                  | No  |
| 39                           | No  | incidental and survey                       |
| 40                           | No  | Yes   |
| 41                           | incidental and survey                       | Yes   |
| 42                           | No  | survey                                      |
| 43                           | incidental and survey                       | incidental and survey                       |
| 44                           | No  | Incidental                                  |
| 45                           | incidental                                  | Yes   |
| 46                           | No  | Off HRC Ownership                           |
| 47                           | No  | No  |
| 48                           | No  | Yes   |
| 49                           | No  | Yes   |
| 50                           | No  | No  |
| 51                           | No  | No  |
| 52                           | No  | No  |
| 53                           | No  | No  |
| 54                           | No  | No  |
| 55                           | No  | No  |
| 56                           | No  | No  |
| 57                           | No  | No  |
| 58                           | No  | No  |
| 59                           | No  | Yes   |
| 60                           | incidental                                  | No  |
| 61                           | No  | No  |

| Pacific fisher sample Unit# | Pacific fisher detections 2000-2005 survey | Pacific fisher detections 2010-2017 survey |
|-----------------------------|--|--|
| 62                          | No   | Yes  |
| 63                          | No   | incidental and survey                      |
| 64                          | No   | No   |
| 65                          | No   | No   |
| 66                          | No   | No   |
| 67                          | No   | No   |
| 68                          | No   | No   |
| 69                          | No   | No   |
| 70                          | No   | No   |
| 71                          | No   | Yes  |
| 72                          | No   | Yes  |
| 73                          | No   | No   |
| 74                          | No   | Yes  |
| 75                          | No   | Yes  |
| 76                          | No   | incidental and survey                      |
| 77                          | No   | incidental                                 |
| 78                          | incidental                                 | No   |
| 79                          | No   | No   |
| 80                          | No   | Yes  |
| 81                          | No   | Yes  |
| 82                          | No   | No   |
| 83                          | No   | Yes  |
| 84                          | No   | incidental and survey                      |
| 85                          | Yes  | Yes  |
| 86                          | No   | Yes  |
| 87                          | No   | No   |
| 88                          | No   | Yes  |
| 89                          | No   | No   |
| 90                          | No   | Yes  |
| 91                          | No   | No   |
| 92                          | No   | Yes  |
| 93                          | No   | No   |
| 94                          | No   | No   |
| 95                          | Yes  | No   |
| 96                          | No   | Yes  |
| 97                          | incidental and survey                      | Yes  |
| 98                          | incidental                                 | No   |
| 99                          | No   | No   |

| Pacific fisher sample Unit# | Pacific fisher detections 2000-2005 survey | Pacific fisher detections 2010-2017 survey |
|-----------------------------|--|--|
| 100                         | No   | No   |
| 101                         | No   | No   |
| 102                         | No   | No   |
| 103                         | No   | No   |
| 104                         | No   | No   |
| <b>105</b>                  | <b>incidental</b>                          | <b>No</b>                                  |
| <b>106</b>                  | <b>No</b>                                  | <b>incidental</b>                          |
| 107                         | No   | No   |
| 108                         | No   | No   |
| 109                         | No   | No   |
| 110                         | No   | No   |
| 111                         | No   | No   |
| 112                         | No   | No   |
| 113                         | No   | No   |
| 114                         | No   | No   |
| <b>115</b>                  | <b>incidental</b>                          | <b>No</b>                                  |
| 116                         | No   | No   |
| 117                         | No   | No   |
| 118                         | Not Surveyed                               | Off HRC Ownership                          |
| 119                         | No   | Off HRC Ownership                          |

There have been 33 Pacific fisher incidental (unit) detections and 43 individual sightings that have occurred from 2000-2017. Of those 43 sightings, 16 of those were a unique sighting only with no camera detections on either the first survey cycle or the second survey cycle.

## HABITAT SUMMARY

Regarding maintenance of habitat for the Pacific fisher, the HCP states:

*“Retention of late seral habitat on the ownership through the life of the permit is expected to provide sufficient habitat in terms of quantity, quality, and distribution to contribute to a viable population. Channel Migration Zones (CMZs) and Riparian Management Zones (RMZs) are expected to provide connectivity across the landscape. In many locations, CMZs and RMZs will intersect with other RMZs or be augmented by habitat subject to silvicultural restrictions (e.g. NSO activity sites, mass-wasting sites, or steep slopes adjacent to RMZs). These areas, MMCA, and adjoining public lands will form an interconnecting network of habitat which is expected to provide opportunities for denning and resting sites in the Humboldt, Yager, and Van Duzen WAAs. HRC land within the Bear, Mattole, and Eel WAAs is not expected to provide blocks of late seral habitat through the life of the permit. Late seral and old growth habitat on public lands adjacent to HRC ownership in these two WAAs is expected to provide suitable habitat for the species.*

*The conservation measures to retain and recruit habitat structural components within and outside of RMZs across the ownership is expected to provide older forest legacies in younger stands when these stands reach a mid-successional seral stage. These legacy components are expected to provide suitable substrate for Pacific fisher denning and resting sites.”*

The quantity and distribution of late seral habitat as of January 2017, according to the most recent stand inventory information as cross-walked to California Wildlife Habitat Relationships System (CWHR) types, and thus seral stage for the Watershed Assessment Areas (WAAs), is shown in Table 7. HRC’s HCP commitment is to maintain at least 10% late seral of forested lands by WAA (HCP 6.11). CMZs, RMZs, NSO activity sites, mass-wasting sites, and steep slope areas are tracked separately through other HCP programs and applied on each Timber Harvesting Plan (THP). In addition, the retention and recruitment of habitat structural components are tracked via individual THPs.

Pacific fisher habitat should also benefit over time as a result of the HRC conservation measure of retention of all old growth trees meeting the company’s policy, and use of uneven-aged silviculture, two additional measures not contemplated during the writing of the HCP and Biological Opinion. In addition, HRC continues to designate stands meeting the definition of High Conservation Value Forest (HCVF) according to the requirements of Forest Stewardship Council (FSC) certification, including an

approximately 200 acre late seral forest on the north side of Long Ridge in the North Fork of the Mattole River watershed.

**Table 7. Seral Types by Watershed Assessment Area (WAA), Acres by Seral Type (not including Mad River).**

| WAA                | Grass | Hardwood | Open  | Young  | Mid    | Late   | Totals  | % Late Seral* |
|--------------------|-------|----------|-------|--------|--------|--------|---------|---------------|
| Humboldt Bay       |       | 393      | 200   | 12,039 | 15,448 | 10,253 | 38,333  | 26.75%        |
| Yager Creek        | 89    | 1,245    | 834   | 16,517 | 10,861 | 4,481  | 34,026  | 13.20%        |
| Van Duzen River    | 79    | 392      | 831   | 7,154  | 11,960 | 5,060  | 25,476  | 19.93%        |
| Eel River          | 566   | 5,701    | 2,134 | 31,446 | 21,258 | 13,614 | 74,718  | 18.36%        |
| Bear/Mattole River | 3,297 | 11,213   | 542   | 6,590  | 3,170  | 9,864  | 34,677  | 31.44%        |
| Total              | 4,031 | 18,944   | 4,541 | 73,746 | 62,697 | 43,272 | 207,230 |               |

\*Percent of forested lands (i.e., excluding grasslands, HCP 6.11.2.1)



Bushnell

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**Figure 2. Coyote at camera trap in South Fork Freshwater creek Unit 9.**

## **SUMMARY AND RECOMMENDATIONS**

HRC will continue to use remote camera survey efforts over time in the study area (HCP lands) to develop an index of occupancy, and will continue to track habitat per WAA. The 2016 - 2017 survey season is year five of the current cycle of property-wide surveys. The current cycle was completed in January 2017 (Table 4). No changes in the monitoring strategy are proposed at this time.

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- Zielinski, W.J. and T.E. Kucera, editors. 1995. American marten, fisher, lynx and wolverine: survey methods for their detection. U.S. Forest Service General Technical Report PSW-GTR-157. 163 pp.