

IDAHO DEPARTMENT OF FISH AND GAME

Virgil Moore, Director

Project FY16_F15AF00962

Idaho Panhandle Forest Carnivores

Interim Progress Report



Performance Period
10 July 2015-30 June 2017

Compiled and edited by: Michael Lucid

December 2016
Boise, Idaho

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**FEDERAL AID IN WILDLIFE RESTORATION
ANNUAL PROJECT PERFORMANCE REPORT**

1. **State:** Idaho

Grant number: F15AF00962 Section 6 Cooperative Agreement

Grant name: Idaho Panhandle Forest Carnivores

2. **Report Period:** 10 July 2015 to 30 September 2016

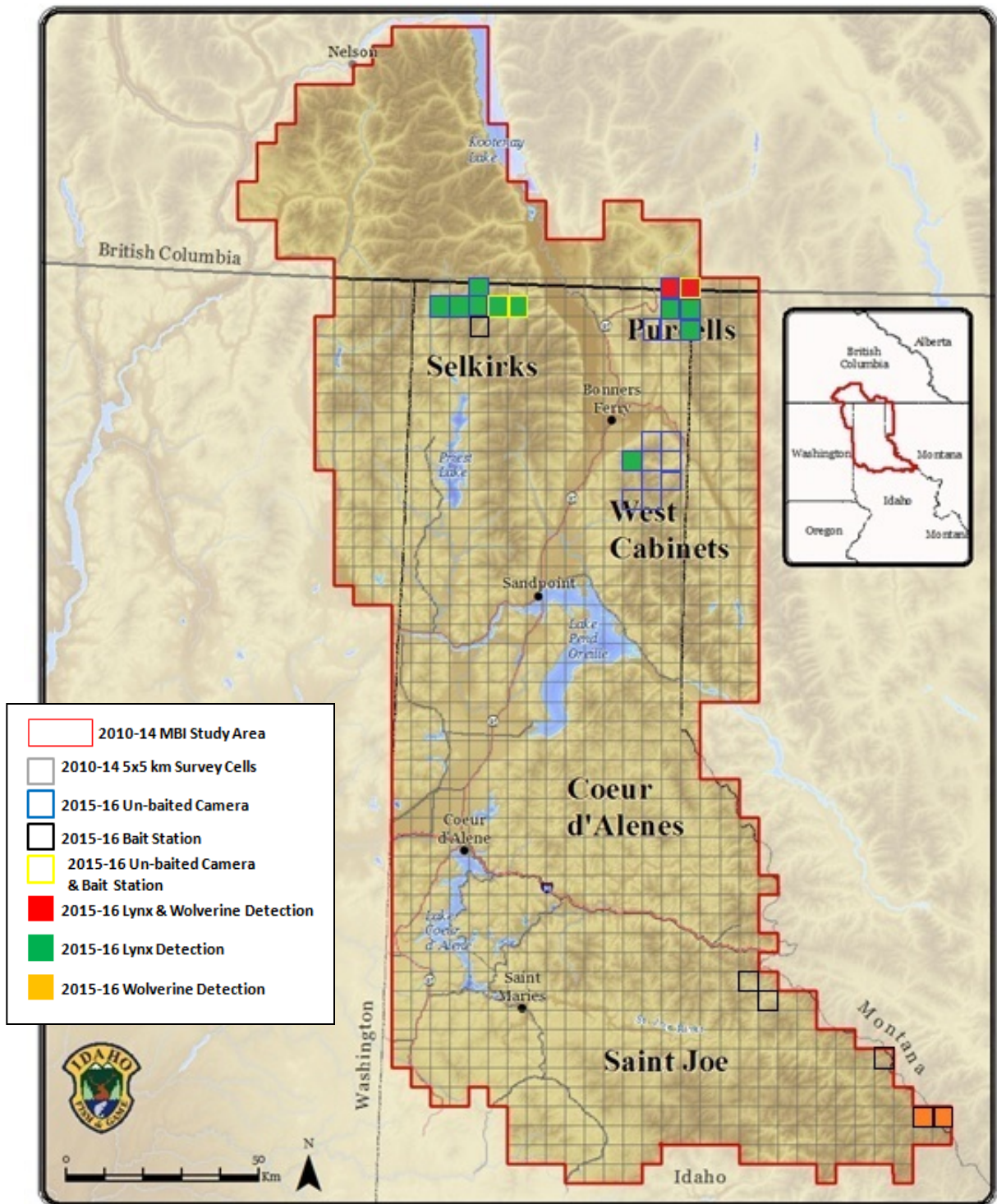
Report due date: 29 December 2016

3. **Location of work:** Idaho counties Benewah, Kootenai, Shoshone, Bonner, Boundary and adjacent lands in British Columbia.



4.

Figure 1. Lynx detection at un-baited remote camera in the Purcell Mountains.



Map 1. Study area map.

5. Objectives:

Determine status of targeted individual wolverine (*Gulo gulo*), Canada lynx (*Lynx canadensis*), and fisher (*Pekania pennanti*) which were identified from 2010-14 in the Idaho Panhandle and adjoining mountain ranges. Determine if areas known to be occupied by these species from 2010-14 continue to be occupied.

Develop a summary of current research evaluating incidental trapping effects on wolverines and other non-target species.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work was not part of a larger undertaking for the current report period.

7. Describe how the objectives were met.

Objective 1)

Background:

From 2010-2014 the Multi-species Baseline Initiative (MBI) conducted intensive forest carnivore surveys across the Idaho Panhandle and adjoining mountain ranges (Map 1, Lucid et al. 2016). Our study area included portions of 5 mountain ranges (Map 1). From 2010-14 we identified 3 individual male wolverines in the Selkirk ($n = 1$ male) and Saint Joe ($n = 2$ males) mountain ranges. We also identified 5 individual lynx from the Selkirk ($n = 1$ male), Purcell ($n = 1$ male and 2 females), and West Cabinet ($n = 1$ female) mountain ranges. Our goals during the current reporting period for this grant (July 2015-September 2016) were to conduct targeted follow-up surveys to: 1) determine if wolverines and lynx continue to occur in areas where these species were detected from 2010-14, and 2) determine if the same individual animals continue to occur where they were detected from 2010-14.

Methods:

We used the MBI 5x5 km survey grid to stratify sampling (Lucid et al. 2016). We used Reconyx™ PC800 and PC900 cameras (Wisconsin, USA).

Un-baited remote cameras ($n = 30$). We focused our sampling effort on survey cells in or adjacent to cells where lynx were previously detected from 2010-14. We deployed 30 cameras in 30 cells in the Selkirk ($n = 10$ cameras), Purcell ($n = 10$ cameras), and West Cabinet ($n = 10$ cameras) mountain ranges. We used ArcGIS to randomly select 1 location per cell which occurred on a forest road (active, decommissioned, or gated) or hiking trail. We attached cameras to trees within 100 meters of the random location. Cameras were set up from August-November 2015 and images were downloaded during October and November 2016. The approximate deployment period was 1 year. Nine cameras failed to collect images for a majority of the deployment period because they malfunctioned ($n = 3$), had low batteries ($n = 2$), were tampered with or stolen ($n = 2$), or were placed too far from the road ($n = 2$).



Figure 2. Lynx detections at un-baited remote cameras.

Bait Stations ($n = 10$). We deployed a bait station at each site where wolverine ($n = 7$ stations) or lynx ($n = 2$ stations) were detected at a bait station from 2010-14 (no bait station detected both wolverine and lynx from 2010-14). We deployed 1 additional bait station in the Saint Joe at a site not surveyed from 2010-14. We deployed bait stations in the Selkirk ($n = 3$), Purcell ($n = 1$), West Cabinet ($n = 1$), and Saint Joe ($n = 5$) mountain ranges. Bait stations consisted of: 1) a meat attractant attached to a tree, 2) gunbrush hair snares under the meat attractant, and 3) a remote camera on an adjacent tree (Figure 3). See Lucid et al. 2016 Appendix IV for complete protocol. Bait stations were deployed during the 2015-16 winter season for a period of 49-245 (mean = 132) days. Hair samples were sent to Wildlife Genetics International (WGI, Nelson, BC) for DNA analysis.

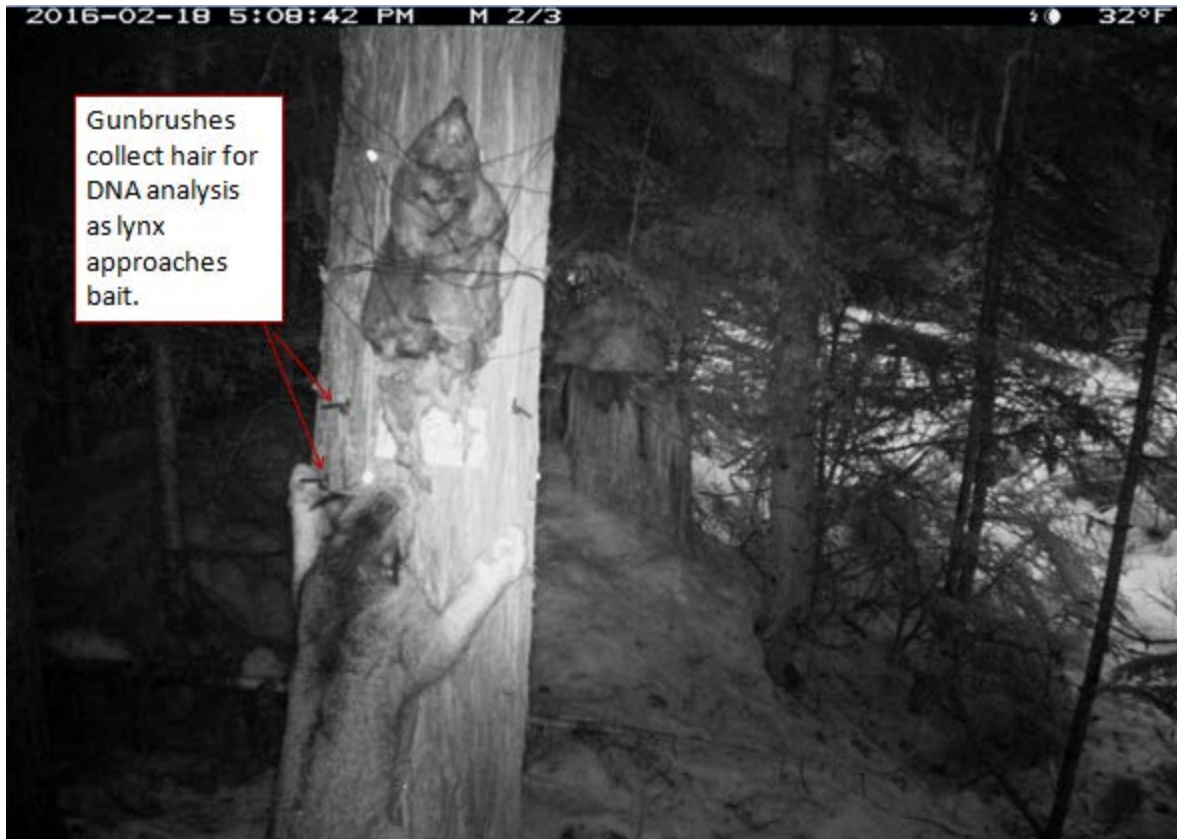


Figure 3. DNA collection from lynx visiting bait station

Snowtrack Surveys ($n = 1$). One snowtrack survey was conducted in the Purcell Mountains.

Results:

We define a detection as an image or track of one animal, or a group of animals of the same species, per calendar day. For example, we would consider an image with 2 lynx as a single detection of that species. Genetic results are not included in this analysis because laboratory work is still underway. This report summarizes detections from September 2015-September 2016. For the purposes of this report, we have not attempted to standardize data among survey techniques and deployment periods. For example, we report some un-baited remote camera detections in September and October 2015 even though all cameras were not deployed until November 2015. We detected a total of 31 non-domestic mammalian and avian species, including lynx and wolverine. Domestic animals detected included dogs, cattle, horses, and goats.

Lynx - We detected lynx 89 times via un-baited remote camera ($n = 79$ detections), bait station ($n = 9$ detections), and snow track survey ($n = 1$ detection) (Figure 2, Table 1). Lynx were detected in the Selkirk ($n = 7$ detections), Purcell ($n = 61$ detections), and West Cabinet ($n = 21$ detections) mountain ranges. Lynx were not detected in the Saint Joe Mountains. Lynx were

detected in each of the 3 target areas where they had been detected during the 2010-14 MBI survey.

We detected a minimum of 6 individual lynx in the Selkirk ($n = 1$ individual), Purcell ($n = 4$ individuals), and West Cabinet ($n = 1$ individual) mountain ranges. We did not make a specific effort to use pelage color and animal size to differentiate individuals in photographs. However, we report on animals that are easily identified as unique individuals. In the West Cabinets we definitively identified 1 image collected in the West Cabinets as individual LF1. LF1, a female, was fitted with a tracking collar and a yellow ear tag in January 2014 during the MBI study. The tracking collar has since fallen off (as programmed), but we identified this individual as LF1 based on the yellow ear tag (Figure 4).



Figure 4. Female lynx LF1.

In the Purcells, we detected an adult lynx traveling with 2 juveniles (Figure 5). We later obtained an image from the same camera of an adult with 1 juvenile (Figure 6). At a different camera station, we identified 2 different lynx based on size and markings (Figure 7).



Figure 5. Adult lynx travelling with 2 juveniles in the Purcell Mountains.



Figure 6. Adult and juvenile lynx detected at un-baited remote camera in the Purcell Mountains.

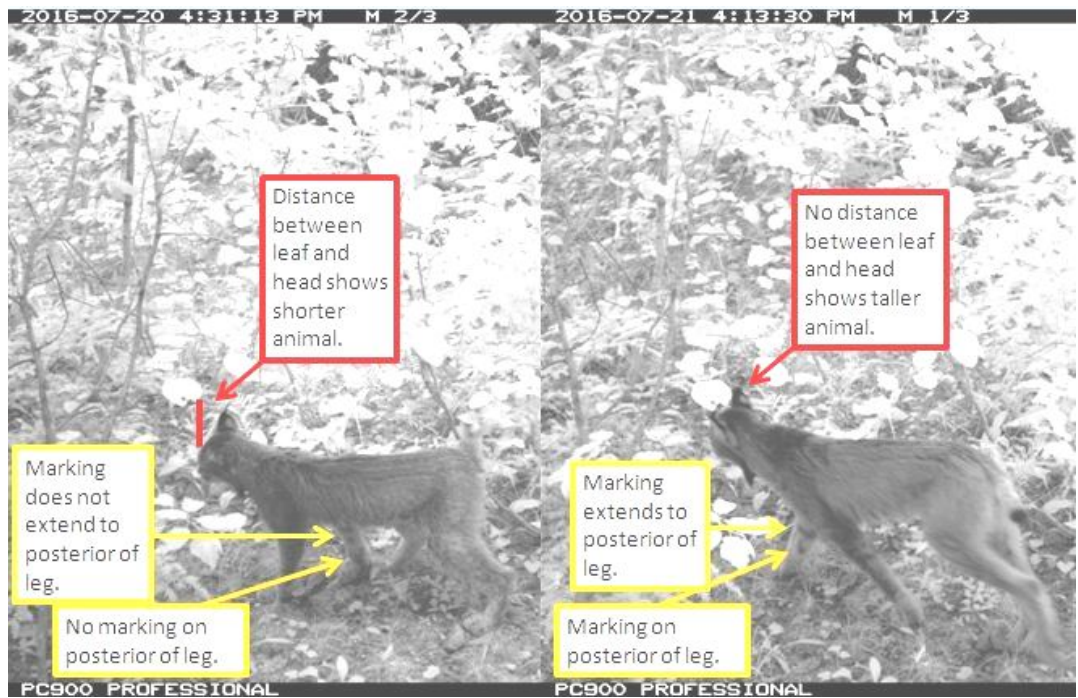


Figure 7. Characters distinguishing 2 lynx individuals detected at the same un-baited remote camera in the Purcell Mountains.



Figure 8. Lynx detection at bait station in the Selkirk Mountains.

Wolverine - We detected wolverines a total of 7 times via un-baited remote camera ($n = 2$ detections) and bait station ($n = 5$ detections) (Figures 9-10, Table 1). We did not detect wolverines during the snow track survey. Wolverines were detected in the Purcell ($n = 2$ detections) and Saint Joe ($n = 5$ detections) mountains, but were not detected in the Selkirk or West Cabinet Mountains.

MBI male LS1 was detected 6 times in the Selkirks from 2010-14 (Lucid et al. 2016). This male was the only known resident wolverine in the Idaho Panhandle from 2010-14. We did not detect this individual, or any other wolverine in the Selkirks, during the September 2015-September 2016 survey period. Although we did not detect wolverines in the Purcells from 2010-14, we did detect wolverines at 2 different un-baited remote cameras in September and December, 2016. Males FC1744AV2 and FC1444CV2 were each detected in the Saint Joe during the 2013-14 MBI winter season (Lucid et al. 2016). We did not attempt to use images to determine if these males were detected again in the Saint Joe, but instead will wait for laboratory results to make that determination.



Figure 9. Wolverine detection on un-baited remote camera in the Purcell Mountains.



Figure 10. Wolverine detection at bait station in the Saint Joe Mountains.



Figure 11. 31 non-domestic mammals and bird species were detected during the reporting period including mountain lions, badgers, grizzly bears, and red squirrels.

Additional Species - Our multi-species approach enabled the detection of 31 species of mammals and birds at bait stations and un-baited cameras (Figure 11, Table 2). Few standardized data are available for most of these common and rare species. Detections during this study indicate potential of this approach for efficiently bridging data gaps for a variety of species.

Objective 2):

This work is underway and will be completed by June 30, 2017.

7. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds.

We deployed 30 un-baited remote cameras. However, we only report on 21 because 9 cameras failed to collect images for a majority of the deployment period because they malfunctioned ($n =$

3), had low batteries ($n = 2$), were tampered with or stolen ($n = 2$), or were too far from the road ($n = 2$).

We did not target fisher for individual follow up. Un-baited remote cameras have not been an effective technique for detecting this species, and project funding was not adequate to deploy bait stations at each location where fisher were detected from 2010-14. We detected 1 fisher via un-baited remote camera in the West Cabinets (Figure 12).



Figure 12. Fisher detected at un-baited remote camera in the West Cabinet Mountains.

8. List any publications or in-house reports resulting from this work.

This is the first publication or report resulting from this work.

Name, title, phone number, and e-mail address of people compiling this report:

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The following individuals assisted with field or GIS work:

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Idaho Department of Fish and Game: Shannon Ehlers, Casey McCormack, Lacy Robinson, and Lucas Swanson

Literature Cited:

Lucid, M.K., L. Robinson, and S.E. Ehlers. 2016. Multi-species Baseline Initiative project report. 2010-2014. Idaho Department of Fish and Game, Coeur d'Alene, Idaho, USA.

Table 1. Lynx and wolverine detections by month.

				Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16		
	U*	BS**	ST***															Total
Lynx Detections																		
West Cabinets	9	0	0	4	1	4	0	0	1	0	1	1	1	2	4	2		21
Purcells	6	1	1	6	4	3	2	1	2	2	1	3	6	9	10	12		61
Selkirks	6	3	0	0	0	0	0	2	1	2	2	0	0	0	0	0		7
Saint Joe	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Total	21	10	1	10	5	7	2	3	4	4	4	4	7	11	14	14		89
Wolverine Detections																		
West Cabinets	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purcells	6	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1		2
Selkirks	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Saint Joe	0	6	0	NA	NA	0	3	1	1	NA	NA	NA	NA	NA	NA	NA		5
Total	21	10	1	0	0	0	4	1	1	0	0	0	0	0	0	1		7

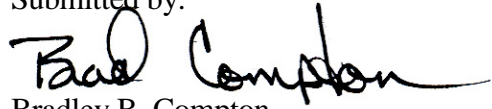
*U: Un-baited Remote Camera, **BS: Bait Station, ***ST: Snowtrack Survey

Table 2. Species detections by survey station. Number of species detections per station not represented in this table.

Common Name	Scientific Name	U* (n = 21)	BS** (n = 10)	Total
Moose	<i>Alces americanus</i>	21	1	22
White-tailed Deer	<i>Odocoileus virginianus</i>	20	1	21
Coyote	<i>Canis latrans</i>	17	3	20
Wolf	<i>Canis lupus</i>	18	1	19
Elk	<i>Cervus canadensis</i>	18	1	19
Black Bear	<i>Ursus americanus</i>	18	0	18
Snowshoe Hare	<i>Lepus americanus</i>	16	1	17
Mule Deer	<i>Odocoileus hemionus</i>	15	1	16
Bobcat	<i>Lynx rufus</i>	14	1	15
Cougar	<i>Puma concolor</i>	14	1	15
Canada Lynx	<i>Lynx canadensis</i>	11	3	14
American Marten	<i>Martes americana</i>	4	9	13
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	11	1	12
N Flying Squirrel	<i>Glaucomys sabrinus</i>	4	8	12
Grizzly Bear	<i>Ursus arctos</i>	8	1	9
Grouse	<i>Phasianidae</i>	9	0	9
Striped Skunk	<i>Mephitis mephitis</i>	7	0	7
Weasel	<i>Mustela spp.</i>	2	4	6
Steller's Jay	<i>Cyanocitta stelleri</i>	1	5	6
Common Raven	<i>Corvus corax</i>	3	2	5
Wolverine	<i>Gulo gulo</i>	2	2	4
Gray Jay	<i>Perisoreus canadensis</i>	2	1	3
NA Porcupine	<i>Erethizon dorsatum</i>	2	0	2
Fisher	<i>Pekania pennanti</i>	1	0	1
Cooper's Hawk	<i>Accipiter cooperii</i>	1	0	1
BT Woodrat	<i>Neotoma cinerea</i>	1	0	1
Wild Turkey	<i>Meleagris gallopavo</i>	1	0	1
Northern Flicker	<i>Colaptes auratus</i>	1	0	1
Shrew	<i>Sorex spp.</i>	1	0	1
Swainson's Thrush	<i>Catharus ustulatus</i>	1	0	1
American Robin	<i>Turdus migratorius</i>	1	0	1

*U: Un-baited Remote Camera, **BS: Bait Station

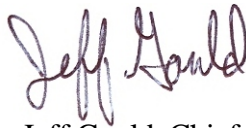
Submitted by:



Bradley B. Compton
Federal Aid Coordinator

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME



Jeff Gould, Chief
Bureau of Wildlife

FEDERAL AID IN WILDLIFE RESTORATION

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sale of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. The Idaho Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be responsible, ethical hunters. Seventy-five percent of the funds for this project are from Federal Aid. The other 25% comes from license-generated funds.

