2019 Baseline Wildlife Survey Report

Empire Mine

Konnex Resources, Inc.
Mackay, Idaho
January 2020

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1.0 INTRODUCTION

Cascade Earth Sciences (CES) was retained by Konnex Resources, Inc. (Konnex) to complete a Baseline Wildlife Survey for the Empire Mine Project (Project) located in Custer County, Idaho. CES followed the guidance provided by the United States Forest Service, Salmon-Challis Ranger District (USFS). The Project consists of approximately 1,837 acres of public and private land administered by the USFS in the Mackay, Idaho area (Site). The Site is accessible by traveling west from Mackay, Idaho, for approximately 2.5 miles on Smelter Avenue (which becomes NF-496). The location of the Site is shown in Figure 1. The purpose of this biological survey was to collect baseline biological information to be used to support planning by identifying sensitive resources for National Environmental Policy Act (NEPA) analysis of the proposed action.

2.0 HABITAT INFORMATION

The Site is located in the White Knob Mountain Range, approximately 0.5 miles northeast of Mackay Peak and directly west of Mackay, Idaho. Elevation ranges from 6,525 and 8,830 feet above mean sea level (amsl). The Site is located within the Rocky Mountain Region, Rocky Mountain Province (Flora of North America Editorial Committee 1993).

2.1 Climate

According to the Western Regional Climate Center (WRCC), the average maximum temperature at Mackay, ID; located approximately 0.5 miles north of the Site, is approximately 84 degrees (°) Fahrenheit (F) in July, and the average minimum temperature is approximately 6°F in January. The average annual precipitation is approximately 9.5 inches and tends to peak in June (WRCC 2019).

2.2 Vegetation Communities

The United States Geological Survey (USGS) Gap Landfire National Terrestrial Ecosystems Program identified 17 vegetation communities within the Site (USGS 2016; Figure 2). These communities include:

- Middle Rocky Mountain Montane Douglas-fir Forest and Woodland,
- Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland,
- Rocky Mountain Aspen Forest and Woodland,
- Rocky Mountain Lodgepole Pine Forest,
- Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland,
- Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland,
- Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland,
- Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland,
- Rocky Mountain Lower Montane Riparian Woodland and Shrubland,
- Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland,

- Northern Rocky Mountain Subalpine Deciduous Shrubland,
- Northern Rocky Mountain Subalpine-Upper Montane Grassland,
- Rocky Mountain Subalpine-Montane Mesic Meadow,
- Inter-Mountain Basins Montane Sagebrush Steppe,
- Harvested Forest - Grass/Forb Regeneration,
- Harvested Forest - Shrub Regeneration, and
- Harvested Forest - Northwestern Conifer Regeneration.

2.3 Soil and Ecological Site Descriptions

Soils within the Site are composed of 7 soil units (CES, 2018; United States Department of Agriculture (USDA) Natural Resource Conservation Services (NRCS), 2019). Soils consist of gravelly loam, rock outcrops, and areas disturbed by mining (mainly the historic open pit mine area).

The NRCS soil survey maps are limited to land east of the Salmon Caribou National Forest boundary, so only cover range land managed by the Bureau of Land Management (BLM) along the eastern edge of the study area (Appendix A). The NRCS soil survey identifies 5 soil mapping units with 4 unique ecological site characteristics (Figure 3). Ecological site descriptions provide a framework for classifying and describing public land areas that share similar capabilities to respond to land management practices and disturbance. The 4 sections of an ecological site description include site characteristics (physiographic, climate, soil and hydrology), plant communities, site interpretations for land management, and supporting information. The NRCS ecological site descriptions for the Site include the dominant soil, annual precipitation (inches), and symbols for dominant plant communities, as follows: Limey Gravelly 8-13 ARNO4/PSSPS, Gravelly Loam 12-16 ARAR8/PSSP6-Feid, Gravelly Loam 8-12 ARTRW8/PSSP6-FEID, and Loamy 16-22 ARTRV/FEID (Figure 3) (NRCS 2019). The common plant names associated with the first plant symbols are as follows: ARNO4=black sagebrush, ARAR8=little sagebrush, ARTRW8=Wyoming big sagebrush and ARTRV=mountain big sagebrush. The common plant names associated with the second of the plant symbols are as follows: PSSPS-FEID=bluebunch wheatgrass and FEID=Idaho fescue.

2.4 United States Geological Survey National Hydrography Dataset

One perennial drainage and several intermittent drainages are located in the Site according to the USGS National Hydrography Dataset (NHD) (USGS 2011). The perennial drainage crosses a small portion of the Site on the southwest side. During field surveys, three intermittent drainages had water and riparian vegetation indicating permanent water flow. Surface water runoff from the Site generally flows southeast into the Big Lost River Valley (Figure 4).

3.0 PRE-FIELD SURVEY ANALYSIS

3.1 Pre-Field Data Review

Prior to conducting field surveys, CES reviewed literature to identify biological resources and special status species that have the potential to occur within the Site. The following pre-field activities were completed to characterize potential habitat for special status species and identify potential water resources:

- Reviewed the 2014 Bureau of Land Management (BLM) Idaho Sensitive Species List for the Idaho Falls District for wildlife species (Appendix B);
- Reviewed the 2016 USFS Region 4 Sensitive Species List for wildlife species (Appendix B);
- Reviewed the BLM greater sage-grouse habitat delineations from May 2015 within the Site and a surrounding 4-mile buffer;
- Utilized the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System to perform a search for a site-specific list of federally endangered, threatened, or candidate species that have the potential to occur in the Site (Appendix C); and,
- Reviewed and evaluated additional sources of information including the NRCS soils data (Appendix A), the USGS NHD, aerial imagery (Google Earth), USGS topographic maps, and species accounts in the Site.

3.2 Agency Consultation

The letter generated through the USFWS Information, Planning, and Conservation system is included in Appendix C.

3.2.1 United States Fish and Wildlife Service

The USFWS reported that the North American wolverine (*Gulo gulo*) has the potential to occur near the Site (Appendix C). Suitable habitat for this species is present and surveys will be conducted for North American wolverine. USFWS birds of conservation concern bald eagle (*Haliaeetus leucocephalus*) and Cassin's finch (*Haemorphous casssinii*) were also identified as having the potential to occur near the Site.

3.2.2 Bureau of Land Management Greater Sage-Grouse Habitat Mapping

According to the BLM (2015), greater sage-grouse habitat occurs within the Site on the eastern side and on the eastern side of a surrounding 4-mile buffer. Habitat within the Site is classified as Important Habitat Management Area that could provide breeding, nesting, and winter habitat for greater sage grouse (BLM 2015). Priority Habitat Management Area is present within 4 miles of the Site to the northeast and southeast.

Pre-Field Analysis Results

3.2.3 Sensitive Wildlife Species

The pre-field habitat assessment identified the following 4 USFS sensitive avian species and 5 USFS sensitive mammal species with the potential to occur in the Site:

Birds

- Northern goshawk (*Accipiter gentilis*)
- Boreal owl (*Aegolius funereus*)
- Short eared owl (*Asio flammeus*)
- Greater sage-grouse (*Centrocercus urophasianus*)

Mammals

- Pygmy rabbit (*Brachylagus idahoensis*)
- Gray wolf (*Canis lupus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Spotted bat (*Euderma maculatum*)
- North American wolverine (*Gulo gulo*)

4.0 METHODS

Baseline biological surveys were conducted during the 2019 field season. Surveys followed USFS protocols and guidelines. A Global Positioning System (GPS) track log was taken during all surveys in order to ensure proper coverage of the Site and the buffer areas with emphasis on areas of potential habitat for special status species, if present. All survey tracks and waypoints were recorded in Universal Transverse Mercator (UTM) coordinate system in the North American Datum of 1983 (NAD83) for zone 12 North (meters) with a Garmin GPSMAP 64s unit or Garmin ETREX 30 unit. Survey tracks are shown on Figure 5.

4.1 Winter Track Surveys

Winter track surveys were conducted on foot using snowshoes when necessary, within 24 to72 hours of snowfall. Surveys followed the methods outlined in "Idaho Snow-Track Survey Winter 2006" published by the Idaho Department of Fish and Game (IDFG) (Idaho Department of Fish and Game, 2006). Track surveys were conducted on February 23. Survey routes were established along existing trails leading to each camera station. The area scanned for tracks is a minimum of 5 meters on each side of the trail, for a total width of 10 meters. This width is consistent with the USFS protocol for eastern Idaho. There is no maximum width if tracks of a target species are detected outside this minimum width. Target species were documented even if they do not cross the route but are still visible. Animals that travel along the survey route are only counted once unless the surveyor is certain the tracks are from a different animal.

Surveyors measured tracks, stride, straddle, group, and trough based on standardized criteria to help differentiate species. If the surveyor was still unable to make a positive identification of a potential target species after following the specified criteria, the surveyor left the established trail and followed the animal's trail, looking for better tracks, scat, hair, or other sign that would enable positive identification. GPS points were recorded for all observations of target species.

Target or primary species monitored by the winter track survey included American marten (*Martes americana*), fisher (*Martes pennanti*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), and wolverine (*Gulo gulo*). Any other tracks observed were identified to species when possible and recorded.

4.2 Winter Bait Stations

Winter bait stations surveys were conducted following methods established in "Winter Bait Stations as a Multispecies Survey Tool" (Robinson, Cushman, & Lucid, 2017). Winter bait stations were placed near topographic features that carnivores use for travel, such as saddles, ridges, and heads of drainages. Stations were located at the same 6 locations from the 2018 study (Figure 6). Two Spypoint Dark-link and 4 Browning Strike Force Pro XD trail cameras were set up facing to bait station to record all carnivore activity. Each station was labeled with a number for easy record keeping. Stations 1 and 6 had cellular enabled cameras that allowed for control of the camera remotely. These stations were the hardest to access and had good cellular coverage so were the best places to use cameras that could be remotely monitored. Bait trees were selected that were at least 12 inches in diameter and were isolated from other trees by at least 4.5 feet. An annealed wire was attached to a skinned elk quarter and the bait was attached to the bait tree approximately 6 feet above snow level. Wire was then wrapped around the bait to ensure carnivores would not be able to remove the bait for caching or consumption elsewhere. Rather, carnivores were forced to consume the bait in view of the camera. Bait stations were checked every 2 weeks from February 22, 2019 to April 18, 2019 to download photographs, refill bait stations, and check for tracks and fur beneath the bait station. The trail cameras and bait stations were removed on June 12, 2019.

4.3 Short-Eared Owl Surveys

Short-eared owl (*Asio flammeus*) surveys were conducted on February 22 and March 23, 2019, following the protocol in the "Western *Asio flammeus* Landscape Survey Protocol" (Avian Knowledge Network 2019). Surveys were conducted from half an hour prior to dusk until dusk in the lower elevation foothills within the Site and just to the East, that may provide suitable habitat for short eared owls. Surveys consisted of setting up observation points in suitable habitat and listening for calls and scanning the area with binoculars for half an hour. Any owls observed were identified to species and GPS information was taken.

4.4 Boreal Owl Surveys

Boreal owl (*Aegolius funereus*) broadcast call surveys were conducted on February 23 and March 21, 2019. The 7 call points were placed and surveys conducted using the guidance of the "Inventory Methods for Owl Surveys" (Ministry of Environment of British Columbia, Revised July 2006) prepared for the Ministry of Environment of British Columbia 2006. Surveys were conducted from half an hour after sunset to 10:00 pm, during the peak call response time for boreal owls in Idaho. Broadcast call stations were established in suitable habitat and were spaced approximately 700

meters apart. Call stations are shown on Figure 7. At each call station a boreal owl mating call was broadcast using a FoxPro game caller for one minute, followed by a 4-minute listening period. This was repeated three times for each call station. If a response was heard, a spotlight was used to locate the male calling from the nest cavity and a GPS point was taken for the nest.

4.5 Acoustic Bat Surveys

Idaho Bureau of Mines and Geology (IBMG) and the U.S. Environmental Protection Agency (EPA) data were consulted to determine potential old mine workings that may provide habitat for bats. In conjunction with Konnex it was determined that there are 4 historic mine shafts or adits and numerous abandoned buildings associated with historic mining within the Site or a 0.25-mile buffer that are still open and may provide suitable habitat. Each of these historic mine shafts or adits was visited and evaluated as potential roosting habitat for bats. It was first determined whether the working had been filled in or if there were any openings large enough for a bat. If it was open and large enough to enter it was determined if it was deeper than a flashlight beam could illuminate. The entrance was examined for bat guano, remains of insects, or any other signs of bat use. Mine workings were not entered due to safety concerns. All 4 historic workings and one set of historic buildings were determined to be suitable and had acoustic surveys conducted near them from June 12 to 15, and July 15 to 20, 2019. On September 16 to 21, 2019, bat detectors were placed in 5 new locations along streams and in opening in the forest to capture forest roosting species and any species that may be migrating through in the fall. All bat detector locations are shown on Figure 8. Wildlife Acoustics sm4bat bat detectors were concealed near the entrance to each working and were left to run for either three or 5 nights. The recordings were analyzed using Sonobat software to identify the species present and how many recordings of each species were captured.

4.6 Migratory Bird Point Count Surveys

Baseline migratory bird surveys were conducted during the breeding season between April and July. This was done to maximize the chance of observing species that use the Site. However, those species that use the area during migration or as winter habitat may not have been observed during the baseline surveys. Migratory bird surveys were conducted on June 13 to 14, 2019. Surveys were conducted according to the Great Basin Bird Observatory Point Count protocol (Great Basin Bird Observatory, 2004). Six point count locations were established in representative habitat types throughout the Site and each point was surveyed once. Surveys were conducted between sunrise and 4 hours after sunrise. Biologists recorded all observed migratory bird species and breeding behavior out to 100 meters from the survey point, separating observations into three periods (0 to 3 minutes, 3 to 5 minutes, and 5 to 10 minutes). Point count locations are shown on Figure 9. All incidental species were also recorded during other surveys within the project area.

4.7 Northern Goshawk Surveys

The northern goshawk broadcast survey was conducted in potential habitat areas of the Site. Surveys consisted of broadcast acoustical surveys and followed the protocol in the "Northern Goshawk Inventory and Monitoring Technical Guide" for the USFS published in July 2006 (Woodbridge and Hargis 2006). Prior to the start of surveys, aerial photographs and topographic maps were used to determine suitable habitat and optimal placement of survey transects. Forty-six call stations were placed 200 meters apart on each transect, with transects spaced approximately 250 meters apart in appropriate habitat. Call point locations are shown on Figure 10. Two surveys were

conducted in the 2019 season, with the first being conducted on June 13 to 14, 2019 and the second on July 16 to 17, 2019. Surveys were conducted from half an hour prior to sunrise and ended at least half an hour before sunset. At each call station, goshawk calls were broadcast using a FoxPro game caller for 10 seconds, followed by listening and watching for 30 seconds, with this sequence repeated 6 times in three different directions. After the last call sequence biologists moved to the next point on foot, watching and listening for signs of goshawk in between points.

The detection type, compass bearing, station number, and distance from transect was recorded for every response received. Responses were classified as vocal non-approach, silent approach, or vocal approach. If a northern goshawk responded to a broadcast call, an Intensive Search Survey was conducted to locate any potential nest in the area.

4.8 Greater Sage-Grouse Survey

The BLM has identified greater sage-grouse habitat near the Site. Preliminary walking surveys were conducted on March 22, 2019 in suitable habitat outside of the Site to determine if greater sage-grouse utilize this area. During the spring breeding season, walking transects were performed within ¼ -mile of the Site on the southeastern side to look for grouse sign, listen for sounds of displaying males, and to record any flushed grouse in the area. All observations were recorded, and GPS data was taken.

5.0 RESULTS

All species observed are included in the Faunal Compendium (Appendix D). Photographs taken are included in the Photo Log (Appendix E), and all completed field forms are included in Appendix F. Survey results are shown on Figure 11.

5.1 Winter Track Surveys

The track surveys on February 23, 2019 identified coyote (*Canis latrans*), wolf, moose (*Alces alces*), elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), snowshoe hare (*Lepus americanus*), and red squirrel (*Tamiasciurus hudsonicus*). The coyote tracks followed the biologist's tracks from one bait station to the next throughout the entire Site. Photographs were not taken of the tracks due to the extreme cold draining camera batteries. A track survey was not possible during the March 21, 2019 visit due to the lack of fresh snow.

5.2 Game Camera Bait Stations

On March 14, 2019 an adult wolverine was recorded at bait stations 3 and 5 (Figure 11). The wolverine was able to remove the bait from each station after approximately an hour. No other wolverine observations were recorded during the study. The wolverines were confirmed to be using the same areas where it was observed in 2018. No other target species were recorded during the study.

Other species were captured by the cameras throughout the Site including a bull moose, bull elk, coyote, bobcat (*Lynx rufus*), snowshoe hare, Uinta chipmunk (*Tamias umbrinus*), red fox (*Vulpes vulpes*), red squirrel (*Tamiasciurus hudsonicus*), and Clarks nutcracker (*Nucifraga columbiana*).

5.3 Short-Eared Owl Surveys

No short-eared owls were detected during field surveys. The sagebrush and grass foothills southwest of the Site could provide suitable habitat for short-eared owls, but there is no suitable habitat within the Site. A great-horned owl (*Bubo virginianus*) was flew out of a tree within the Site down into the town of Mackay.

5.4 Boreal Owl Surveys

There were no boreal owl responses during surveys at the 7 call stations (Figure 7). Calls from boreal owls can be detected from 1.5 to 3.5 km and the stations were located 700m apart. During the survey conducted on the evening of March 22, 2019, there were periodic times of very light snowfall. The snowfall did not disrupt surveys.

5.5 Acoustic Bat Surveys

Out of the 4 historic mine workings recorded, all were identified as providing suitable habitat for bats, and were surveyed using Wildlife Acoustics sm4bat bat detectors. One of the sites, Bat Detector 3, had been filled in previously in coordination with the USFS. This adit extended approximately 40 feet back where it was blocked by rock and dirt. There may be holes that are large enough for bats to enter, but no bat guano was noted inside the adit.

Four mine workings, one historic building, and 5 locations near streams and forest clearings were selected for acoustic survey locations (Figure 8). The results of the surveys are shown in Table 1. A total of 13 species of bats were detected during surveys. Five species were determined to be present with 90 percent (%) certainty or above, including long-eared myotis (*Myotis evotis*) with 100%, big brown bat (*Eptesicus fuscus*) with 90%, silver-haired bat (*Lasionycteris noctivagans*) with 99%, Mexican free-tailed bat (*Tadarida brasiliensis*) with 93%, and hoary bat (*Lasiurus cinereus*) with 99%. Two species were determined to be present with a moderate percent chance including long-legged myotis (*Myotis volans*) with 67% and canyon bat (*Parastrellus hesperus*) with 58%. An additional 6 species were recorded but with a much lower confidence including Yuma myotis (*Myotis yumanensis*) with 24% confidence, California myotis (*Myotis californicus*) with 25% confidence, western small-footed bat (*Myotis ciliolabrum*) with 38% confidence, little brown bat (*Myotis lucifugus*) with 23% confidence, Townsend's big-eared bat (*Corynorhinus townsendii*) with 29% confidence, and fringed myotis (*Myotis thysanodes*) with 12% confidence.

There were 429 recordings of long-eared myotis. The other most common species were silver-haired bat with 57 recordings, big brown bat with 28 recordings, hoary bat with 25 recordings, Mexican free-tailed bat with 22 recordings, and long-legged myotis with 14 recordings. The remaining 7 species had fewer than 10 recordings each over the 3 surveys. These species may have been passing through the Site or may use different habitat features than the more common ones that were detected.

There were high winds and some rain on the nights the survey was conducted in June. The adverse weather created noisy conditions that made it impossible to distinguish most calls down to a species level. The only identifiable recording was a silver-haired bat at Detector 04.

5.6 Migratory Bird Surveys

Migratory avian species observed during point count surveys and incidental observations are listed in Table 2. A Townsend's solitaire nest was observed in the bank next to an old road at UTM 0284156E 4863943N (Figure 11). Both adults were present at the nest, which had 4 eggs in it. There were no Birds of Conservation Concern for Region 10 observed during surveys (USFWS 2008).

5.7 Northern Goshawk Surveys

Northern goshawk call point locations are listed in Table 2. During the first survey in June, there were no responses to broadcast calls. Most of the survey area is unsuitable or low-quality habitat for northern goshawk. The drainage with Call Points 14, 15, 16, and 17 provides suitable habitat, as does the drainage containing Call Point 20 (Figure 10).

During the second survey on July 17, there was one response from a male northern goshawk at Call Point 20 (Figure 11). A male responded with a vocal approach after the first call sequence, stayed perched and calling for 10 seconds and flew off to the west. An intensive search was conducted on July 17, and again on July 21 but no nest was located. During the intensive search on July 17, both a male and female northern goshawk responded with a vocal non-approach from near Call Points 19, 22, 24, and 25. These 4 points had been surveyed on June 14 and July 16 with no responses and were all surveyed again on July 21 with no responses. Given that there was a response on only one of 4 days this area was surveyed, it is likely that the pair of northern goshawk was moving through the area on July 17 but did not nest within the Site. The Site does provide suitable nesting habitat for northern goshawk.

5.8 Greater Sage-Grouse Surveys

No greater sage-grouse individuals or sign were observed during field surveys near the Site. Habitat for greater sage-grouse is not present within the Site, but there is suitable habitat within 4 miles to the south and east. No known lek sites are present within 4 miles of the Site.

6.0 SUMMARY AND CONCLUSION

The following is a summary of the results of the agency data responses and the baseline biological survey conducted by CES:

- One wolverine was observed at the winter bait stations.
- Thirteen species of bats were observed during acoustic surveys; including long-eared myotis, big brown bat, silver-haired bat, Mexican free-tailed bat, hoary bat, long-legged myotis, canyon bat, Yuma myotis, California myotis, western small-footed bat, little brown bat, Townsend's big-eared bat, and fringed myotis.
- Thirty-one migratory bird species were observed during baseline wildlife surveys.
- Two adult northern goshawk were observed during broadcast surveys. No nest was found.
- No greater sage-grouse or their sign were observed in the Site.

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TABLES

Table 1. Bat Acoustic Survey Observations

Species Observed	Number Recorded	Confidence
Detector 1 07-15-19 to 07-20-19		
Yuma myotis (Myotis yumanensis)	1	0.24
Long-legged myotis (Myotis volans)	5	0.34
Long-eared myotis (Myotis evotis)	384	1
Canyon bat (Parastrellus hesperus)	3	0.39
Big brown bat (Eptesicus fuscus)	8	0.62
Silver-haired bat (Lasionycteris noctivagans)	26	0.99
Townsend's big-eared bat (Corynorhinus townsendii)	3	0.29
Mexican free-tailed bat (Tadarida brasiliensis)	6	0.69
Hoary bat (Lasiurus cinereus)	3	0.26
Detector 2 07-15-19 to 07-20-19		
Western small-footed bat (Myotis ciliolabrum)	1	0.32
Long-eared myotis (Myotis evotis)	10	1
Big brown bat (Eptesicus fuscus)	11	0.9
Silver-haired bat (Lasionycteris noctivagans)	2	0.23
Townsend's big-eared bat (Corynorhinus townsendii)	2	0.2
Mexican free-tailed bat (Tadarida brasiliensis)	1	0.06
Hoary bat (Lasiurus cinereus)	3	0.42
Detector 3 07-15-19 to 07-20-19		
Long-legged myotis (Myotis volans)	3	0.49
Long-eared myotis (Myotis evotis)	11	1
Silver-haired bat (Lasionycteris noctivagans)	2	0.34
Townsend's big-eared bat (Corynorhinus townsendii)	1	0.13
Mexican free-tailed bat (Tadarida brasiliensis)	1	0.24
Detector 4 07-15-19 to 07-20-19		
Western small-footed bat (Myotis ciliolabrum)	2	0.38
Long-legged myotis (Myotis volans)	5	0.67
Little brown bat (Myotis lucifugus)	2	0.23
Long-eared myotis (Myotis evotis)	2	0.63
Silver-haired bat (Lasionycteris noctivagans)	20	0.99
Mexican free-tailed bat (Tadarida brasiliensis)	9	0.93

Table 1. Bat Acoustic Survey Observations

Species Observed	Number Recorded	Confidence
Detector 5 07-15-19 to 07-20-19		
Long-legged myotis (Myotis volans)	1	0.16
Little brown bat (Myotis lucifugus)	1	0.15
Long-eared myotis (Myotis evotis)	5	0.94
Canyon bat (Parastrellus hesperus)	2	0.58
Big brown bat (Eptesicus fuscus)	8	0.81
Silver-haired bat (Lasionycteris noctivagans)	2	0.18
Fringed myotis (Myotis thysanodes)	1	0.12
Detector 6 09-16-19 to 09-21-19		
Long-eared myotis (Myotis evotis)	10	1
Silver-haired bat (Lasionycteris noctivagans)	2	0.22
Mexican free-tailed bat (Tadarida brasiliensis)	3	0.5
Hoary bat (Lasiurus cinereus)	15	0.99
Detector 7 09-16-19 to 09-21-19		
Long-eared myotis (Myotis evotis)	1	0.45
Silver-haired bat (Lasionycteris noctivagans)	2	0.28
Hoary bat (Lasiurus cinereus)	4	0.69
Yuma myotis (Myotis yumanensis)	1	0.25
California myotis (Myotis californicus)	1	0.25
Long-eared myotis (Myotis evotis)	6	0.97
Big brown bat (Eptesicus fuscus)	1	0.17
Mexican free-tailed bat (Tadarida brasiliensis)	1	0.29
Detector 9 09-16-19 to 09-21-19		
Little brown bat (Myotis lucifugus)	1	0.23
Mexican free-tailed bat (Tadarida brasiliensis)	1	0.32

Table 2. Migratory Bird Species Observed in 2019

Common Name	Scientific Name
American robin	*Turdus migratorius*
Audubon's warbler	*Setophaga auduboni auduboni*
black-billed magpie	*Pica hudsonia*
black-capped chickadee	*Poecile atricapillus*
blue-gray gnatcatcher	*Polioptila caerulea*
chipping sparrow	*Spizella passerina*
Clark's nutcracker; common poorwill	*Phalaenoptilus nuttallii*
common raven	*Corvus corax*
Cooper's hawk	*Accipiter cooperii*
cordilleran flycatcher	*Empidonax occidentalis*
dark-eyed junco	*Junco hyemalis*
dusky grouse	*Dendragapus obscurus*
great-horned owl	*Bubo virginianus*
green-tailed towhee	*Pipilo chlorurus*
lark sparrow	*Chondestes grammacus*
lesser goldfinch	*Spinus psaltria*
mountain bluebird	*Sialia currucoides*
mourning dove	*Zenaida macroura*
northern flicker	*Colaptes auratus*
northern goshawk;	*Accipiter gentilis*
pileated woodpecker	*Dryocopus pileatus*
red-tail hawk	*Buteo jamaicensis*
ruby-crowned kinglet	*Regulus caledula*
savannah sparrow	*Passerculus sandwichensis*
Townsend's solitaire	*Myadestes townsendi*
vesper's sparrow	*Pooecetes gramineus*
violet-green swallow	*Tachycineta thalassina*
western tanager	*Piranga ludoviciana*
white-breasted nuthatch	*Sitta carolinensis*
yellow warbler	*Setophaga petechia*

NOTES:

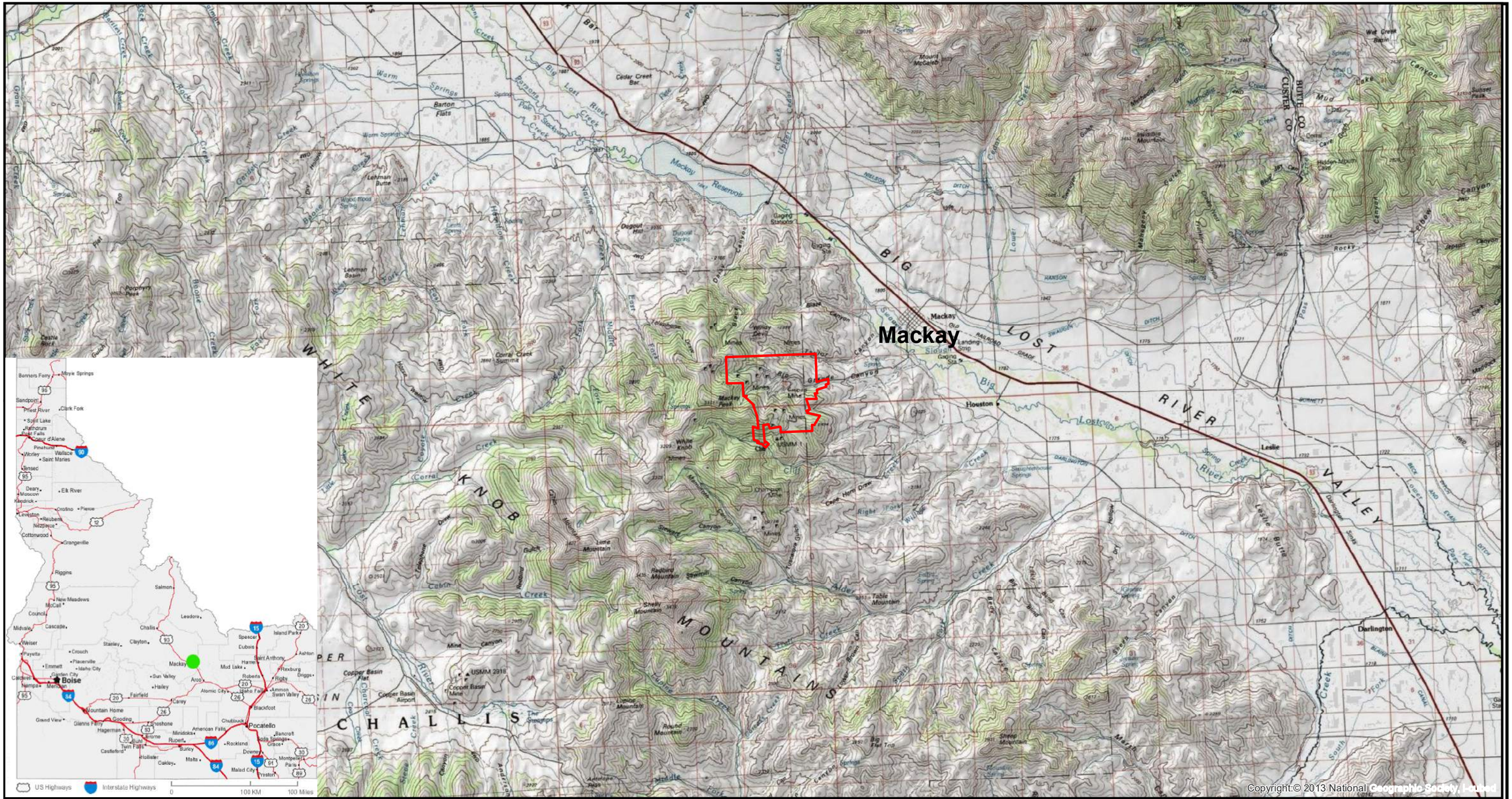
Point count surveys were conducted on June 13-14, 2019, for migratory bird species.

Additional migratory bird species were observed during other surveys in February, March, April, June, July and September 2019.

Table 3. Northern Goshawk Call Point Locations

Call Point Number	Easting	Northing	Response
1	285343	4864164	None
2	285659	4864463	None
3	285386	4864557	None
4	284749	4864530	None
5	284404	4864548	None
6	284559	4864248	None
7	284245	4864130	None
8	283874	4864124	None
9	283556	4864096	None
10	283725	4863960	None
11	284115	4863996	None
12	283959	4863858	None
13	284328	4863798	None
14	284172	4863497	None
15	284453	4863500	None
16	284770	4863554	None
17	285080	4863659	None
18	284361	4863310	None
19	284675	4863366	None
20	285065	4863330	Vocal approach. No nest located.
21	285462	4863616	None
22	284557	4863163	None
23	284442	4862919	None
24	282769	4863026	None
25	285151	4863060	None
26	285477	4863136	None
27	285782	4863179	None
28	286295	4863335	None
29	286674	4863420	None
30	286493	4863141	None
31	286120	4863052	None
32	285734	4862959	None
33	285335	4862900	None
34	285003	4862852	None
35	284634	4862788	None
36	284556	4862554	None
37	284911	4862540	None
38	285262	4862702	None
39	285625	4862721	None
40	286325	4862681	None
41	286306	4862203	None
42	285538	4862261	None
43	284698	4862368	None
44	284671	4862155	None
45	284371	4861926	None
46	284607	4861858	None

FIGURES



Legend

Claim Block

0 5 10 Miles

N

Figure 1. Project Location

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_ProjectLocation.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Legend

- Claim Block
- Middle Rocky Mountain Montane Douglas-fir Forest and Woodland
- Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland
- Rocky Mountain Aspen Forest and Woodland
- Rocky Mountain Lodgepole Pine Forest
- Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
- Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
- Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland
- Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland
- Rocky Mountain Lower Montane Riparian Woodland and Shrubland
- Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland
- Northern Rocky Mountain Subalpine Deciduous Shrubland
- Northern Rocky Mountain Subalpine-Upper Montane Grassland
- Rocky Mountain Subalpine-Montane Mesic Meadow
- Inter-Mountain Basins Montane Sagebrush Steppe
- Harvested Forest - Grass/Forb Regeneration
- Harvested Forest-Shrub Regeneration
- Harvested Forest - Northwestern Conifer Regeneration

0 0.5 1 Miles

N

Figure 2. Vegetation Communities

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_VegetationCommunities.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- No Data
- Gravelly Loam 8-12 ARTRW8/PSSPS
- None
- Limey Gravelly 8-13 ARNO4/PSSPS
- Gravelly Loam 12-16 ARAR8/PSSP6-FEID
- None

0 0.5 1 Miles

N

Figure 3. Ecological Sites

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_EcologicalSites.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CES CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

Claim Block

FCode

Intermittent Stream

Perennial Stream

0 0.5 1 Miles

N

Figure 4. Hydrography

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Hydrography.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Camera Points

0 0.5 1 Miles

N

Figure 5. Survey Tracks

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 5 Survey Tracks.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CES CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Winter Bait Stations

0 0.5 1 Miles

N

Figure 6. Winter Bait Stations

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Winter Bait Stations.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Boreal Owl Call Stations

0 0.5 1 Miles

N

Figure 7. Boreal Owl Call Stations

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 7 Boreal Owl Call Stations.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Bat Detector Points

0 0.5 1 Miles

N

Figure 8. Bat Detector Locations

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 8 Bats.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Migratory Bird Point Count Locations

0 0.5 1 Miles

N

Figure 9. Migratory Bird Point Count Locations

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 9 Migratory Bird Point Count Locations.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- Northern Goshawk Call Points

0 0.5 1 Miles

N

Figure 10. Northern Goshawk Call Points

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 10 Northern Goshawk Call Points.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Claim Block
- MB_Results
- Wolverine Detection
- Empire NOGO Detection

0 0.5 1 Miles

N

Figure 11. Survey Results

PROJECT NUMBER: 2017220015	2019 Wildlife Surveys Empire Mine Project
DATE: 10-28-2019	
DWG NO: CES_Figure 11 Survey Results.mxd	Konnex Resources, Inc. Mackay, Idaho
DWG BY: MR / PROJECT MANAGER: 5DJB	
REVISED:	CASCADE EARTH SCIENCES

APPENDICES

Appendix A:	**Custom Soil Resource Report**
Appendix B:	**Special Status Species Lists**
Appendix C:	**U.S. Department of the Interior Fish and Wildlife Service Agency Consultation**
Appendix D:	**Floral and Faunal Compendium**
Appendix E:	**Photo Log**
Appendix F:	**Field Forms**

Appendix A.

Custom Soil Resource Report

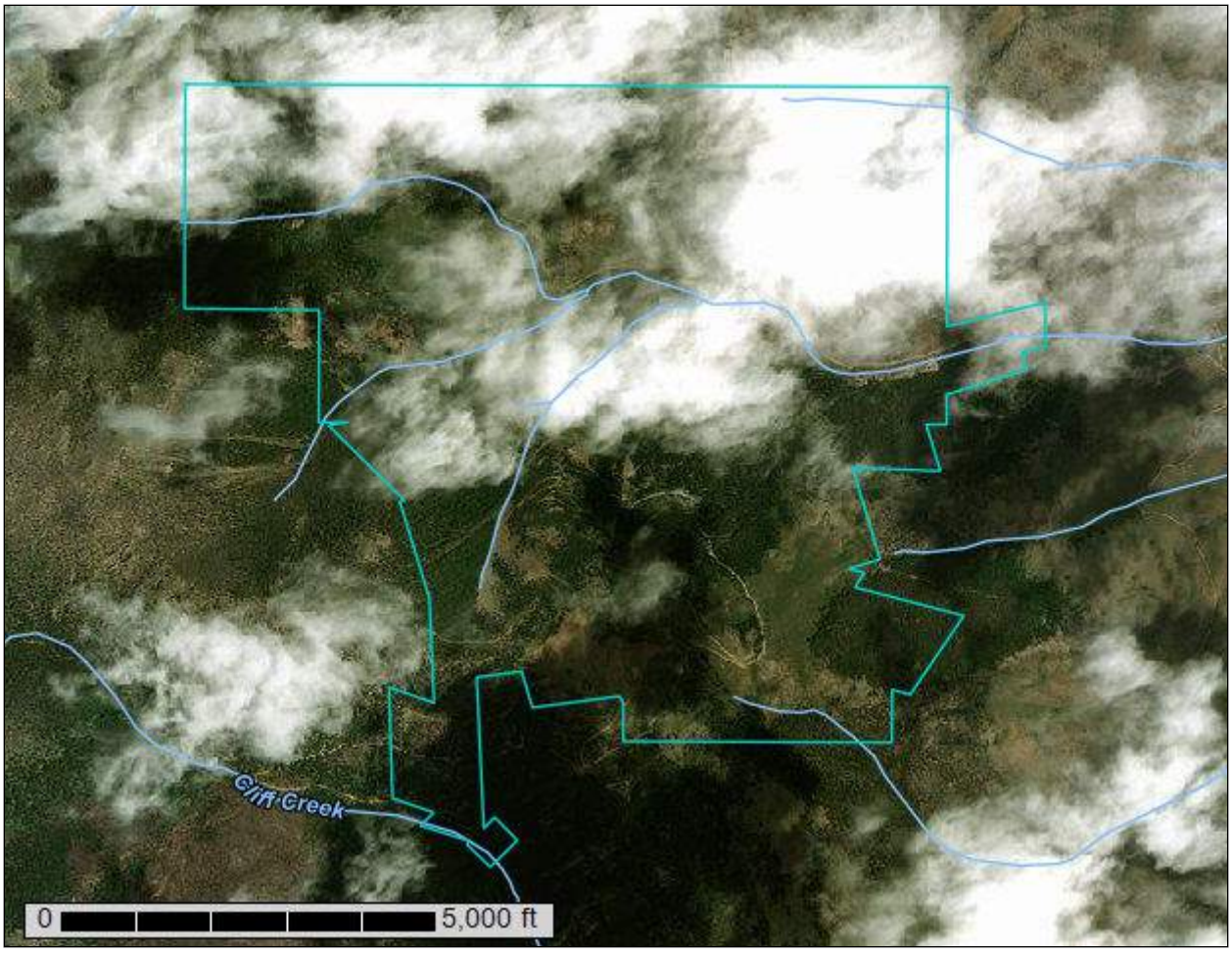
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Challis National Forest, Eastern Part, Idaho; and Custer-Lemhi Area, Idaho, Parts of Blaine, Custer, and Lemhi Counties



September 13, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

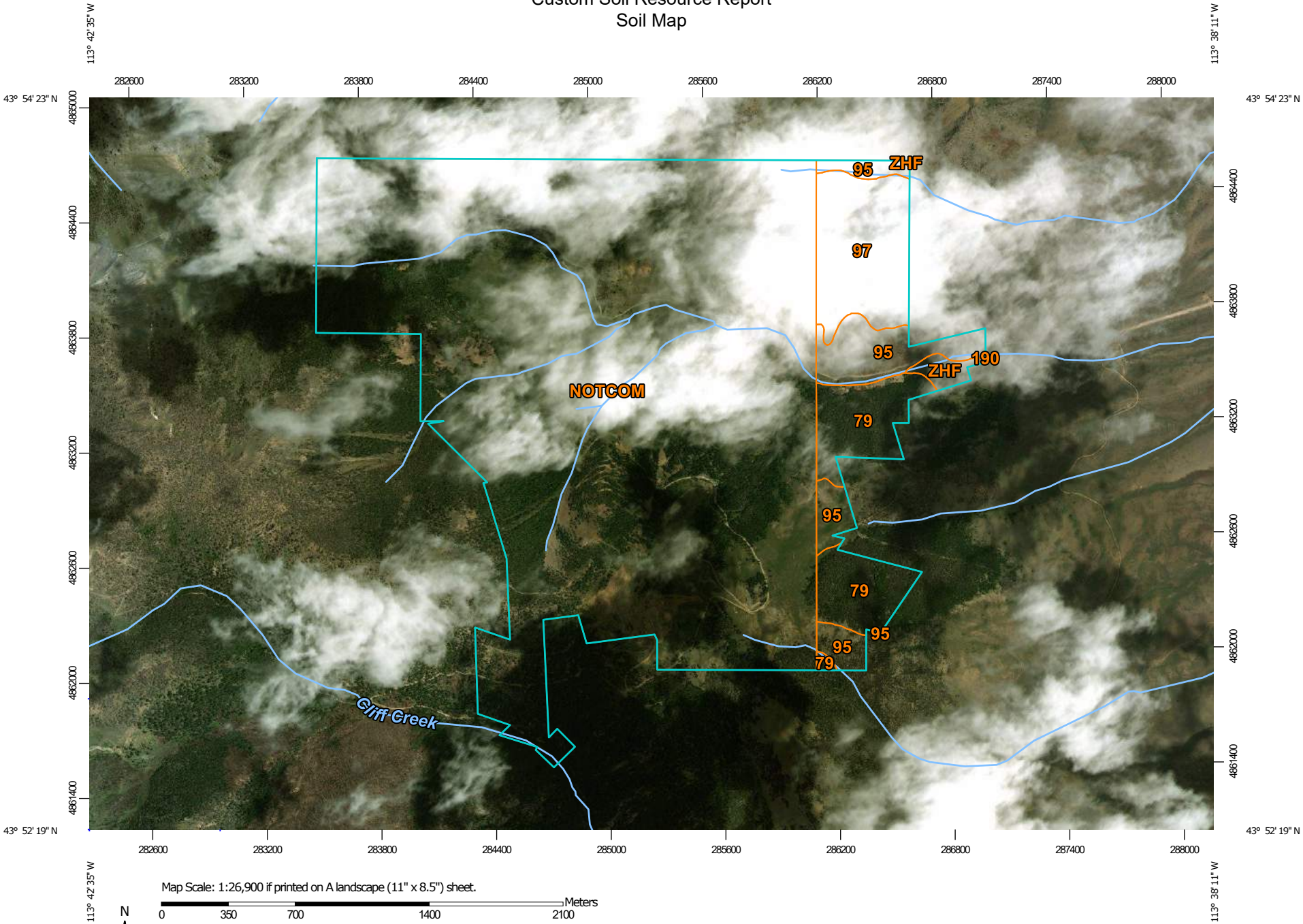
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Challis National Forest, Eastern Part, Idaho
Survey Area Data: Version 2, Dec 9, 2013

Soil Survey Area: Custer-Lemhi Area, Idaho, Parts of Blaine, Custer, and Lemhi Counties
Survey Area Data: Version 24, Sep 18, 2018

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2014—Oct 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	1,385.5	83.0%
Subtotals for Soil Survey Area		**1,385.5**	**83.0%**
Totals for Area of Interest		**1,669.2**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
79	Gany gravelly loam, 30 to 60 percent slopes	96.9	5.8%
95	Ike-Rock outcrop-Jimbee complex, 15 to 60 percent slopes	81.9	4.9%
97	Jimbee-Rock outcrop-Ike association, 30 to 75 percent slopes	94.7	5.7%
190	Simeroi gravelly loam, 6 to 15 percent slopes	0.0	0.0%
ZHF	Zeale-Meegero complex, 20 to 60 percent slopes	10.2	0.6%
Subtotals for Soil Survey Area		**283.8**	**17.0%**
Totals for Area of Interest		**1,669.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different

management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Challis National Forest, Eastern Part, Idaho

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

Custer-Lemhi Area, Idaho, Parts of Blaine, Custer, and Lemhi Counties

79—Gany gravelly loam, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2sm5
Elevation: 6,500 to 9,000 feet
Mean annual precipitation: 23 to 28 inches
Mean annual air temperature: 34 to 37 degrees F
Frost-free period: 10 to 40 days
Farmland classification: Not prime farmland

Map Unit Composition

Gany and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gany

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess and/or alluvium and/or colluvium derived from limestone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: gravelly loam
Bk - 7 to 22 inches: very gravelly loam
Bkq - 22 to 61 inches: extremely cobbly sandy loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Other vegetative classification: Douglas-fir/mountain snowberry (CDS626)
Hydric soil rating: No

95—Ike-Rock outcrop-Jimbee complex, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2smr
Elevation: 5,000 to 8,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 36 to 45 degrees F
Frost-free period: 50 to 70 days
Farmland classification: Not prime farmland

Map Unit Composition

Ike, very stony surface, and similar soils: 45 percent
Rock outcrop: 20 percent
Jimbee and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ike, Very Stony Surface

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium over bedrock derived from limestone

Typical profile

A - 0 to 3 inches: stony loam
Bkq1 - 3 to 12 inches: very gravelly loam
Bkq2 - 12 to 17 inches: extremely stony loam
R - 17 to 27 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Percent of area covered with surface fragments: 1.5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: LIMEY GRAVELLY 8-13 ARNO4/PSSPS (R012XY001ID)

Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Description of Jimbee

Setting

Landform: Mountain slopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium and/or slope alluvium over bedrock derived from limestone

Typical profile

A - 0 to 6 inches: gravelly loam
Bkq - 6 to 16 inches: very gravelly loam
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 55 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: GRAVELLY LOAM 12-16 ARAR8/PSSP6-FEID (R012XY002ID)
Hydric soil rating: No

97—Jimbee-Rock outcrop-Ike association, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2smt
Elevation: 5,000 to 8,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 36 to 45 degrees F
Frost-free period: 10 to 70 days
Farmland classification: Not prime farmland

Map Unit Composition

Jimbee and similar soils: 45 percent
Rock outcrop: 20 percent
Ike, very stony surface, and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jimbee

Setting

Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium and/or slope alluvium over bedrock derived from limestone

Typical profile

A - 0 to 6 inches: gravelly loam
Bkq - 6 to 16 inches: very gravelly loam
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 55 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Ecological site: GRAVELLY LOAM 12-16 ARAR8/PSSP6-FEID (R012XY002ID)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile
R - 0 to 60 inches: bedrock

Properties and qualities
Slope: 30 to 75 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Description of Ike, Very Stony Surface

Setting
Landform: Mountain slopes
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium over bedrock derived from limestone

Typical profile
A - 0 to 3 inches: stony loam
Bkq1 - 3 to 12 inches: very gravelly loam
Bkq2 - 12 to 17 inches: extremely gravelly sandy loam
R - 17 to 27 inches: bedrock

Properties and qualities
Slope: 30 to 75 percent
Percent of area covered with surface fragments: 1.5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: LIMEY GRAVELLY 8-13 ARNO4/PSSPS (R012XY001ID)
Hydric soil rating: No

190—Simeroi gravelly loam, 6 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2sfz
Elevation: 4,500 to 7,100 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 60 to 100 days
Farmland classification: Farmland of statewide importance, if irrigated

Map Unit Composition

Simeroi and similar soils: 95 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simeroi

Setting

Landform: Fan remnants, outwash fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

A - 0 to 3 inches: gravelly loam
Bk - 3 to 8 inches: extremely gravelly loam
Bkq1 - 8 to 48 inches: very gravelly sandy loam
2Bkq2 - 48 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 6 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 70 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: B
Ecological site: GRAVELLY LOAM 8-12 ARTRW8/PSSPS (R012XY004ID)
Hydric soil rating: No

ZHF—Zeale-Meegero complex, 20 to 60 percent slopes

Map Unit Setting

National map unit symbol: 1qs78
Elevation: 6,210 to 8,180 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 34 to 42 degrees F
Frost-free period: 30 to 60 days
Farmland classification: Not prime farmland

Map Unit Composition

Zeale and similar soils: 55 percent
Meegero and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zeale

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from limestone

Typical profile

Ak1 - 0 to 3 inches: gravelly loam
Ak2 - 3 to 9 inches: gravelly loam
Bk1 - 9 to 13 inches: very gravelly loam
Bk2 - 13 to 24 inches: very gravelly loam
Bk3 - 24 to 39 inches: extremely cobbly loam
Bk4 - 39 to 59 inches: extremely cobbly loam

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.71 to 3.54 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 80 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: GRAVELLY LOAM 12-16 ARAR8/PSSP6-FEID (R012XY002ID)
Hydric soil rating: No

Description of Meegero

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from limestone and/or calcareous shale

Typical profile

A - 0 to 10 inches: loam
Bk1 - 10 to 19 inches: gravelly loam
Bk2 - 19 to 29 inches: very gravelly loam
Bk3 - 29 to 50 inches: extremely cobbly loam
Bk4 - 50 to 59 inches: extremely cobbly loam

Properties and qualities

Slope: 20 to 60 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.71 to 3.54 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: LOAMY 16-22 ARTRV/FEID (R012XY021ID)
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

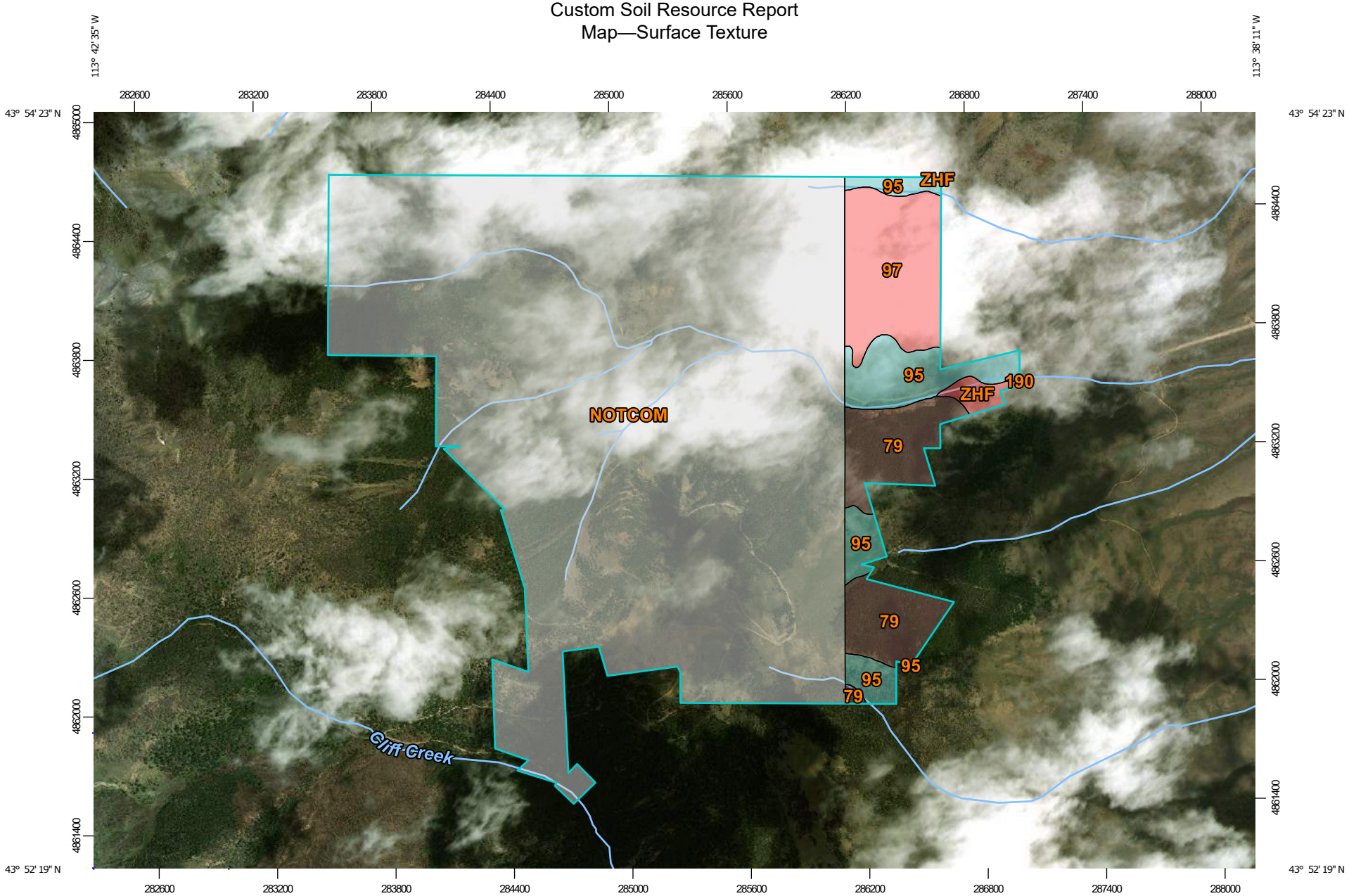
Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Surface Texture

This displays the representative texture class and modifier of the surface horizon.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."


113° 42' 35" W
113° 38' 11" W
43° 54' 23" N
43° 52' 19" N
282600
283200
283800
284400
285000
285600
286200
286800
287400
288000
4865000
4864400
4863800
4863200
4862600
4862000
4861400
95
ZHF
97
95
190
ZHF
NOTCOM
79
95
79
95
95
79
Cliff Creek
Map Scale: 1:26,900 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
350
700
1400
2100
Feet
0
1000
2000
4000
6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Gravelly loam
- Slightly decomposed plant material
- Stony loam
- Not rated or not available

Soil Rating Lines

- Gravelly loam
- Slightly decomposed plant material
- Stony loam
- Not rated or not available

Soil Rating Points

- Gravelly loam
- Slightly decomposed plant material
- Stony loam
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Challis National Forest, Eastern Part, Idaho
Survey Area Data: Version 2, Dec 9, 2013

Soil Survey Area: Custer-Lemhi Area, Idaho, Parts of Blaine, Custer, and Lemhi Counties
Survey Area Data: Version 24, Sep 18, 2018

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2014—Oct 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Surface Texture

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available		1,385.5	83.0%
Subtotals for Soil Survey Area			**1,385.5**	**83.0%**
Totals for Area of Interest			**1,669.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
79	Gany gravelly loam, 30 to 60 percent slopes	Slightly decomposed plant material	96.9	5.8%
95	Ike-Rock outcrop-Jimbee complex, 15 to 60 percent slopes	Stony loam	81.9	4.9%
97	Jimbee-Rock outcrop-Ike association, 30 to 75 percent slopes	Gravelly loam	94.7	5.7%
190	Simeroi gravelly loam, 6 to 15 percent slopes	Gravelly loam	0.0	0.0%
ZHF	Zeale-Meegero complex, 20 to 60 percent slopes	Gravelly loam	10.2	0.6%
Subtotals for Soil Survey Area			**283.8**	**17.0%**
Totals for Area of Interest			**1,669.2**	**100.0%**

Rating Options—Surface Texture

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Ecological Site Assessment

Individual soil map unit components can be correlated to a particular ecological site. The Ecological Site Assessment section includes ecological site descriptions, plant growth curves, state and transition models, and selected National Plants database information.

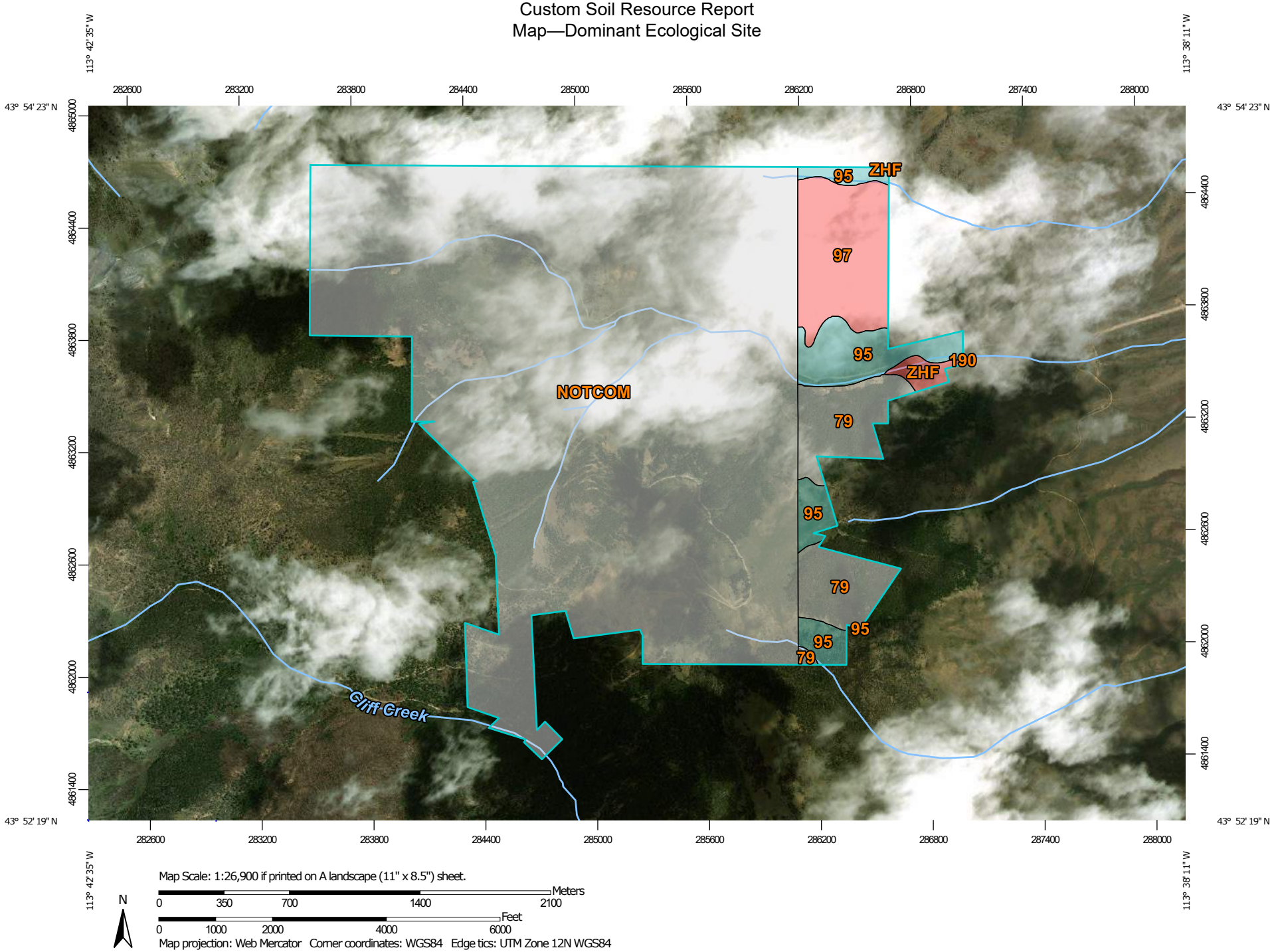
All Ecological Sites — Rangeland

An "ecological site" is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. For example, the hydrology of the site is influenced by development of the soil and plant community. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

An ecological site name provides a general description of a particular ecological site. For example, "Loamy Upland" is the name of a rangeland ecological site. An "ecological site ID" is the symbol assigned to a particular ecological site.

The map identifies the dominant ecological site for each map unit, aggregated by dominant condition. Other ecological sites may occur within each map unit. Each map unit typically consists of one or more components (soils and/or miscellaneous areas). Each soil component is associated with an ecological site. Miscellaneous areas, such as rock outcrop, sand dunes, and badlands, have little or no soil material and support little or no vegetation and therefore are not linked to an ecological site. The table below the map lists all of the ecological sites for each map unit component in your area of interest.

Map—Dominant Ecological Site



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

R012XY001ID

R012XY002ID

R012XY004ID

Not rated or not available

Soil Rating Lines

R012XY001ID

R012XY002ID

R012XY004ID

Not rated or not available

Soil Rating Points

R012XY001ID

R012XY002ID

R012XY004ID

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Challis National Forest, Eastern Part, Idaho
Survey Area Data: Version 2, Dec 9, 2013

Soil Survey Area: Custer-Lemhi Area, Idaho, Parts of Blaine, Custer, and Lemhi Counties
Survey Area Data: Version 24, Sep 18, 2018

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2014—Oct 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Ecological Sites by Map Unit Component

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	NOTCOM (100%)		1,385.5	83.0%
Subtotals for Soil Survey Area				**1,385.5**	**83.0%**
Totals for Area of Interest				**1,669.2**	**100.0%**

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
79	Gany gravelly loam, 30 to 60 percent slopes	Gany (80%)		96.9	5.8%
95	Ike-Rock outcrop-Jimbee complex, 15 to 60 percent slopes	Ike, very stony surface (45%)	R012XY001ID — LIMEY GRAVELLY 8-13 ARNO4/PSSPS	81.9	4.9%
		Rock outcrop (20%)			
		Jimbee (15%)	R012XY002ID — GRAVELLY LOAM 12-16 ARAR8/ PSSP6-FEID		
97	Jimbee-Rock outcrop-Ike association, 30 to 75 percent slopes	Jimbee (45%)	R012XY002ID — GRAVELLY LOAM 12-16 ARAR8/ PSSP6-FEID	94.7	5.7%
		Rock outcrop (20%)			
		Ike, very stony surface (15%)	R012XY001ID — LIMEY GRAVELLY 8-13 ARNO4/PSSPS		
190	Simeroi gravelly loam, 6 to 15 percent slopes	Simeroi (95%)	R012XY004ID — GRAVELLY LOAM 8-12 ARTRW8/ PSSPS	0.0	0.0%
ZHF	Zeale-Meegero complex, 20 to 60 percent slopes	Zeale (55%)	R012XY002ID — GRAVELLY LOAM 12-16 ARAR8/ PSSP6-FEID	10.2	0.6%
		Meegero (30%)	R012XY021ID — LOAMY 16-22 ARTRV/FEID		
Subtotals for Soil Survey Area				**283.8**	**17.0%**
Totals for Area of Interest				**1,669.2**	**100.0%**

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Appendix B.

Special Status Species Lists

INTERMOUNTAIN REGION (R4) THREATENED, ENDANGERED, PROPOSED, AND, SENSITIVE SPECIES

June 2016

KNOWN / SUSPECTED DISTRIBUTION BY FOREST

STATUS	FOREST															
ENDANGERED	**ASH**	**BOI**	**B-T**	**CAR**	**CHA**	**DIX**	**FIS**	**HUM**	**M-L**	**PAY**	**SAL**	**SAW**	**TAR**	**TOI**	**UIN**	**W-C**
MAMMALS																
Black-footed ferret 3/11/67 *Mustela nigripes*			o													o
Sierra Nevada bighorn sheep *Ovis canadensis* sierra January 3, 2000														X		
BIRDS																
Southwestern willow flycatcher 2/27/95 *Empidonax traillii extimus* ED 3/29/95									X					?		
Whooping crane 3/11/67 *Grus americana*			X										?			
REPTILES AND AMPHIBIANS																
Sierra Nevada Yellow-legged Frog 06/30/2014 *Rana sierrae*														X		
INSECTS																
Mt. Charleston Blue Butterfly 10/21/2013 *Icaricia shasta charlestonensis*														X		
FISH																
June sucker 3/31/86 *Chasmistes liorus*															o	o
Bonytail chub 4/23/80 *Gila elegans*	o		o			o	o		o						o	o
Humpback chub 3/11/67 *Gila cypha*	o		o			o	o		o						o	o
Colorado pike minnow 3/11/67 *Ptychocheilus lucius*	o		o			o	o		o						o	o
Kendall Warm Springs dace 10/13/70 *Rhinichthys osculus*			X													

ENDANGERED	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Sockeye salmon, (Snake River0 11/20/91 *Oncorhynchus nerka* (CH 12/28/98)					+					+	+	X				
Razorback sucker 10/23/91 *Xyrauchen texanus* (ED 11/22/91)	o		o			o	o		o						o	o
Sturgeon, pallid *Scaphirhynchus albus*			o													
PLANTS																
San Rafael cactus *Pediocactus despainii*							X									
Clay phacelia 09/28/78 *Phacelia argillacea*									?						X	
THREATENED	**ASH**	**BOI**	**B-T**	**CAR**	**CHA**	**DIX**	**FIS**	**HUM**	**M-L**	**PAY**	**SAL**	**SAW**	**TAR**	**TOI**	**UIN**	**W-C**
MAMMALS																
Canada lynx 4/15/00 *Lynx canadensis*	X	X	X							X		X	X		?	?
Grizzly bear 9/21/2009 *Ursus arctos horribilis*			X										X			
Gray wolf (Wyoming Rocky Mountain DPS 10J Experimental Population) *Canis lupus*			X	X									X			X
Utah prairie dog 6/04/73 *Cynomys parvidens*						X	X									
Northern Idaho ground squirrel 3/24/00 *Spermophilus brunneus*		X								X						
BIRDS																
Mexican spotted owl 3/16/93 *Strix occidentalis lucida (ED 4/15/93)*						X	X		X							
Yellow-billed cuckoo 11/03/2014 *Coccyzus americanus*	X	X	X		?	?	?	X	X	X	?	X	X	X	X	X
REPTILES AND AMPHIBIANS																
Desert tortoise 8/04/89 *Gopherus agassizii*														X		
Yosemite toad 6/30/2014 *Anaxyrus canorus*														X		
FISH																
Steelhead trout (Snake River summer) *Oncorhynchus mykiss*		X			X					X	X	X				

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

THREATENED	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Chinook salmon, Snake River sprg/smr *Oncorhynchus tshawytscha 4/22/92* (ED 5/22/92)		X			X					X	X	X				
Chinook salmon, Snake River fall *Oncorhynchus tshawytscha 4/22/92* (ED 5/22/92)										X						
Greenback cutthroat trout *Oncorhynchus clarki stomiua*									X							
Railroad Valley springfish 3/31/86 *Crenichthys nevadae*														X		
Lahontan cutthroat trout 10/13/70 *Oncorhynchus clarki henshawi*								X						X		
Columbia River bull trout 6/10/98 *Salvelinus confluentus*		X			X			X		X	X	X				
Paiute cutthroat trout 3/11/67 *Oncorhynchus clarki seleniris*														X		
PLANTS																
Deseret milkvetch 10/20/99 *Astragalus desereticus*									?						?	
Heliotrope milkvetch 11/6/87 *Astragalus limnocharis var.montii (A. montii)*									X							
Slick-spot peppergrass 10/08/09 *Lepidium papilliferum*		?														
Winkler cactus *Pediocactus winkleri*									?							
Maguire's primrose 8/21/85 *Primula cusickiana var. maguirei (P. maguirei)*																X
Last chance townsendia 8/21/85 *Townsendia aprica*						X	X									
Ute ladies' tresses orchid 1/17/92 *Spiranthes diluvialis* (2/18/92)		?		?	?		?				?	?	X		X	?
Webber ivesia 7/3/2014 *Ivesia webberi*														X		
PROPOSED	**ASH**	**BOI**	**B-T**	**CAR**	**CHA**	**DIX**	**FIS**	**HUM**	**M-L**	**PAY**	**SAL**	**SAW**	**TAR**	**TOI**	**UIN**	**W-C**
North American wolverine Gulo gulo (luscus)	X	X	X	X	X					X	X	X	X	X		X

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CANDIDATE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Sierra Nevada red fox *Vulpes vulpes necator*														X		
Whitebark Pine *Pinus albicaulis*		X	X		X			X		X	X	X	X	X		

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
MAMMALS																
Bighorn Sheep *Ovis canadensis* - Includes Rocky Mountain bighorn sheep (*O. c. canadensis*), California bighorn sheep (*O. c. californiana*), and desert bighorn sheep (*O. c. nelsoni*) (7/29/2009)	X	X	X		X		X	X	X	X	X	X	X	X	X	X
Gray wolf (Rocky Mountain DPS) *Canis lupus*		X		X	X					X	X	X	X			X
Pygmy rabbit *Brachylagus idahoensis*				X	X	X	X	X			X	X	X	X		
Spotted bat *Euderma maculatum*	X	X	X	X	X	X	X	X	X	X	X	X	?	X	X	X
Fisher *Martes pennanti*		X	X		X					X	X	X	?		X	
Southern Idaho Ground Squirrel *Spermophilus brunneus endemicus*		X								X						
Townsend's Western Big-Eared Bat *Corynorhinus townsendii townsendii*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BIRDS																
Bald eagle *Haliaeetus leucocephalus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Boreal owl *Aegolius funereus*	X	X	X	X	X					X	X	X	X			X
Greater sage-grouse *Centrocercus urophasianus*	X	X	X	X	X	X	X	X	X	?	X	X	X	X	X	X
Greater sage-grouse Bi-State DPS *Centrocercus urophasianus*														X		
Trumpeter swan *Cygnus buccinator*			X	X									X			
Peregrine falcon 3/20/84 *Falco peregrinus anatum*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Common loon *Gavia immer*		X	X		+					?	+	X	X			
Harlequin duck *Histrionicus histrionicus*			X	X	?+					X	?+		X			
Mountain quail *Oreortyx pictus*		X						X		X		X		X		
Flammulated owl *Otus flammeolus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
White-headed woodpecker *Picoides albolarvatus*		X								X		X		X		
Three-toed woodpecker *Picoides tridactylus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Great gray owl *Strix nebulosa*	X	X	X	X	X					X	X	X	X	X		X
California spotted owl *Strix occidentalis occidentalis*														X		
Columbian sharp-tailed grouse *Tympanuchus phasianellus columbianus*		X		X				X		X		X	X			X
Northern goshawk *Accipiter gentilis*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
REPTILES AND AMPHIBIANS																
Columbia spotted frog *Rana luteiventris*	?	X	X	X	X			X	X	X	X	X	X	X	X	X
Boreal Toad *Bufo boreas*	X		X	X		X	X		X				X		X	X
FISH																
Wood River sculpin *Cottus leiopomus*												X				
Westslope cutthroat trout *Oncorhynchus clarki lewisi*		X	X		X					X	X	X				
Colorado River cutthroat trout *Oncorhynchus clarki pleuriticus*	X		X			X	X		X						X	X
Bonneville cutthroat trout *Oncorhynchus clarki utah*			X	X		X	X	X	X						X	X
Yellowstone cutthroat trout *Oncorhynchus clarki bouvieri*			X	X								X	X			
Northern Leatherside Chub *Lepidomeda copei*			X	X								X	X			X
Southern Leatherside Chub *Lepidomeda aliciae*						X	X		X						X	
Big Lost River Whitefish *Prosopium williamsoni*					X											
INSECTS																
Spring Mountain Checkerspot *Chlosyne acastus robusta*														X		
Dark Blue														X		

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Euphilotes ancilla purpura																
Morand's Checkerspot *Euphydryas anicia morandi*														X		
PLANTS																
Pink agoseris *Agoseris lackschewitzii*			X								X		X			
Wonderland Alice flower Aliciella (=*Gilia) caespitosa*						X	X									
Chatterley Onion *Allium geyeri var. chatterleyi*									X							
Swamp onion *Allium madidum*										X						
Tolmie's onion *Allium tolmiei* var. *persimile*		X								X						
Candystick *Allotropa virgata*										X						
Sweet-flowered rock jasmine *Androsace chamaejasme ssp. carinata*			X						X				X			
Charleston angelica *Angelica scabrida*														X		
Wheeler's angelica *Angelica wheeleri*															X	X
Meadow pussytoes *Antennaria arcuata*								X								
Charleston pussytoes *Antennaria soliceps*														X		
Link Trail columbine *Aquilegia flavescens var. rubicunda*									X							
Graham columbine *Aquilegia grahamii*	X															
Rosy King's sandwort *Arenaria kingii* ssp. *rosea*														X		
Petiolate wormwood *Artemisia campestris ssp. borealis var. petiolata*	X															
Eastwood milkweed *Asclepias eastwoodiana*								X						X		
Clokey milkvetch *Astragalus aequalis*														X		

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Lost River milkvetch *Astragalus amnis-amissi*					X											
Goose Creek milkvetch *Astragalus anserinus*												?				
Lemhi milkvetch *Astragalus aquilonius*					X							?				
Bicknell milkvetch *Astragalus consobrinus*							X		?							
Meadow milkvetch *Astragalus diversifolius var. diversifolius*			X		X								X			
Dana milkvetch *Astragalus henrimontanensis*						X										
Isely's milkvetch *Astragalus iselyi*									X							
Starvling milkvetch *Astragalus jejunus var. jejunus*			X	X												
Long Valley milkvetch *Astragalus johannis-howellii*														X		
Broad-pod freckled milkvetch *Astragalus lentiginosus var. latus*								X								
Navajo Lake milkvetch *Astragalus limnocharis* var. *limnocharis*						X										
Table Cliff milkvetch *Astragalus limnocharis* var. *tabulaeus*						X										
Lee Canyon milkvetch *Astragalus oophorus* var. *clokeyanus*														X		
Lavin's egg milkvetch *Astragalus oophorus* var. *lavinii*														X		
Payson's milkvetch *Astragalus paysonii*			X							X			?			
Spring Mountain milkvetch *Astragalus remotus*														X		
Lamoille Canyon milkvetch *Astragalus robbinsii* var. *occidentalis*								X								
Toquima milkvetch *Astragalus toquimanus*														X		
Currant milkvetch *Astragalus uncialis*								X								

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White Cloud milkvetch *Astragalus vexilliflexus* var. *nubilus*					X					X		X				
Guard milkvetch *Astragalus zionis var. vigulus*						X										
Bodie Hills rockcress Boechera (=*Arabis) bodiensis*														X		
Grouse Creek rockcress Boechera (=*Arabis) falcatoria*								X								
Spring Mountains rockcress Boechera (=*Arabis) nevadensis*														X		
Washoe tall rockcress Boechera (=*Arabis) rectissima* var. *simulans*														X		
Galena Creek rockcress Boechera (=*Arabis) rigidissima* var. *demota*														X		
Ophir rockcress Boechera (=*Arabis) ophira*														X		
Tiehm rockcress Boechera (=*Arabis) tiehmii*														X		
Upswept moonwort *Botrychium ascendens*														X		
Dainty moonwort *Botrychium crenulatum*	X												X	X	X	
Slender moonwort *Botrychium lineare*	X							?		?		X		X	?	X
Paradox moonwort *Botrychium paradoxum*						X										
Little grape fern *Botrychium simplex*												X				
Moosewort *Botrychium tunux*														X		
Beautiful Bryum *Bryum calobryoides*		X										X				
Cascade reedgrass *Calamagrostis tweedyi*										X						
Cusick camas *Camassia cusickii*										X						
Seaside sedge *Carex incurviformis*			X		X											

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Black and purple sedge *Carex luzulina var. atropurpurea*			X													
Tioga Pass sedge *Carex tiogana*														X		
Aquarius paintbrush *Castilleja aquariensis*						X										
Christ's Indian paintbrush *Castilleja christii*												X				
Tushar paintbrush *Castilleja parvula* var. *parvula*						X	X									
Reveal paintbrush *Castilleja parvula* var. *revealii*						X										
Centennial rabbitbrush *Chrysothamnus parryi* ssp. *montanus*													X			
Flexible alpine collomia *Collomia debilis var. camporum*											X					
Wasatch fitweed *Corydalis caseana spp. brachycarpa*															X	X
Creutzfeldt-flower cryptanth *Cryptantha creutzfeldtii*									X							
Yellow-white catseye *Cryptantha ochroleuca*						X										
Bodie Hills draba *Cusickiella quadricostata*														X		
Pinnate spring-parsley *Cymopterus beckii*						X			X							
Davis' wavewing *Cymopterus davisii*												X				
Douglas' biscuitroot *Cymopterus douglassii*					X						X	X				
Goodrich biscuitroot *Cymopterus goodrichii*														X		
Cedar Breaks biscuitroot *Cymopterus minimus*						X										
Brownie ladyslipper *Cypripedium fasciculatum*	X															X
Lesser yellow Lady's slipper *Cypripedium parviflorum (Cypripedium calceolus*																X

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var. parviflorum)																
Wyoming tansymustard *Descurainia torulosa*			X													
Wasatch shooting star *Dodecatheon utahense*																X
Idaho douglasia *Douglasia idahoensis*		X								?		?				
Abajo peak draba *Draba abajoensis*									X							
Arid draba *Draba arida*														X		
Star draba *Draba asterophora* var. *asterophora*														X		
Wasatch Draba *Draba brachystylis*														X	?	X
Burke's draba *Draba burkei*																X
Rockcress draba *Draba globosa (=D. densifolia var. apiculata)*	X		X		X							X			X	X
Jaeger draba *Draba jaegeri*														X		
Maguire draba *Draba maguirei*																X
Serpentine draba *Draba oreibata* var. *serpentina*								?						X		
Charleston draba *Draba paucifructa*														X		
Pennell draba *Draba pennellii*								X								
Mt. Belknap draba *Draba ramulosa*							X									
Santaquin draba *Draba santaquinensis*															X	
Creeping draba *Draba sobolifera*						X	X									
Stanley's whitlow-grass *Draba trichocarpa*					X							X				
Nevada willowherb							X							X		

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Epilobium nevadense																
Spring Mountain goldenweed *Ericameria compacta (=Haplopappus compactus)*														X		
Pine Valley goldenweed *Ericameria crispa (=Haplopappus crispus)*						X										
Narrow-leaf goldenweed *Ericameria discoidea var. linearis (=Haplopappus macronema var.linearis)*			X													
Abajo daisy *Erigeron abajoensis*									X							
Carrington daisy *Erigeron carringtonae*									X							
Snake Mountain erigeron *Erigeron cavernensis*								X								
Cronquist daisy *Erigeron cronquistii*																X
Garrett's fleabane *Erigeron garrettii*															X	X
Kachina daisy *Erigeron kachinensis*									X							
Woolly daisy *Erigeron lanatus*			X													
Maguire daisy *Erigeron maguirei*							X									
LaSal daisy *Erigeron mancus*									X							
Untermann daisy *Erigeron untermannii*	X															
Widtsoe buckwheat *Eriogonum aretioides*						X										
Elsinore buckwheat *Eriogonum batemanii* var. *ostlundii*							X									
Desert buckwheat *Eriogonum brevicaule var. desertorum*												X				
Welsh buckwheat *Eriogonum capistratum var. welshii*					X											
Sunflower Flat buckwheat								X								

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Eriogonum douglasii var. elkoense																
Toiyabe buckwheat *Eriogonum esmeraldense var. toiyabense*														X		
Clokey buckwheat *Eriogonum heermannii var. clokeyi*														X		
Lewis's buckwheat *Eriogonum lewisii*								X								
Logan buckwheat *Eriogonum loganum (=E. brevicaule* var. *loganum)*																X
Guardian buckwheat *Eriogonum meledonum*					X							X				
Altered andesite buckwheat *Eriogonum robustum*														X		
Clokey greasebush *Glossopetalon clokeyi*														X		
Smooth dwarf greasebrush *Glossopetalon pungens var. glabra (=G.pungens)*														X		
Puzzling halimolobos *Halimolobos perplexa* var. *perplexa*										X						
Canyon sweetvetch *Hedysarum occidentale* var. *canone*									X							
Jones goldenaster *Heterotheca jonesii*						X										
Sierra Valley ivesia *Ivesia aperta* var. *aperta*														X		
Dog Valley ivesia *Ivesia aperta* var. *canina*														X		
Charleston ivesia *Ivesia cryptocaulis*														X		
Jaeger ivesia *Ivesia jaegeri*														X		
Plumas ivesia *Ivesia sericoleuca*														?		
Utah ivesia *Ivesia utahensis*															X	X
Wasatch jamesia															X	X

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SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Jamesia americana var. macrocalyx																
Zion jamesia *Jamesia americana var. zionis*						X										
Basin jamesia *Jamesia tetrapetala*								X								
Grimes lathyrus *Lathyrus grimesii*								X								
Wasatch pepperwort *Lepidium montanum* var. *alpinum*															?	X
Neeses' peppergrass *Lepedium montanum* var. *neeseae*						X										
Hazel's prickly phlox *Leptodactylon pungens* ssp. *hazeliae*										X						
Garrett bladderpod *Lesquerella garrettii*															X	X
Hitchcock bladderpod *Lesquerella hitchcockii var. hitchcockii*														X		
Payson bladderpod *Lesquerella paysonii*			X	X									X			
Maguire lewisia *Lewisia maguirei*								X								
Sacajawea's bitterroot *Lewisia sacajaweana*		X			X					X	X	?				
Canyonlands lomatium *Lomatium latilobum*									X							
Three-ranked hump-moss *Meesia triquetra*														X		
Goodrich stickleaf *Mentzelia goodrichii*	X															
Bank monkeyflower *Mimulus clivicola*										X						
Fish Lake naiad *Najas caespitosa*							X									
Idaho pennycress *Noccaea idahoensis var. aileeniae (=Thlaspi aileeniae)*					X							X				
Shevock rockmoss *Orthotrichum shevockii*														X		

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Spjut's brittle-moss *Orthotrichum spjutii*														X		
Challis crazyweed *Oxytropis besseyi* var. *salmonensis*					X											
Beaver Mountain groundsel *Packera (=Senecio) castoreus*							X									
Podunk groundsel *Packera (=Senecio) malmstenii*						X										
Arctic poppy *Papaver radicatum* var. *pygmaeum*	X															X
Naked-stemmed parrya *Parrya nudicaulis*			X													
Paria breadroot *Pediomelum pariense*						X										
Stemless beardtongue *Penstemon acaulis* var. *acaulis*	X															
Dune penstemon *Penstemon arenarius*														?		
Red Canyon beardtongue *Penstemon bracteatus*						X										
Cache beardtongue *Penstemon compactus*				X												X
Elegant penstemon *Penstemon concinnus*								?								
Idaho penstemon *Penstemon idahoensis*												X				
Charleston beardtongue *Penstemon leiophyllus* var. *keckii*														X		
Lemhi penstemon *Penstemon lemhiensis*											X					
Mt. Moriah penstemon *Penstemon moriahensis*								X								
Little penstemon *Penstemon parvus*						X	X									
Pinyon penstemon *Penstemon pinorum*						X										
Bashful penstemon *Penstemon pudicus*								X								

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Rhizome beardtongue *Penstemon rhizomatosus*								X								
Wassuk beardtongue *Penstemon rubicundus*														X		
Jaeger beardtongue *Penstemon thompsoniae ssp. jaegeri*														X		
Ward beardtongue *Penstemon wardii*							X									
Inconspicuous phacelia *Phacelia inconspicua*								?								
Small-flower phacelia *Phacelia minutissima*		X						X				?				
Mono phacelia *Phacelia monoensis*														X		
Salmon twin bladderpod *Physaria didymocarpa* var. *lyrata*											X		X			
Creeping twinpod *Physaria integrifolia v. monticola*			X													
Whitebark Pine *Pinus albicaulis*		X	X		X			X		X	X	X	X	X		
Altered andesite popcorn flower *Plagiobothrys glomeratus*														X		
Marsh's bluegrass *Poa abbreviata ssp. marshii*					*X*			*X*			*X*	*X*		*X*		
White Mountain skypilot *Polemonium chartaceum*														X		
Williams combleaf *Polyctenium williamsii*														X		
Angell cinquefoil *Potentilla angelliae*						X										
Cottam cinquefoil *Potentilla cottamii*												X				X
Sagebrush cinquefoil *Potentilla johnstonii*								X								
Alkali primrose *Primula alcalina*													X			
Ruby Mountain primrose *Primula capillaris*								X								

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Nevada primrose *Primula cusickiana var. nevadensis (=P. nevadensis)*								X								
Greenland primrose *Primula egaliksensis*			X													
Bugleg goldenweed Pyrrocoma (=*Haplopappus) insecticruris*		X										X				
Radiate goldenweed *Pyrrocoma radiata (=Haplopappus radiatus)*										X						
Bartons' blackberry *Rubus bartonianus*										X						
Arizona willow *Salix arizonica*						X	X		X							
Weber's saussurea *Saussurea weberi*			X													
Tobias' saxifrage *Saxifraga bryophora* var. *tobiasiae*										X						
Tolmie's saxifrage *Saxifraga tolmiei* var. *ledifolia*										X						
Musinea groundsel *Senecio musiniensis*									X							
Mono ragwort *Senecio pattersonensis*														X		
Clokey silene *Silene clokeyi*														X		
Nachlinger silene *Silene nachlingerae*								X								
Maguire campion *Silene petersonii*						X	?		X							
Railroad Valley globemallow *Sphaeralcea caespitosa var. williamsiae*								X								
Rock-tansy *Sphaeromeria capitata*						X										
Low sphaeromeria *Sphaeromeria compacta*														X		
Masonic Mountain jewelflower *Streptanthus oliganthus*														X		
Soft aster			X													

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

SENSITIVE	ASH	BOI	B-T	CAR	CHA	DIX	FIS	HUM	M-L	PAY	SAL	SAW	TAR	TOI	UIN	W-C
Symphyotrichum molle (=Aster mollis)																
Charleston kittentails *Synthyris ranunculina*														X		
Caespitose greenthread *Thelesperma caespitosum*	X															
Uinta green thread *Thelesperma pubescens*																X
Bicknell thelesperma *Thelesperma subnudum* var. *alpinum*						X	X									
Wavy-leaf thelypody *Thelypodium repandum*					X											
Alpine goldenweed *Tonestus (=Haplopappus) alpinus*														X		
Barneby woody aster *Tonestus (=Aster) kingii* var. *barnebyana*							X								X	
Sevier townsendia *Townsendia jonesii* var. *lutea*							X									
Charleston ground daisy *Townsendia jonesii* var. *tumulosa*														X		
Short-slyle tofieldia *Triantha occidentalis ssp. brevistyla*										X						
Currant Summit clover Trifolium *andinum var. podocephalum*								X								
Leiberg's clover *Trifolium leibergii*								X								
Rollins clover *Trifolium macilentum var. rollinsii*														X		
Charleston violet *Viola charlestonensis*														X		
Smith violet *Viola franksmithii*																X
Lithion violet *Viola lithion*								X								
Idaho range lichen *Xanthoparmelia idahoensis*											X					

x=known species/habitat; ?=suspected/potential habitatt; *=wild/naturally reproducing; +=migration; o=offsite; r= reintroduced populations; ED=Effective dates

ASH - Ashley	CHA - Challis	M-L - Manti-LaSal	TAR - Targhee
BOI - Boise	DIX - Dixie	PAY - Payette	TOI - Toiyabe
B-T - Bridger-Teton	FIS - Fishlake	SAL - Salmon	UIN - Uinta
CAR - Caribou	HUM - Humboldt	SAW - Sawtooth	W-C - Wasatch-Cache

KEY:	***This list was compiled from the following sources:***
X = known distribution species and/or habitat ? = suspected or potential habitat * = wild and naturally reproducing stocks + = migration corridors only o = offsite impacts (e.g. downstream) r = reintroduced Central Idaho & Yellowstone populations, covered under ESA Section 10(j), and declared experimental non-essential populations, and thus are treated like "proposed" species ## = no longer meet "sensitive"criteria (personal communication with Forest botanists and Dr. Duane Atwood), but no official list revision yet Dates are dates the Final Rule was published in the *Federal Register;* ED = Effective dates are about 30 days later if not listed.	*R-4 Vertebrate Sensitive Species List* (August 13, 1990) *R-4 Sensitive Plant List* (April 29, 1994) *Endangered and Threatened Wildlife and Plants,* USDA-U.S. Fish & Wildlife Service (August 20, 1994) *Northern Goshawk - Listed as a Sensitive Species in R4* (October 31, 1991) *Miscellaneous Federal Registers*

BLM – IDAHO SPECIAL STATUS ANIMAL SPECIES: 2014 CHANGE 1

Type 1 – Includes species listed under the Endangered Species Act (ESA) as Endangered (E) or Threatened (T), Experimental Essential (XE) populations, and designated Critical Habitat (CH).

Note: Periodically confirm E, T, XE and CH status on the U.S. Fish and Wildlife Service (FWS) and NOAA Fisheries websites below. Critical Habitat (CH) is noted in this table as a reminder for consideration during planning and implementation efforts.

FWS Idaho Fish and Wildlife Office: http://www.fws.gov/idaho/agencies.htm
Additional, more detailed information relative to FWS can be found at:
http://ecos.fws.gov/tess_public/pub/stateOccurrenceIndividual.jsp?state=ID

NOAA Fisheries:
http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/salmon_and_steelhead_listings.html.

Species Name	ESA Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Amphibian															
No Species Identified															
Birds															
Yellow-billed Cuckoo (*Coccyzus americanus*) Note: Designation of CH pending	T, PCH	X		X				X		X	X	X		X	X
Fish															
Bull Trout (*Salvelinus confluentus)*	T, CH		X	X		X	X	X		X	X			X	
Chinook Salmon *(Oncorhynchus tshawytscha)* – Snake River spring/summer runs	T, CH						X	X		X					
Chinook Salmon *(Oncorhynchus tshawytscha)* – Snake River fall run	T, CH						X								
Sockeye Salmon (*Oncorhynchus nerka)*	E, CH						X	X		X					
Steelhead *(Oncorhynchus mykiss)*	T, CH						X	X		X					
White Sturgeon *(Acipenser transmontanus)* – Kootenai River	E, CH					X									

Species Name	ESA Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Invertebrates															
Banbury Springs Lanx (*Lanx* sp.)	E														X
Bliss Rapids Snail *(Taylorconcha serpenticola)*	T		X	X								X		X	X
Bruneau Hot Springsnail *(Pyrgulopsis bruneauensis)*	E		X											X	
Snake River Physa *(Haitia [Physa] natricina)*	E	X	X	X	X							X		X	X
Mammals															
Canada Lynx *(Lynx canadensis)*	T, CH					X	X	X		X					X
Grizzly Bear *(Ursus arctos)*	T					X					X				
Northern Idaho Ground Squirrel *(Urocitellus brunneus)* *[formerly Spermophilus brunneus brunneus]*	T			X			X								
Woodland Caribou (*Rangifer tarandus caribou*)	E, CH					X									
Reptiles															
No Species Identified															

Type 2 – Idaho BLM Sensitive Species: Includes State Director designated species as well as FWS Candidate Species (C), FWS Proposed species (P), FWS Experimental Nonessential Populations (XN), and species delisted from ESA Threatened or Endangered status within the past 5-years (D).

Note: Periodically review current C, D, P, XN, and proposed critical habitat status on the U.S. Fish and Wildlife Service (FWS) and NOAA Fisheries websites below.

FWS Idaho Fish and Wildlife Office: http://www.fws.gov/idaho/agencies.htm
Additional, more detailed information relative to FWS can be found at:
http://ecos.fws.gov/tess_public/pub/stateOccurrenceIndividual.jsp?state=ID

NOAA Fisheries:
http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/salmon_and_steelhead_listings.html.

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Amphibians															
Western/Boreal Toad (Western *(Anaxyrus boreas)* and Eastern *(Anaxyrus boreas boreas)* sub-groups		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Coeur d'Alene Salamander *(Plethodon idahoensis)*						X	X								
Columbia Spotted Frog *(Rana luteiventris)* – Great Basin Population	C		X		X									X	
Idaho Giant Salamander *(Dicamptodon aterrimus)*				X		X	X								
Northern Leopard Frog *(Lithobates pipiens)*		X	X	X	X	X	X		X		X	X	X	X	X
Woodhouse's Toad *(Anaxyrus woodhousii)*		X	X	X	X		X								

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Birds															
Bald Eagle *(Haliaeetus leucocephalus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black Swift *(Cypseloides niger)*						X	X								
Black Tern *(Chlidonias niger)*			X	X	X	X	X		X		X	X	X	X	X
Black-throated Sparrow *(Amphispiza bilineata)*		X	X	X	X				X		X	X	X	X	X
Brewer's Sparrow *(Spizella breweri)*		X	X	X	X		X	X	X	X	X	X	X	X	X
Burrowing Owl *(Athene cunicularia)*		X	X	X	X			X	X	X	X	X	X	X	X
Cassin's Finch *(Carpodacus cassinii)*				X	X	X	X		X	X	X	X			X
Columbian Sharp-tailed Grouse *(Tympanuchus phasianellus columbianus)*				X					X		X	X	X	X	X
Ferruginous Hawk *(Buteo regalis)*		X	X	X	X			X	X	X	X	X	X	X	X
Flammulated Owl *(Otus flammeolus)*				X	X	X	X	X	X	X	X	X			X
Golden Eagle *(Aquila chrysaetos)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Grasshopper Sparrow *(Ammodramus savannarum)*		X	X	X	X		X		X		X	X	X	X	X
Greater Sage-grouse *(Centrocercus urophasianus)*	C	X	X	X	X			X	X	X	X	X	X	X	X

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Green-tailed Towhee *(Pipilo chlorurus)*		X	X	X	X		X	X	X	X	X	X	X	X	X
Harlequin Duck *(Histrionicus histrionicus)*				X		X	X			X	X				
Lewis' Woodpecker *(Melanerpes lewis)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Loggerhead Shrike *(Lanius ludovicianus)*		X	X	X	X			X	X	X	X	X	X	X	X
Long-billed Curlew *(Numenius americanus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mountain Quail *(Oreortyx pictus)*				X			X								X
Northern Goshawk *(Accipiter gentilis)*		X	X	X	X	X	X	X	X	X	X	X		X	X
Olive-sided Flycatcher *(Contopus cooperi)*		X	X	X	X	X	X	X	X	X	X	X		X	X
Pinyon Jay *(Gymnorhinus cyanocephalus)*									X		X	X			
Sage Sparrow *(Amphispiza belli)*		X	X	X	X			X	X	X	X	X	X	X	X
Sage Thrasher *(Oreoscoptes montanus)*		X	X	X	X			X	X	X	X	X	X	X	X
Short-eared Owl *(Asio flammeus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Trumpeter Swan *(Cygnus buccinator)*			X		X			X	X		X			X	X
Vaux's Swift *(Chaetura vauxi)*						X	X								
Virginia's Warbler *(Vermivora virginiae)*									X		X	X		X	

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
White-headed Woodpecker *(Picoides albolarvatus)*				X	X	X	X								X
Willow Flycatcher *(Empidonax traillii)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fish															
Bear Lake Sculpin *(Cottus extensus)*									X						
Bonneville Cisco *(Prosopium gemmifer)*									X						
Bonneville Cutthroat Trout *(Oncorhynchus clarki utah)*									X						
Bonneville Whitefish *(Prosopium spilonotus)*									X						
Burbot *(Lota lota)*						X									
Cedar sculpin *(Cottus schitsuumsh)*						X									
Chinook Salmon *(Oncorhynchus tshawytscha)* – Clearwater River Basin spring/ summer runs							X								
Coho Salmon (*Oncorhynchus kisutch*) – Lower Snake River and Lower Clearwater River subbasins.							X								
Northern Leatherside Chub *(Lepidomeda copei)*									X			X			X

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Pacific Lamprey *(Lampetra tridentata)*							X	X		X					
Redband Trout *(Oncorhynchus mykiss gairdneri)*			X	X	X	X	X	X		X		X		X	X
Shoshone Sculpin *(Cottus greenei)*														X	X
Westslope Cutthroat Trout *(Oncorhynchus clarki lewisi)*						X	X	X		X					
White Sturgeon *(Acipenser transmontanus)* - Snake River population above Hells Canyon Complex only		X	X	X	X							X		X	X
Wood River Sculpin *(Cottus leiopomus)*															X
Yellowstone Cutthroat Trout *(Oncorhynchus clarki bouvieri)*									X		X	X			
Invertebrates															
Ashy (Columbia) Pebblesnail *(Fluminicola fuscus*)		X		X	X		X					X		X	X
Blind Cave Leiodid Beetle *(Glacicavicola bathyscioides)*											X		X		X
Boulder Pile Mountainsnail *(Oreohelix jugalis)*							X								
Bruneau Dunes Tiger Beetle *(Cicindela waynei)*		X												X	

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
California Floater *(Anodonta californiensis)*		X	X	X	X	X	X		X		X	X		X	X
Columbia River Tiger Beetle *(Cicindela columbica)*							X								
Idaho Banded Mountainsnail *(Oreohelix idahoensis idahoensis)*							X								
Idaho Point-headed Grasshopper *(Acrolophitus pulchellus)*								X			X				
Lava Rock Mountainsnail *(Oreohelix waltoni)*							X								
Marbled Disc *(Discus marmorensis)*							X								
Shortface Lanx *(Fisherola nuttalli)*		X					X					X		X	X
St. Anthony Sand Dunes Tiger Beetle *(Cicindela arenicola)*											X	X	X		X
Striate Mountainsnail *(Oreohelix strigosa goniogyra)*						X	X					X			
Whorled Mountainsnail *(Oreohelix vortex)*							X								

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Mammals															
Big Brown Bat *(Eptesicus fuscus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bighorn Sheep *(Ovis canadensis spp.)*		X	X	X	X		X	X		X	X	X	X	X	X
California Myotis *(Myotis californicas)*					X		X			X					
Canyon Bat *(Parastrellus hesperus)* – formerly Western Pipistrell		X	X	X	X		X					X	X	X	X
Coast Mole *(Scapanus orarius schefferi)*				X			X								
Dark Kangaroo Mouse *(Microdipodops megacephalus)*					X										
Fisher *(Martes pennanti)*				X		X	X	X		X	X				X
Fringed Myotis *(Myotis thysanodes)*			X	X	X		X								
Gray Wolf *(Canis lupus)*	D			X		X	X	X	X	X	X		X		X
Hoary Bat (*Lasiurus cinereus*)				X	X	X	X	X	X	X	X	X		X	X
Kit Fox *(Vulpes macrotis)*		X	X		X							X	X	X	X
Little Brown Bat *(Myotis lucifugus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Long-eared Myotis *(Myotis evotis)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Long-legged Myotis *(Myotis volans)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Merriam's Ground Squirrel *(Urocitellus canus) [formerly Spermophilus canus vigilis]*					X										
Pallid Bat *(Antrozous pallidus)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Piute Ground Squirrel *(Urocitellus mollis) [formerly Spermophilus mollis artemisae]*		X	X	X	X			X	X	X	X	X	X	X	X
Pygmy Rabbit *(Brachylagus idahoensis)*		X	X	X	X			X	X	X	X	X	X	X	X
Silver-haired Bat *(Lasionycteris noctivagans)*		X	X	X	X	X	X	X	X	X	X	X		X	X
Southern Idaho Ground Squirrel *(Urocitellus endemicus) [formerly Spermophilus brunneus endemicus]*	C			X											
Spotted Bat *(Euderma maculatum)*			X	X	X					X		X		X	X
Townsend's Big-eared Bat *(Corynorhinus townsendii)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Western Small-footed Myotis *(Myotis ciliolabrum)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wolverine *(Gulo gulo luscus)*				X		X	X	X	X	X	X				X

Species Name	FWS Status	Boise District				Coeur d' Alene District		Idaho Fall District				Twin Falls District			
		BP	BR	FR	OW	CA	CO	CH	PO	SA	US	BU	CM	JA	SH
Yuma Myotis *(Myotis yumanensis)*		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reptiles															
Great Basin Black-collared Lizard *(Crotaphytus bicinctores)*		X	X	X	X									X	
Longnose Snake *(Rhinocheilus lecontei)*		X	X	X	X										X
Ground Snake *(Sonora semiannulata)*		X	X	X	X										X

BLM Administrative Units (FO-Field Office; NCA= National Conservation Area; Nat. Mon= National Monument):

Boise District
BP = Birds of Prey NCA
BR = Bruneau FO
FR = Four Rivers FO
OW = Owyhee FO

Coeur d'Alene District
CA = Coeur d' Alene FO
CO = Cottonwood FO

Idaho Falls District
CH = Challis FO
PO = Pocatello FO
SA = Salmon FO
US = Upper Snake FO

Twin Falls District
BU = Burley FO
CM = Craters of the Moon Nat. Mon.
JA = Jarbidge FO
SH = Shoshone FO

References and Information Sources:

6840 – U.S. BLM Special Status Species Management Manual (12/12/2008)

.2 Administration of Bureau Sensitive Species. This section establishes procedures for the management of species designated as BLM sensitive, and their habitat. It is in the interest of the BLM to undertake conservation actions for such species before listing is warranted. It is also in the interest of the public for the BLM to undertake conservation actions that improve the status of such species so that their Bureau sensitive recognition is no longer warranted. By doing so, the BLM will have greater flexibility in managing the public lands to accomplish native species conservation objectives and other legal mandates. When administering the Bureau sensitive species program, all information shall conform to the standards and guidelines established under the Information Quality Act.

In compliance with existing laws, including the BLM multiple use mission as specified in the FLPMA, the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA. Any obligation to conserve proposed critical habitat under this section is terminated at the time the proposal becomes final or the habitat is no longer proposed for listing. All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau sensitive species.

A. Designation of Bureau Sensitive Species. State Directors shall designate species within their respective States as Bureau sensitive by using the following criteria. For species inhabiting multiple States, State Directors shall coordinate with one another in the designation of Bureau sensitive species so that species status is consistent across the species' range on BLM-administered lands, where appropriate. Species designated as Bureau sensitive must be native species

found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or

2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

Bat Conservation International. http://www.batcon.org/index.php/all-about-bats/species-profiles.html
Birds of North America. http://bna.birds.cornell.edu/bna
Breeding Bird Survey (BBS). https://www.pwrc.usgs.gov/BBS/index.cfm?CFID=2569436&CFTOKEN=8ec9ca82fd691c9c-FEF6EBBD-D317-EFCD-E700346CA4D486BF
BLM-Montana. Special Status Species List 2014
BLM-Nevada. Special Status Species List 2011
BLM-Oregon/Washington. Special Status Species List 2011
BLM-Utah. Special Status Species List 2010
BLM-Wyoming. Special Status Species List 2010
Forest Service. Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species list
Idaho Department of Fish and Wildlife (IDFG). https://fishandgame.idaho.gov/ifwis/cwcs/appendixf.htm and https://fishandgame.idaho.gov/ifwis/portal/
Partners in Flight (PIF). http://rmbo.org/pifdb/
NatureServe. http://explorer.natureserve.org/
United States Fish and Wildlife Service Region 1. http://www.fws.gov/pacific/
Utah Division of Wildlife Resources. http://dwrcdc.nr.utah.gov/ucdc/

Appendix C.

U.S. Department of the Interior Fish and Wildlife Service Agency Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
Phone: (208) 378-5243 Fax: (208) 378-5262

In Reply Refer To:
Consultation Code: 01EIFW00-2019-SLI-1831
Event Code: 01EIFW00-2019-E-03841
Project Name: Konnex Empire Mine

September 10, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (https://ww.fws.gov/migratorybirds/pdf/management/eagleconservtionplanguidance.pdf). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/ecologica-servces/energy-develpment/wind/html) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.ov/bidsbird-enthusiasts/threats-to-birds/collisions/communication-towers.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
(208) 378-5243

Project Summary

Consultation Code: 01EIFW00-2019-SLI-1831

Event Code: 01EIFW00-2019-E-03841

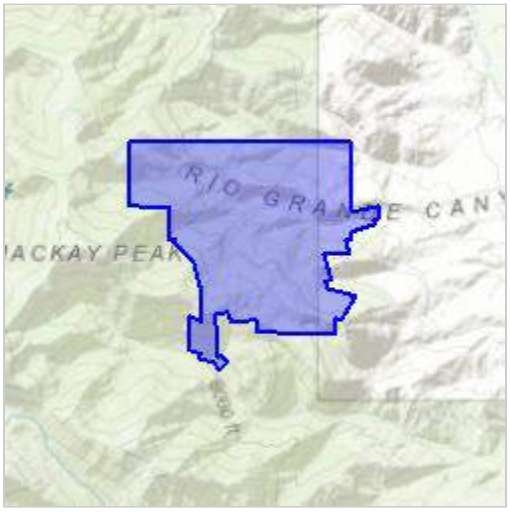
Project Name: Konnex Empire Mine

Project Type: MINING

Project Description: The Historic Empire Mine is located between 2 and 3 miles West of the town of Mackay Idaho. This project is looking at the potential to reopen the existing mining area. This is a preliminary exploration project. The species list will be used in conducting baseline biological surveys.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.8892879335801N113.67316005239485W



Counties: Custer, ID

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
North American Wolverine *Gulo gulo luscus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

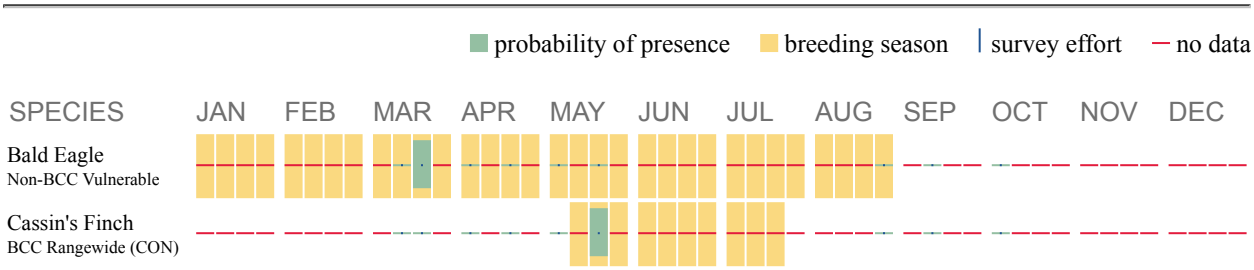
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as

occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC

species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1B

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1A

FRESHWATER POND

- PUSCh

RIVERINE

- R4SBC
- R4SBA
- R5UBH

Appendix D.

Floral and Faunal Compendium

Species Observed within and in the Vicinity of the Mackay Project Area

Scientific Name	Common Name
Birds	
Accipiter cooperi	Cooper's hawk
Accipiter gentilis[1]	Northern goshawk
Bubo virginianus	Great-horned owl
Buteo jamaivensis	Red-tailed hawk
Chondestes grammacus	Lark sparrow
Colaptes auratus	Northern flicker
Corvus corax	Common raven
Dendragapus obscurus	Dusky grouse
Dryocopus pileatus	Pileated woodpecker
Empidonax occidentalis	Cordilleran flycatcher
Junco hyemalis	Dark-eyed junco
Myadestes townsendi	Townsend's solitaire
Nucifraga columbiana	Clark's nutcracker
Passerculus sandwichensis	Savannah sparrow
Phalaenoptilus nuttallii	Common poorwill
Pica hudsonia	Black-billed magpie
Pipilo chlorurus	Green-tailed towhee
Piranga ludoviciana	Western tanager
Poecile atricapillus	Black-capped chickadee
Polioptila caeulea	Blue-gray gnatcatcher
Pooecetes gramineus	Vesper's sparrow
Regulus caledula	Ruby-crowned kinglet
Setophaga audubonii audubonii	Audubon's warbler
Setophaga petechia	Yellow warbler
Sialia currucoides	Mountain bluebird
Sitta carolinensis	White-breasted nuthatch
Spinus psaltria	Lesser goldfinch
Spizella passerina	Chipping sparrow
Tachycineta thalassina	Violet-green swallow
Turdus migratorius	American robin
Zenaida macroura	Mourning dove
Mammals	
Alces alces	Moose
Canis latrans	Coyote
Canis lupus[1]	Gray wolf
Cervus canadensis	Elk
Corynorhinus townsendii[1]	Townsend's big-eared bat
Eptesicus fuscus	Big brown bat
Gulo gulo[2]	North American wolverine
Lasionycteris noctivagans	Silver haired bat

Species Observed within and in the Vicinity of the Mackay Project Area

Scientific Name	Common Name
Lasiurus cinereus	Hoary bat
Lepus americanus	Snowshoe hare
Lynx rufus	Bobcat
Mustela spp.	Weasel
Myotis californicus	California myotis
Myotis ciliolabrum	Western small-footed bat
Myotis evotis	Long-eared myotis
Myotis lucifugus	Little brown bat
Myotis thysanodes	Fringed myotis
Myotis volans	Long-legged myotis
Myotis yumanensis	Yuma myotis
Ochotona princeps	American pika
Odocoileus hemionus	Mule deer
Parastrellus hesperus	Canyon bat
Tadarida brasiliensis	Mexican free-tailed bat
Tamias umbrinus	Uinta chipmunk
Tamiasciurus hudsonicus	Red squirrel
Vulpes vulpes	Red fox

[1] USFS Sensitive Species
[2] ESA Federally Proposed

Appendix E.

Photo Log

Photograph 1.

Empire Mine

Photograph 2.

Winter Track Survey
Grey Wolf – Canis lupus

Photograph 3.

Winter Track Survey
Grey Wolf – Canis lupus

Photograph 4.

Winter Track Survey
Red Squirrel – Sciurus vulgaris

Photograph 5.

Winter Track Survey
Red Squirrel – Sciurus vulgaris

Photograph 6.

Winter Track Survey
Snowshoe Hare - Lepus americanus

Photograph 7.

Winter Track Survey
Coyote – Canis latrans

Photograph 8.

Winter Track Survey
Red Fox – Vulpes vulpes

Photograph 9.

Winter Bait Station 5
Wolverine – Gulo gulo,

Photograph 10.

Winter Bait Station 3
Wolverine - Gulo gulo

Photograph 11.

Winter Bait Station 3
Wolverine - Gulo gulo

Photograph 12.

Winter Bait Station 3
Wolverine - Gulo gulo

Photograph 13.

Winter Bait Station
Clark's nutcracker – Nucifraga columbiana

Photograph 14.

Winter Bait Station
Bobcat – Lynx rufus

Photograph 15.

Winter Bait Station
Red fox – Vulpes vulpes

Photograph 16.

Winter Bait Station
Coyote - Canis latrans

Photograph 17.

Winter Bait Station
Elk – Cervus canadensis

Photograph 18.

Winter Bait Station
Mule deer – Odocoileus hemonus

Photograph 19.

Winter Bait Station
Moose – Alces alces

Photograph 20.

Winter Bait Station
Snowshoe Hare – Lepus americanus

Photograph 21.

Bat Detector 1

Photograph 22.

Bat Detector 3

Photograph 23.

Bat Detector 4

Photograph 24.

Bat Detector 6

Photograph 25.

Bat Detector 8

Photograph 26.

Bat Detector 9

Photograph 27.

Northern Goshawk
Accipter gentilis

Photograph 28.

Northern Goshawk
Accipter gentilis

Photograph 29.

Northern Goshawk
Accipter gentilis

Photograph 30.

Northern Goshawk
Call Point

Photograph 31.

Great-horned owl – Bubo Virginianus

Photograph 32.

Species Observations
Pileated woodpecker –
Dryocopus pileatus

Photograph 33.

Species Observations
American pika – Ochotona princeps

Photograph 34.

Species Observations
Unita chipmunk – Tamias umbrinus

Photograph 35.

Species Observations
Red Squirrel – Sciurus vulgaris

Photograph 36.

Species Observations
Townsend's solitaire nest

Appendix F.

Field Logs

D A T A S H E E T

Route Number: Survey 1 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant(s):~~ Species: Boreal Owl

Date: 22 2 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 3°F END -2 [ ] °C [X] °F / Cloud Cover (%): START 0 % END 0 %

Precipitation: [X] NONE [ ] LIGHT [ ] MEDIUM / [ ] SNOW [ ] RAIN

Snow Cover: [ ] NONE [ ] PATCHY [X] CONTINUOUS / Max. Depth: 48 Min. Depth: 6 [ ] CM [X] IN

STATION: **1** ODOMETER: _____ km/mile START TIME: 9:05 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **2** ODOMETER: _____ km/mile START TIME: 7:50 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
~~BOOW~~	~~0~~					(1) 2 3 4	
						Traffic Count	

STATION: **3** ODOMETER: _____ km/mile START TIME: ~~8:26~~ WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
~~BOOW~~	~~0~~					(1) 2 3 4	
						Traffic Count	

STATION: **4** ODOMETER: _____ km/mile START TIME: 8:45 WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **5** ODOMETER: _____ km/mile START TIME: 8:26 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **6** ODOMETER: _____ km/mile START TIME: 7:50 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **7** ODOMETER: _____ km/mile START TIME: 7:05 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **8** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **9** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **10** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

D A T A S H E E T

Route Number: Survey 1 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant~~(s): Species: Boreal Owl

Date: 23 / 2 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 11 END 4 [ ] °C [X] °F / Cloud Cover (%): START 100 % END 100 %

Precipitation: [ ] NONE [X] LIGHT [ ] MEDIUM / [X] SNOW [ ] RAIN

Snow Cover: [ ] NONE [ ] PATCHY [X] CONTINUOUS / Max. Depth: 48 Min. Depth: 6 [ ] CM [X] IN

STATION: 1 ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2	
						3 4	
						Traffic Count	

STATION: 2 ODOMETER: _____ km/mile START TIME: 7:35 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2	
						3 4	
						Traffic Count	

STATION: 3 ODOMETER: _____ km/mile START TIME: 6:45 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2	
						3 4	
						Traffic Count	

STATION: 4 ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2	
						3 4	
						Traffic Count	

D A T A S H E E T

Route Number: Survey 2 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant~~(s): Species: Boreal Owl

Date: 20 / 3 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 32 END 30. [ ] °C [X] °F / Cloud Cover (%): START 15 % END 15 %

Precipitation: [X] NONE [ ] LIGHT [ ] MEDIUM / [ ] SNOW [ ] RAIN

Snow Cover: [ ] NONE [ ] PATCHY [X] CONTINUOUS / Max. Depth: 38 Min. Depth: 1 [ ] CM [X] IN

STATION: **1** ODOMETER: _____ km/mile START TIME: 9:49 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **2** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **3** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **4** ODOMETER: _____ km/mile START TIME: 9:36 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

DATA SHEET

Route Number: Survey 2 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant(s)~~: Species : Boreal Owl

Date: 22 / 3 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 31 END 22 [ ] °C [X] °F / Cloud Cover (%): START ____ % END ____ %

Precipitation: [ ] NONE [X] LIGHT [ ] MEDIUM / [X] SNOW [ ] RAIN

Snow Cover: [ ] NONE [ ] PATCHY [X] CONTINUOUS / Max. Depth: 25 Min. Depth: 0 [ ] CM [X] IN

STATION: **1** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **2** ODOMETER: _____ km/mile START TIME: 9:47 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **3** ODOMETER: _____ km/mile START TIME: 7:15 WIND: 0 ~~1~~ (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **4** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **5** ODOMETER: _____ km/mile START TIME: 9:22 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **6** ODOMETER: _____ km/mile START TIME: 8:55 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **7** ODOMETER: _____ km/mile START TIME: 8:25 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **8** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **9** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **10** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

DATA SHEET

Route Number: Survey 3 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant(s)~~: Species: Boreal Owl

Date: 17 / 4 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 50 END 37 [ ] °C [X] °F / Cloud Cover (%): START 0 % END 0 %

Precipitation: [X] NONE [ ] LIGHT [ ] MEDIUM / [ ] SNOW [ ] RAIN

Snow Cover: [ ] NONE [X] PATCHY [ ] CONTINUOUS / Max. Depth: 24 Min. Depth: 0 [ ] CM [X] IN

STATION: **1** ODOMETER: _____ km/mile START TIME: 10:32 WIND: 0 1 (2) 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					1 (2) 3 4	
						Traffic Count	

STATION: **2** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **3** ODOMETER: _____ km/mile START TIME: 8:28 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **4** ODOMETER: _____ km/mile START TIME: 9:40 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **5** ODOMETER: _____ km/mile START TIME: 9:59 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **6** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **7** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **8** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **9** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **10** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

D A T A S H E E T

Route Number: Survey 3 Route Name: Empire Mine

Surveyor: Michael Robison ~~Assistant~~(s): Species: Boreal Owl

Date: 18 / 4 / 19 (DAY / MONTH / YEAR) Do you wish to participate again next year? [ ] YES [ ] NO

Temperature: START 50 END 41 [ ] °C [X] °F / Cloud Cover (%): START 0 % END 0 %

Precipitation: [X] NONE [ ] LIGHT [ ] MEDIUM / [ ] SNOW [ ] RAIN

Snow Cover: [ ] NONE [X] PATCHY [ ] CONTINUOUS / Max. Depth: 24 Min. Depth: 0 [ ] CM [X] IN

STATION: **1** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **2** ODOMETER: _____ km/mile START TIME: 9:40 WIND: 0 (1) 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **3** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **4** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **5** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **6** ODOMETER: _____ km/mile START TIME: 8:54 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **7** ODOMETER: _____ km/mile START TIME: 8:25 WIND: (0) 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
BOOW	0					(1) 2 3 4	
						Traffic Count	

STATION: **8** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **9** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

STATION: **10** ODOMETER: _____ km/mile START TIME: _____ WIND: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Minute	During Second Minute	After Broadcast	Noise Level	Comments
						1 2 3 4	
						Traffic Count	

BIRD COUNT – Transect Summary Form

Transect ID: Empire Mine - _____ (Habitat Project code - Transect ID Number) **Surveyor Name:** Michael Robinson

Set-up Date: 6 (month) - 14 (day) - 19 (year) **Photos Taken?** ___Yes _X_ No **Map Datum:** Please use NAD83

Road Anchor Point: UTMx: _____ UTMy: _____

Description of Anchor Point in Relation to Permanent Landscape Features, such as cattle guards, fence corners, houses, bridges, prominent cliffs (provide more details if no photos exist, less details if you took photos):

_____

_____

_____

_____

_____

Direction and approximate distance from anchor point to start point: _____ . _____ m

Direction of transect line from start point: _____

Point #1 UTMx: 234805 UTMy: 4862293
Point #2 UTMx: 235321 UTMy: 4862666
Point #3 UTMx: 286232 UTMy: 4862185
Point #4 UTMx: 284730 UTMy: 4863565
Point #5 UTMx: 285589 UTMy: 4863136
Point #6 UTMx: 286193 UTMy: 4863411
Point #7 UTMx: _____ UTMy: _____
Point #8 UTMx: _____ UTMy: _____
Point #9 UTMx: _____ UTMy: _____
Point #10 UTMx: _____ UTMy: _____

Describe all adjustments that needed to be made to the transect line: _____

_____

_____

_____

_____

_____

_____

_____

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_____

_____

_____

_____

_____

_____

(use back of sheet for additional space)

BIRD COUNT – Point Count Form

Site #: Empire Mine 1 (Habitat/ transect # point #)
Surveyor: Michael Robinson
Helper:
Date: 6 - 14 - 19 (month day year)
UTMx: 257805 **: UTMy:** 4862878
Start Time: 7:51
Sky code: clear **Wind code:** [illegible]
Temp (°F): <30 (30-50 circled) 50-70 70-90 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals) 0-50 m	50-100 m	>100 m	Flyover	Breeding Confirmed (Y/N) *
0-3	BCCH	Black-capped chickadee	x				N
0-3	BCCH	Black-capped chickadee		x			N
3-5	CHSP	Chipping sparrow	x				N
5-10	BCCH	[illegible]			x		N
5-10	BCCH	[illegible]		x			N
5-10	WBNU	White-breasted nuthatch	x				N
5-10	CHSP	Chipping sparrow	x				N
5-10	BCCH	Black-capped chickadee	x				N

* Nest, nesting material, copulating, carrying food, fledging

TOTAL number of birds observed: 7

Incidental Sightings

(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

BIRD COUNT – Point Count Form

Site #: Empire Mine - 2
Habitat/ transect # point #

Surveyor: Michael Robison
Helper:

Date: 6 - 14 - [illegible]
month day year

UTMx: 285321 **; UTMy:** 77[illegible]2666

Start Time: 8:29

Sky code: clear **Wind code :** 0-2 **Temp (°F):** <30 < 30-50 50-70 70-90 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals)				Breeding Confirmed (Y/N) *
			0-50 m	50-100 m	>100 m	Flyover	
3-5	BCCH	Black-capped Chickadee	x				N
5-10	DCCH	[illegible]		x			N
5-10	CHSP	Chipping Sparrow	x				N
5-10	CHSP	Chipping Sparrow	x				N
5-10	CHSP	Chipping Sparrow	x				N

*Nest, nesting material, copulating, carrying food, fledgling

TOTAL number of birds observed: 5

Incidental Sightings
(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

BIRD COUNT – Point Count Form

Site #: Spr[illegible] - 3
Habitat/ transect # point #

Surveyor: Michael Robison
Helper:

Date: 5 - 14 - 19
month day year

UTMx: 286232 ; UTMy: 4862185

Start Time:

Sky code: [illegible] Wind code : [illegible]

Temp (°F): <30 (30-50) 50-70 70-90 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals)				Breeding Confirmed (Y/N) *
			0-50 m	50-100 m	>100 m	Flyover	
0-3	CHSP	Chipping Sparrow	X				N 30+ foraging
0-3	BCCH	Black-capped chickadee		X			N
3-5	CHSP	Chipping Sparrow	X				Y [illegible]
5-10	CHSP	Chipping Sparrow	X				Y [illegible]
5-10	CLNU	Clark's Nutcracker	X			X	Y
5-10	BCCH	Black-capped chickadee		X			N
5-10	AMRO	American Robin			X		Y

Nest, nesting material, copulating, carrying food, fledgling

TOTAL number of birds observed: ≈ 35-40

Incidental Sightings
(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

BIRD COUNT – Point Count Form

Site #: Mac - 04 - ____ **Surveyor:** D. Robison **Date:** 6 - 15 - 2019
Habitat/ transect # point # **Helper:** ____ month day year
UTMx: 284730 ; **UTMy:** 4863565 **Start Time:** 6:30
Sky code: 0 **Wind code :** 0 **Temp (°F):** <30 30-50 (50-70) 70-90 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals)				Breeding Confirmed (Y/N).*
			0-50 m	50-100 m	>100 m	Flyover	
0-3	EMOC	Empidonax occidentalis	1				N
0-3	SPPS	Spinus psaltria	1				N
3-5	SEPE	Setophaga petechia	3				N
3-5	SEAU	Setophaga auduboni		1			N

* Nest, nesting material, copulating, carrying food, fledgling

TOTAL number of birds observed: 6

Incidental Sightings
(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

BIRD COUNT – Point Count Form

Site #: Mx - 05 - ____ **Surveyor:** D. Robison **Date:** 6 - 15 - 2019
Habitat/ transect # point # **Helper:** ____ month day year
UTMx: ~~485589~~ 285589 **UTMy:** 4863136 **Start Time:** 7:10
Sky code: 0 clear **Wind code :** 0 **Temp (°F):** <30 30-50 (50-70) 70-90 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals)				Breeding Confirmed (Y/N) *
			0-50 m	50-100 m	>100 m	Flyover	
0-3	SPPA	Spizella passerina		1			
0-3	PILU	Piranga ludoviciana		1			
0-3	POAT	Poecile atricapillus	5				

* Nest, nesting material, copulating, carrying food, fledgling

TOTAL number of birds observed: 7

Incidental Sightings
(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

BIRD COUNT – Point Count Form

Site #: Mc - 06 - ____ (Habitat/ transect # point #) **Surveyor:** D. Robison **Date:** 6 - 15 - 2019 (month day year)
Helper: ____
UTMx: 286193 ; **UTMy:** 4863411 **Start Time:** 8:40
Sky code: Clear **Wind code :** 0 **Temp (°F):** <30 30-50 50-70 (70-90) 90-110 >110

Time (0-3, 3-5, 5-10)	Species Code	Species Full Name	Distance (enter # individuals)				Breeding Confirmed (Y/N) *
			0-50 m	50-100 m	>100 m	Flyover	
0-3	PILU	Piranga ludoviciana		2			
0-3	DRPI	Dryocopus pileatus		2			Yes - nest
3-5	SPPA	Spizella passerina	5				
3-5	POCA	Polioptila caerulea	1				
5-10	PIHU	Pica hudsonia		1			

* Nest, nesting material, copulating, carrying food, fledgling

TOTAL number of birds observed: 11

Incidental Sightings
(Seen/heard on the way to the point, after pointcount time limit, etc.)

Species Full Name	Breeding Confirmed (Y/N) *

ADDITIONAL COMMENTS

One nest. Pileated woodpecker in an aspen.

NATIONAL GOSHAWK MONITORING PROTOCOL FIELD FORM

Observer(s): D. Robison, M. Robison **Date** (mm/dd/yy) Start: 07/17/19 End: / /

Observer Phone # 775-225-5549 Observer E-mail address: robisonwildlife@gmail.com

Agency Affiliation (circle one): USFS FWS NPS STATE (if State, then specify: _____).

Other (if "Other", then specify): Robison Wildlife If USFS, then specify (R#/F#/D#): / /

PSU Data PSU number/code: _____

(Circle strata): Primary Secondary Ukn. Access Class (circle one): Easy Difficult Ukn.

Is there a known nest or territory in this PSU? YES NO *(Known from existing data sources prior to current year.)*

If 'Yes', enter existing nest code(s) and or name(s): _____

Reference Point Description of reference point location and code: Call Point 20

Reference Point GPS'ed? (YES) NO If Yes: Zone 12 X: 0285085 Y: 4863330

Directions to first station from reference point: _____

Visit Data PSU Visit #: _____ PSU visit period (circle one): NESTLING (FLEDGLING)

Survey method (circle one): (Broadcast Acoustical) (Intensive Search) Dawn Acoustical

Call type(s) used during visit (circle one)? ALARM ~~CALL~~ FOOD BEGGING (A&JFB)

DETECTION INFORMATION: Goshawk presence confirmed? (YES) NO

Detection(s) marked on map? (YES) NO Detection(s) GPS'ed? (YES) NO

Detection Type: (circle all that apply): (VISUAL) (AURAL) ACTIVE NEST FEATHER

Location: Datum: ____ Zone ____ NAD ____ X: _____ Y: _____

At or between call station(s) (circle one)? (AT) BETWEEN Call Station #(s): 20

Azimuth **TO** initial detection: 330 Azimuth of direction of departing goshawk: 40

Distance **TO** detection: 20 Distance units (circle one): (METERS) YARDS FEET

Age Class: Adults: Total #: 2 Sex: #M 1 #F 1 #Unk. ___; Apparent breeding pair? (YES) NO

Young: # Nestlings 0 # Fledglings 0

Unknown Age Class: # 0

Nest Info: Active Nest Found? YES (NO) If yes, is this nest? PRIMARY ALTERNATE UNKNOWN

Will a new territory be delineated as a result of this inventory? YES (NO) UNKNOWN

If nest, is nest (circle one): NEW KNOWN Was nest monitoring form completed? YES NO

Feather Info: If feather, was feather collected? YES NO Feather collection protocol used? YES NO

Feather collection form completed? YES NO Number of feathers found: ____

RECORD ALL SURVEY RESULTS ON THE NGMP FIELD FORM DATA SHEET. ATTACH ALL FIELD FORM DATA SHEETS TO THE ASSOCIATED PSU FIELD FORM COVER SHEET. DELINEATE AREAS SURVEYED ON ATTACHED MAP. SHOW ALL GOSHAWK DETECTION LOCATIONS WITH DATE ON MAP.

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

PSU #: _____ **Forest:** Salmon/CH **Date:** June 13, 2019 **PSU Visit Period (circle one):** (Nestling) Fledgling **Observer(s):** D. Robison, M. Robison

Wind Code (1-5): 2 **Cloud Cover Code (1-6):** 5 **Temperature C / F: Starting:** 58 **Ending:** 77

Wind Code: 1 = smoke rises < 1 mph, 2 = smoke drifts due to breeze (1-3 mph), 3 = leaves rustle, breeze felt on face (4-7 mph), 4 = leaves and small twigs in constant motion (8-12 mph), 5 = raises dust, small branches in motion (> 12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= <5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone (GPS record) UTM (E)	UTM Zone (GPS record) UTM (N)	Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash Single Patch or Abundant	Prey Remains Single or Multiple	FES, MIS, Other Species[2]	Other Comments : If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
1			5'30		N	N				
2					N	N				
3					N	N				
4					N	N				
5					N	N				
6					N	N				
7					N	N				
8					N	N				
9					N	N				
10					N	N				
11					N	N				
12					N	N				
13					N	N				
14					N	N				
15					N	N				
16					N	N				
17					N	N				
18					N	N				
19					N	N				
20					N	N				

21

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

PSU #: _____ **Forest:** _____ **Date:** June 13, 2019 **PSU Visit Period (circle one):** (Nestling) Fledgling **Observer(s):** _____

Wind Code (1-5): _____ **Cloud Cover Code (1-6):** _____ **Temperature C / F: Starting:** _____ **Ending:** _____

Wind Code: 1 smoke rises ~1 mph, 2 smoke drifts due to breeze (1-3 mph), 3 leaves rustle, breeze felt on face (4-7 mph), 4 leaves and small twigs in constant motion (8-12 mph), 5 raises dust, small branches in motion (~12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= ~5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone (GPS record [1]) or UTM (E)	UTM (N)	Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash Single Patch or Abundant	Prey Remains Single or Multiple	TES, MIS, Other Species[2]	Other Comments : If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
22					N	N				
23					N	N				
24					N	N				
25					N	N				
26					N	N				
27					N	N				
28					N	N				
29				16:30	N	N				
30		6/14/19	5:15		N	N				
31					N	N				
32					N	N				RTHA responded and nest located nearby
33					N	N				
34					N	N				
35					N	N				
36					N	N				
37					N	N				
38					N	N				
39					N	N				
40					N	N				
41					N	N				

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

BSU #: _____ **Forest:** _____ **Date:** 6/14/2019 **PSU Visit Period (circle one):** Nestling Fledgling **Observer(s):** _____

Wind Code (1-5): _____ **Cloud Cover Code (1-6):** _____ **Temperature C / F: Starting:** _____ **Ending:** _____

Wind Code: 1 smoke rises <1 mph, 2 smoke drifts due to breeze (1-3 mph), 3 leaves rustle, breeze felt on face (4-7 mph), 4 leaves and small twigs in constant motion (8-12 mph), 5 raises dust, small branches in motion (>12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= <5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone _____ or GPS record [1]		Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash Single Patch or Abundant	Prey Remains Single or Multiple	TES, MIS, Other Species[2]	Other Comments : If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
	UTM (E)	UTM (N)								
42					N	N				
43					N	N				
44					N	N				
45					N	N				
46				15:00	N	N				

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

PSU #: _____ **Forest:** SA/CH **Date:** 7/16/2019 **PSU Visit Period (circle one):** Nestling (Fledgling) **Observer(s):** D. Robison

Wind Code (1-5): 1 **Cloud Cover Code (1-6):** 2 **Temperature C / F: Starting:** 72 **Ending:** 89

Wind Code: 1 = smoke rises < 1 mph, 2 = smoke drifts due to breeze (1-3 mph), 3 = leaves rustle, breeze felt on face (4-7 mph), 4 = leaves and small twigs in constant motion (8-12 mph), 5 = raises dust, small branches in motion (>12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= <5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone ~~GPS record~~[1] or UTM (E)	UTM (N)	Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash Single Patch or Abundant	Prey Remains Single or Multiple	TES, MIS, Other Species[2]	Other Comments: If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
1			6:00		N	N				
2					N	N				
3					N	N				
4					N	N				
5					N	N				
6					N	N				
7					N	N				
8					N	N				
9					N	N				
10					N	N				
11					N	N				
12					N	N				
13					N	N				
14					N	N				
15					N	N				
16					N	N				
17					N	N				
18					N	N				
19					N	N				
20					N	N				

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

PSU #: _____ **Forest:**_____ **Date:** 7/16/2019 **PSU Visit Period (circle one):** Nestling Fledgling **Observer(s):**_____

Wind Code (1-5):_____ **Cloud Cover Code (1-6):**_____ **Temperature C / F: Starting:**_____ **Ending:**_____

Wind Code: 1 - smoke rises < 1 mph, 2 smoke drifts due to breeze (1-3 mph), 3 leaves rustle, breeze felt on face (4-7 mph), 4 leaves and small twigs in constant motion (8-12 mph), 5 raises dust, small branches in motion (>12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= < 5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone GPS record[1] or		Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash Single Patch or Abundant	Prey Remains Single or Multiple	TES, MIS, Other Species[2]	Other Comments : If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
	UTM (E)	UTM (N)								
22					N	N				
23					N	N				
24					N	N				
25					N	N				
26					N	N				
27					N	N				
28					N	N				
29					N	N				
30				14:00	N	N				

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments

NORTHERN GOSHAWK MONITORING PROTOCOL FIELD FORM – DATA SHEET

BSU #: _____ **Forest:** SA/CH **Date:** 7/17/2019 **PSU Visit Period (circle one):** Nestling (Fledgling) **Observer(s):** D. Robison, M. Robison

Wind Code (1-5): _____ **Cloud Cover Code (1-6):** _____ **Temperature C / F: Starting:** 74 **Ending:** 82

Wind Code: 1 = smoke rises < 1 mph, 2 = smoke drifts due to breeze (1-3 mph), 3 = leaves rustle, breeze felt on face (4-7 mph), 4 = leaves and small twigs in constant motion (8-12 mph), 5 = raises dust, small branches in motion (>12 mph). Cloud Cover Code: Estimated at midpoint of survey 1= ~5%, 2=5-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%.

Call Station #	UTM Zone (GPS record[1]) or UTM (E)	UTM (N)	Start Time (24:HR)	End Time (24:HR)	NOGO Detected? (Y/N)	Suspected NOGO Nest	Whitewash (Single Patch or Abundant)	Prey Remains (Single or Multiple)	TES, MIS, Other Species[2]	Other Comments: If detection is not at, but associated to a calling station, state 'Associated' and specify X/Y coordinates of detections below. If detection was made at the calling station, state 'Detection At Calling Station' below. Use space for other comments as needed.
20			7:15	8:25	Y	N	N	N		Male and female responded. Vocal approach.
31			8:30		N	N				
32					N	N				
33					N	N				
34	Not called due to poor habitat									
35					N	N				
36					N	N				
37					N	N				
38					N	N				
39					N	N				
40					N	N				
41					N	N				
42					N	N				
43					N	N				
44					N	N				
45					N	N				
46				13:00	N	N				

[1] If already established or logged into GPS, circle: **GPS Record**.
[2] Standard species abbreviations and number of individuals, clarify if necessary in comments