Biological Evaluation of the Effects of

Idaho Transportation Department District 4
Galena Summit Slide, SH-75, Milepost 156.70

on U.S. Forest Service Sensitive Species that are Terrestrial Wildlife Species

Blaine and Custer Counties, Idaho

Key No. 19171

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Cover photo: North-easterly view of the slide area, November 3, 2016

INTRODUCTION

The Idaho Transportation Department District 4 (ITD) proposes to provide correction for an historical earthen slide affecting State Highway (SH) 75 at approximate milepost (MP) 156.70 with federal funding from the Federal Highway Administration (FHWA) Western Federal Land Highway Division (WFLHD). This slide does, and will continue to, impact SH-75, the Sawtooth Park Highway/Old US-93, and various other trails and roads within the slide zone. The project intent is to place a rock/soil buttress at the toe of the slide area and reinforce the hillside supporting the highway. The slide and proposed construction areas occur about 26 miles north of the town of Ketchum near Galena Summit in Blaine County. An additional proposed project staging and source area is located in an established State-controlled mineral materials source site, Cu-83s (SH-75 MP 174.50), and occurs between Galena Summit and the town of Stanley in Custer County. Refer to the Vicinity Map in Appendix A. The project is located on United States Department of Agriculture (USDA) Sawtooth National Forest (SNF), Sawtooth National Recreation Area (SNRA) administered lands. The project description includes approximately 8 miles (in length, MP 153.65 – 161.00) of SH-75 Right Of Way (ROW) on 132 feet of ROW (66 feet each side of the highway) and additional adjacent SNRA lands such as Galena Summit, the slide zone, several material source locations, and several staging areas, for a total of approximately 182 acres.

This Biological Evaluation (BE) will review the proposed project action in sufficient detail and analyze the potential impacts of the project on U.S. Forest Service Region 4 Sensitive Species occurring in the project area in Blaine and Custer Counties (Garwood 2016).

One Endangered Species Act (ESA) listed wildlife species, one proposed threatened wildlife species, and one candidate conifer species occur in the project area in Blaine and Custer Counties as of September 26, 2017 (U.S. Fish and Wildlife Service Information, Planning and Conservation System [IPaC 2017]) and NOAA Fisheries website [NOAA 2017]). These species are listed below.

Species	**Status**
Canada Lynx (*Lynx canadensis*)	Threatened
Wolverine (*Gulo gulo luscus*)	Proposed Threatened
Whitebark Pine (*Pinus albicaulis*)	Candidate

Informal consultation was completed between the U.S. Fish and Wildlife Service (USFWS) and Federal Highways Administration for these species. The concurrence letter from USFWS is dated December 28, 2017.

A separate ESA “No Effect” document was completed for Snake River Sockeye Salmon (*Oncorhynchus nerka*), Snake River Spring/Summer Chinook Salmon (*Oncorhynchus tshawytscha*), Snake River Steelhead (*Oncorhynchus mykiss*), and Bull Trout (*Salvelinus confluentus*) with the FHWA as the lead federal agency.

The project area provides habitat for 19 animal species on the Regional Forester's sensitive species list. These species are listed below.

1. Spotted Bat (*Euderma maculatum*)
2. Townsend's Big-eared Bat (*Corynorhinus townsendii*)
3. Pygmy Rabbit (*Brachylagus idahoensis*)
4. Gray Wolf (*Canis lupus*)
5. Wolverine (*Gulo gulo*)
6. Fisher (*Martes pennanti*)
7. Bighorn Sheep (*Ovis canadensis*)
8. Common Loon (*Gavia immer*)
9. Bald Eagle (*Haliaeetus leucocephalus*)
10. Northern Goshawk (*Accipter gentilis*)
11. Peregrine Falcon (*Falco peregrinus*)
12. Greater Sage-grouse (*Centrocercus urophasianus*)
13. Mountain Quail (*Oreortyx pictus*)
14. Great Gray Owl (*Strix nebulosa*)
15. Flammulated Owl (*Otus flammeolus*)
16. Boreal Owl (*Aegolius funereus*)
17. White-headed Woodpecker (*Picoides albolarvatus*)
18. American Three-toed Woodpecker (*Picoides dorsalis*)
19. Columbia Spotted Frog (*Rana luteiventris*)

PROJECT DESCRIPTION

Project details in this section are provided by the Idaho Transportation Department, District 4, and Landslide Technology.

Project Area

The Idaho Transportation Department District 4 (ITD) proposes to provide correction for an historical earthen slide affecting State Highway (SH) 75 at approximate milepost (MP) 156.70 with federal funding from the Federal Highway Administration (FHWA) Western Federal Land Highway Division (WFLHD). This slide does, and will continue to, impact SH-75, the Sawtooth Park Highway/Old US-93, and various other trails and roads within the slide zone. The project intent is to place a rock/soil buttress at the toe of the slide area and reinforce the hillside supporting the highway. The slide and proposed construction areas occur about 26 miles north of the town of Ketchum near Galena Summit in Blaine County. An additional proposed project staging and source area is located in an established State-controlled mineral materials source site, Cu-83s (SH-75 MP 174.50), and occurs between Galena Summit and the town of Stanley in Custer County. Refer to the Vicinity Map in Appendix A. The project is located on United States Department of Agriculture (USDA) Sawtooth National Forest (SNF), Sawtooth National Recreation Area (SNRA) administered lands. The project description includes approximately 8 miles (in length, MP 153.65 – 161.00) of SH-75 Right Of Way (ROW) on 132 feet of ROW (66 feet each side of the highway) and additional adjacent SNRA lands such as Galena Summit, the slide zone, several material source locations, and several staging areas, for a total of approximately 182 acres.

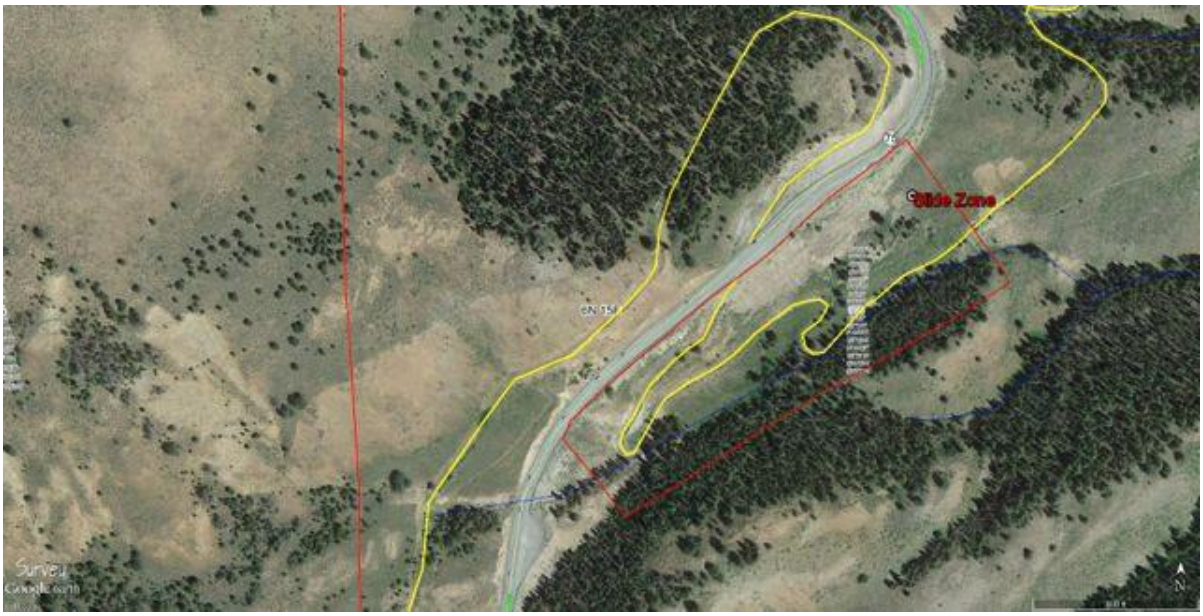

Figure 1. Aerial view of the access roads (yellow lines), slide zone (red lines) and proposed toe berm buttress fill area (area within the red lines between the two hillsides).

Background

The Western Federal Lands Highway Division (WFLHD) of the FHWA, in cooperation with ITD and USFS, proposes to reconstruct the slide area in Blaine County, Idaho (Figure 1), on SH-75 MP 156.70. This project is being developed under the FHWA Public Lands Highway Program, which is financed by the Federal Highway Trust Fund. FHWA is the lead agency. As the lead agency, FHWA provides decision making and funding. Construction services, which include designing the project, issuing a construction contract, and administering the actual construction, will be accomplished by ITD.

Project Purpose and Need

Purpose: The purpose of the project is to reduce the slide hazard to SH-75 and thereby improve safety for the traveling public on SH-75 near Galena Summit, near MP 156.70. ITD proposes to lessen the impact of the active landslide to SH-75 by constructing a hillside support system. By increasing hillside support, future slide impacts to the road would decrease. ITD will continue to monitor over time the slope stabilization via instrumentation.

Need: An active landslide exists in this project area that requires frequent repairs to keep SH-75 open to the traveling public. The active slide is approximately 300-400 feet long, 300-400 feet wide, and 30-40 feet deep. This landslide has damaged the highway various times in the past resulting in costly repairs and shifting of the roadway alignment. The proposed project would stabilize the landslide by buttressing the slope toe to prevent further hillside movement. The damaged sections of the existing Sawtooth Park Highway/Old US-93 road, now included in the Sawtooth National Forest Service trail system, will be reconnected south of the toe berm buttress if that action is approved by the SNF that operates and maintains the trail facility.

Project Intent

The proposed project includes constructing a buttress/berm with native rock, soil, and vegetation at the toe/base of the slide area and reinforcing the hillside supporting the highway. This proposed plan has many benefits including:

- provides long-term lateral support to the slide mass, which will improve highway stability;
- does not require a highway detour during construction;
- uses excavated materials from nearby cuts which is efficient and cost-effective;
- does not require removal of highway toe support and therefore poses minimal risk;

Project objectives include:

- improving the long-term stability and integrity of SH-75;
- improving traffic safety by preventing retrogression of the slide scarp into the pavement;
- completing the project in a manner that is compatible with the environment.

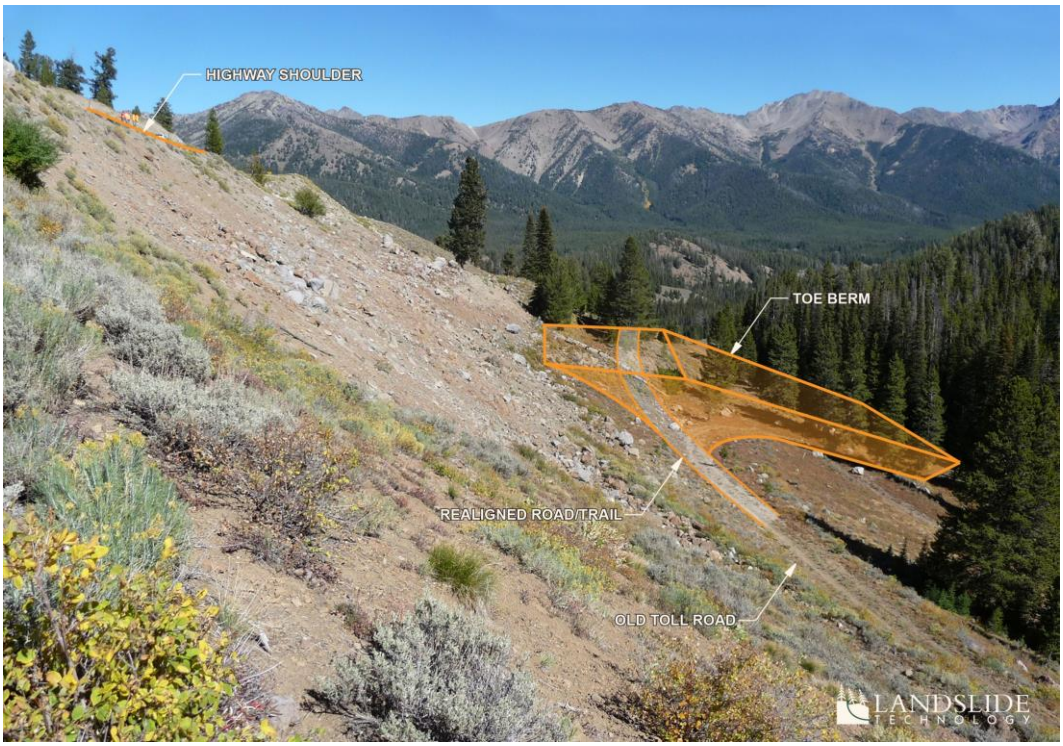

Figure 2. Proposed toe berm and re-aligned Sawtooth Park Highway/Old US-93 road/trail. The existing Sawtooth Park Highway/Old US-93 road, now included in the Sawtooth National Forest Service trail system, will be reconnected south of the toe berm buttress

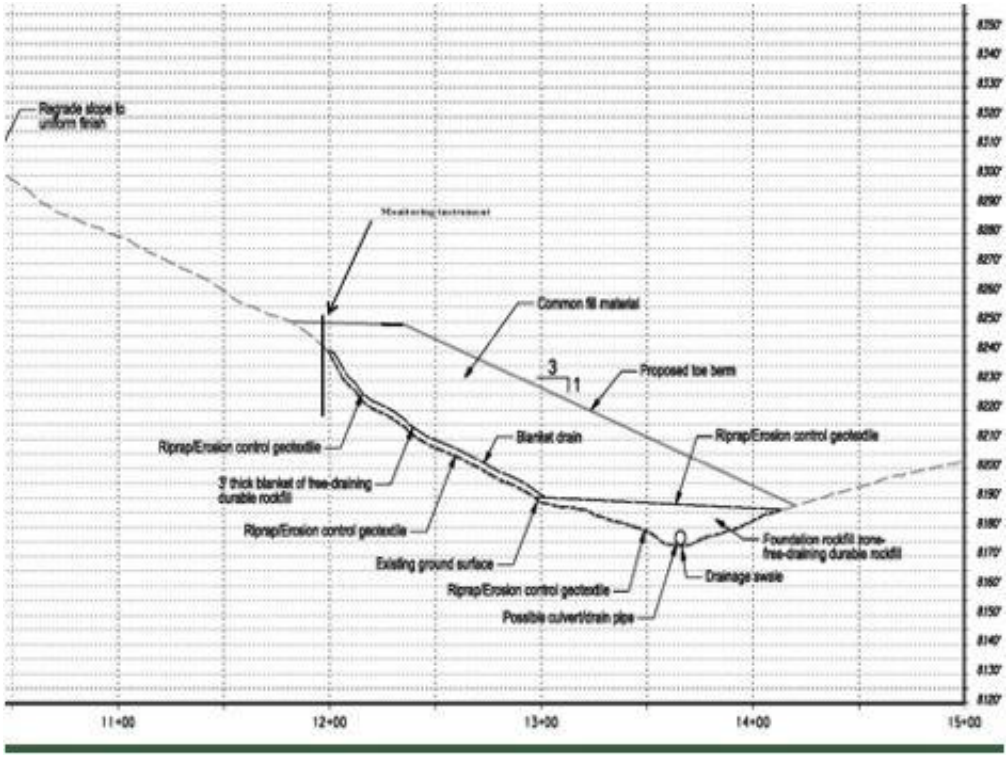

Figure 3. Cross section detail for the proposed toe berm buttress.

After two to three years, reinforcement of the highway subgrade should be included to bridge across old slide cracks and to improve pavement performance in the event some subsidence occurs. Since the toe berm would be constructed in the lower section of the slope, it could take a few years for the slide mass to stop moving as passive resistance develops and voids are compressed. Subgrade reinforcement could consist of several layers of geogrid sandwiched between lifts of crushed rock fill. Once the toe berm is constructed, a replacement inclinometer will be installed to verify slowing of slide movements. Access to the inclinometer will be from the reconnected portion of the Sawtooth Park Highway/Old US-93. Shifting the highway back onto its original alignment, and repaving, will be delayed for a few years to allow the remaining “take-up” deformations to occur.

Description

Material Sources

Correction of the slide involves the placement of approximately 80,000-100,000 cubic yards of rock and soil at the toe of the slide, buttressed against the opposing hillside. To acquire material for the toe berm buttress, rock and soil will be removed from selected locations adjacent to and bordering SH-75. Rock and soil will be removed by drilling, blasting and excavating at the selected rock-cut locations near Galena Summit at approximately MP 157.90 (an estimated 15,000 cubic yards) and at the Camp Creek through-cut at MP 159.30 (an estimated 75,000 cubic yards).

Figure 4. Aerial view of the proposed Galena Summit rock-cut location that will be excavated to acquire material for the buttress. All of the highway pavement and turnouts in this vicinity may be used for construction equipment and traffic.

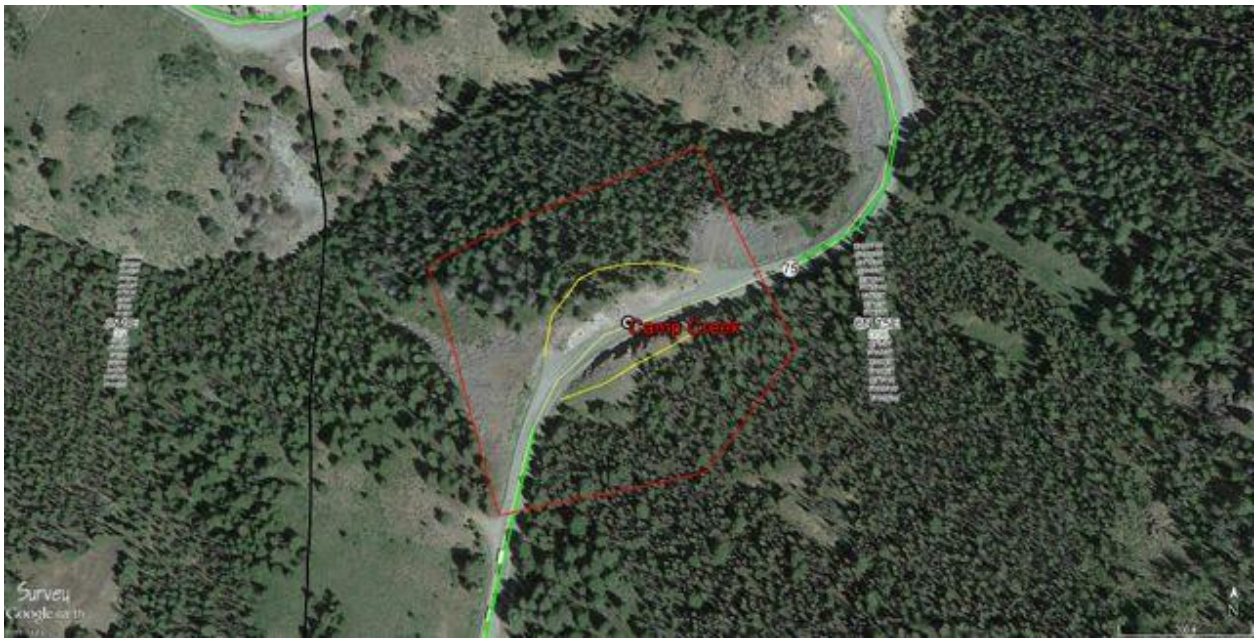

Figure 5. Aerial view of the proposed Camp Creek rock-cut location that will be excavated to acquire material for the buttress

Removal of rock in these locations will widen the existing cut slopes that may improve traffic safety by reducing rockfall hazards. The rock faces will be near vertical (cut slope at ¾H:1V), and the west side of the Camp Creek cut will be flat and used as a highway turnout, and therefore minimal re-vegetation activities will take place at these locations. Blasting will be used to remove rock at these locations.

Selected materials from the State-controlled mineral materials source site Cu-83s (MP 174.50), also known as the 4th of July source, will be used to reclaim the slide buttress area and slide face. This borrow site includes organic soil and rock that may be used for landscaping/reclamation. The proposed area of use occurs in an upland area dominated by rock and sagebrush, on the south side of FS 209/4th of July Creek Road, >1.0 mile from the Salmon River. FS 209 occurs between the source site and 4th of July Creek. In addition to being utilized as a source of mineral materials, this site will be designated as an available staging area for contractor and state equipment. Use will include areas for office trailers, testing facilities, equipment maintenance, stockpiling of materials, mineral materials processing, lavatories and limited camping.

Figure 6. Aerial view of the Cu-83s/4th of July source site.

Designated Sites
Designated sites are sites that are shown in the plans and specifications that are available for the Contractor's use, although they are not mandatory. To date, one area, Cu-83s (also known as the 4th of July source), would be designated as a source of materials for the project. This area would also be used for staging areas. Use of this site has already been approved by the Idaho Department of Lands (IDL).

The Contractor can also apply to use Commercial Sites or Non-Commercial Sites instead. Should a non-commercial source site be used, it would need to be approved by ITD and would be contingent upon meeting the standards in the Best Management Practices (BMPs) section of this document.

Wetlands and Waters of the U.S.
At the Galena Summit Slide Location (approximately MP 156.00 to 157.00), a total of four culverts were identified within the project slide impact area. Two of the four culverts are used to convey water beneath SH-75 from the northwest to the southeast. A defined channel was not observed from the outfall of these two eastern-most culverts. The remaining two culverts are associated with unnamed tributaries that enter the site in the southwest corner and flow under SH-75 through corrugated metal pipe culverts in an easterly direction down a steep slope. Towards the bottom of the slope (south half of the slide area), a relic channel, numerous smaller active channels, and several areas of sheet flow with no defined channel were identified. This is the only area where approximately 3,300 square feet of wetlands will be impacted by the fill of the buttress materials. All other wetlands will be avoided. An intermittent drainage/swale occurs at

the slide toe in the spring during snow-melt. A culvert/drain pipe will be placed through the toe berm buttress to accommodate this drainage. No instream water work is proposed.

Water Withdrawal
Water will be needed for dust control and other construction techniques during construction and for the consolidation of fill materials. An average of five truckloads of water per day (in total, an estimated 1.5 million gallons) will be needed for the proposed project. Location of the water withdrawal and techniques is the Contractor's responsibility, and FHWA will require that it be completed in a manner that avoids harm to listed ESA species and be consistent with NOAA Fisheries screening criteria (found at http://swr.nmfs.noaa.gov/hcd/WaterDrafting-02.PDF). ITD will work with SNF staff to identify appropriate drafting sites available for use by the Contractor. All equipment will be properly cleaned prior to use in the area to prevent the spread of Aquatic Invasive Organisms (AIO).

Clearing and Grubbing
Clearing and grubbing will be conducted to prepare the project site for construction. Since much of the work area is already part of the existing transportation facility the area is sparsely vegetated. However some clearing and grubbing will be conducted using heavy machinery or other means.

Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season.

Approximately 542 trees will need to be removed prior to construction (JUB 2017). Many of the trees to be removed occur in the slide area to be filled, which is located within the SNRA's riparian conservation area.

All newly disturbed ground will be cleared and grubbed in accordance with the sediment and erosion control plans designed as part of the project. Sediment and erosion control measures will be employed to protect any disturbed ground and minimize the potential for erosion, and sediment to enter adjacent water bodies.

Construction of Access Roads
For access, improvements will be made to the Sawtooth Park Highway/Old US-93 located adjacent to and on the slide in order to access the slide zone during construction of the buttress, and for long-term monitoring of the slide. This work will include improving the grade by removing and or adding materials, surface grading, widening, removing and installing utilities, and installing a permanent gate system to restrict vehicle access.

A second access road will be constructed from the utility access road (MP 158.15, SnoTel Station) and connect to the Sawtooth Park Highway/Old US-93. This work will include improving the grade by removing and or adding materials, surface grading,

widening, removing and installing utilities, installing a temporary gate system to restrict vehicle access.

Additional access roads may be constructed at the Camp Creek through-cut on either side of the cut face for the purpose of drilling and blasting.

Impacts to the Sawtooth Park Highway/Old US-93 for access include:

- Combined within the project area, approximately 0.7 miles of the Sawtooth Park Highway/Old US-93 will have a limited impact of foot traffic and use of ATV's to transport survey equipment and personnel. No modification of the road surface would be required for this use.

- At the Summit area (MP 157.90), approximately 400 feet (0.08 miles) of the Sawtooth Park Highway/Old US-93 would require minor surface grading to allow safe one-way traffic for construction equipment and support for the summit rock extraction. Rock and soil will be removed by drilling and blasting at the selected locations near Galena Summit at approximately MP 157.90

- At the Slide Zone and Staging area (MP 156.7), an approximate 0.12-mile section of the Sawtooth Park Highway/Old US-93 (on the north side of SH-75) occurs within the area where it connects to SH-75. At this location, work would require lowering the percent grade to make a safe transition to and from the turnout at SH-75. On the south side of SH-75, approximately 0.45 miles of the Sawtooth Park Highway/Old US-93 would require minor surface grading to allow safe travel for construction equipment and support for the construction of the slide buttress.

- Between the Summit area and the Slide Zone and Staging area, approximately 0.85 miles of the Sawtooth Park Highway/Old US-93 would require minor surface grading. The improvements will allow equipment such as dump trucks, loaders, bulldozers, track hoes, pickups, and fuel trucks to access the summit and slide zone project areas.

- Within the Summit area, approximately 0.2 miles of the Sawtooth Park Highway/Old US-93 would be removed for the summit rock extraction. This portion of the trail will be reconnected during the construction project if the Sawtooth National Recreation Area (SNRA) wishes to maintain the connectivity of the old route. Refer to Figure 4 on page 8.

- Within the Slide Zone and Staging area near MP 156.7, approximately 550 feet (0.1 miles) of Sawtooth Park Highway/Old US-93 would be buried as part of the slide buttress. The trail will be re-routed and re-connect with the existing trail south of the buttress. The new segment of re-routed trail will not impact the Galena Toll Road situated to the south of the Sawtooth Park Highway/Old US-93.

Equipment staging and production areas for the proposed project include:

- A staging and production site will be located within the slide zone west of the buttress. Use will include areas for office trailers, testing facilities, equipment maintenance, processing and stockpiling materials, and lavatories. Portions of the Sawtooth Park Highway/Old US-93 at the summit rock extraction site at MP 157.9 and east of the slide zone near MP 156.7 will be utilized for construction access, drilling and blasting activities (blasting at MP 157.9 only), staging, production, and lavatories.

- The highway turnouts, including the overlook, located between MP 153.65 and MP 161.1, will be utilized as staging and production areas. Use will include areas for office trailers, testing facilities, equipment maintenance, processing and stockpiling materials, and lavatories.

- State controlled mineral material source site Cu-83s/4th of July source (MP 174.50). This borrow site includes organic soil and rock that may be used for landscaping/reclamation. In addition to being utilized as a source of mineral materials, this site will be designated as an available staging area for contractor and state equipment. Use will include areas for office trailers, testing facilities, equipment maintenance, stockpiling of materials, mineral materials processing, lavatories and limited camping (2-3 units, as allowed by the Idaho Department of Lands for security purposes).

- The existing staging and production site known as Horse Creek (MP 153.80) will be designated as an equipment staging and stockpiling area. The site will be utilized for office trailers, testing facilities, equipment maintenance, processing and stockpiling materials, lavatories and camping.

Figure 7. Aerial view of the Horse Creek staging area.

Traffic control will occur at various locations between MP 153.65 and MP 161.00.

Construction Schedule

The schedule for construction is dependent on funding and the timeframe needed to complete the project development process. At this time, it is anticipated that construction will occur in the spring through fall (June through November) of any year, and will begin in 2019.

Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season.

It is anticipated that Phase 1 will require two full construction seasons, and will include constructing the access roads, blasting and excavating materials, and placing these materials in the toe berm/buttress position. Work will begin following snowmelt (early spring/June) and continue **24 hours per day, 7 days per week**, until winter weather intervenes (late fall/November).

It is anticipated that Phase 2 will occur 3 years following completion of Phase 1 when repairs to SH-75 in the slide zone will be necessary. The fill material needs to settle and the slide has to stop moving before road work can be accomplished. This paving and road re-construction work will take place on the existing alignment within ITD's existing 132-foot easement on USFS lands.

Best Management Practices (BMPs), Project Design Criteria, and Other Measures to Minimize Impacts

ITD shall inspect each site prior to use and ensure that the site complies with all of the following conditions.

Temporary Sediment and Erosion Control

- Sediment and erosion control will include project perimeter controls such as silt fencing, fiber wattle barriers and/or dikes, and ditches, as needed.
- BMPs will be used to contain, control and filter stormwater from entering any rivers or creeks and associated wetlands and/or riparian areas.
- Inside the perimeter protection, BMPs will be used to limit and control the velocity that water runs over and through the construction-site to limit the amount of sediment picked up by stormwater. This will include placing check dams or channel liners in drainage channels, covering high use areas with coarse materials that will allow water infiltration but resist erosion and prevent rutting and mud puddles from forming during storms.
- A National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and NPDES Storm Water Pollution Prevention Plan (SWPPP) are required. The SWPPP plan must contain, at a minimum, the following elements and must meet requirements of all applicable laws and regulations.
  (1) Practices to prevent erosion and sedimentation associated with access roads, construction sites, borrow site operations, equipment and material storage sites, fueling operations, staging areas, and waste sites (e.g., fiber wattles and silt fence). A supply of emergency erosion control materials will be on-hand.
  (2) A description of any hazardous product or material that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
  (3) A Spill Containment and Control Plan that includes notification procedures, specific clean up and disposal instructions for different products available on the site, proposed methods for disposal of spilled material, and employee training for spill containment.
  (4) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any instream material with a minimum disturbance to the streambed and water quality.
  (5) During construction, all erosion controls will be inspected daily during rainy periods, and weekly during the dry season to assure they are working correctly. If inspection shows the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary. Sediment will be removed from erosion controls once it has reached one-half of the exposed height of the control.
  (6) Monthly inspections of the project area will occur until the site meets permit requirements of 70 percent ground cover vegetation on disturbed slopes, no evidence of excessive soil erosion, and all temporary sediment erosion control

structures/materials are removed in accordance with the NPDES SWPP plan and the NPDES permit.

Hazardous Waste and Materials

- Fuel and other chemicals, including small fuel cans, oil and hydraulic fluid containers, and concrete chemicals, will be stored at least 150 feet from any stream channel or wetland or waterbody and must be placed in a full containment cell.
- Fueling of equipment will occur at least 150 feet from any stream or waterbody.
- Tanks larger than 150-gallons must be stored at least 300 feet from any stream or waterbody.
- Spill containment kits capable of containing the amount of hazardous products on-site will be kept at the construction site and used in case of spills.
- Machinery and equipment will be outfitted with and have available spill containment kits (e.g., absorbent pads, containment structures, liners, etc.) sufficiently sized to capture and contain fuel or other petroleum products at 125% of the volumes of materials present.
- Any machinery that will be parked within 150 feet of a waterbody, including portable water pumps, will be placed in a full containment cell.
- Machinery and implements that are used during the project will be in good repair, free of excessive leaks, and steam cleaned off-site prior to entering the work area.
- Fluid leaks will either be repaired or contained within a suitable waste collection device (e.g., drip pads, drip pans).
- When changing hydraulic lines care will be taken to keep hydraulic fluid from entering a waterbody or soils.
- Water pumped from any instream excavation or other disturbances will not be placed into any waterbody until it meets IDEQ water quality standards. The water will be land applied to suitable uplands or stored in settling basins that are large enough to treat all pumped water.
- Any hazardous/toxic materials to be used, stored, generated, and maintained must be handled following the manufacturer's recommendations. Manufacturer's SDS sheets will be retained on-site.
- Reporting and remediation guidelines required by IDEQ, OSHA, and EPA will be followed. Any spills that are reported to these agencies will also be reported to the Services and the USFS.

Construction of Access Roads

- Existing roadways or travel paths must be used whenever possible.

- The number of temporary access roads will be minimized and road will be designed to avoid adverse effects.
- Access roads will not encroach upon or cross any stream, water body, or wetland, except as permitted in the 404 permit.
- No stream crossings may be built.
- Access ways may not be built mid-slope or on slopes greater than 30 percent.
- All temporary access roads will be obliterated when the project is completed, the soil must be stabilized, and the site re-vegetated with native species indigenous to the project area and reviewed by SNRA.

Pre-Determined Off-site Project Components - Cu-83s (4th of July source)

- Materials will be removed from, and processed in, an upland area. The area will be mined evenly in all directions and will not exceed the depth of the test pits. No wetlands or waterways will be affected by this work.
- Specifically for Cu-83s - there will be no disturbance within 50 feet of the fence on the east boundary.
- Specifically for Cu-83s - there will be no disturbance within 100 feet of FS 209/4th of July Creek Road.
- A sediment and erosion control plan shall be submitted for approval as part of the Contractor's source operation plan (also included in the NPDES SWPPP).
- A petroleum station will be constructed with a subsurface liner and berm designed to capture 110% of the tank capacity. Dispensing of petroleum products will be completed in compliance with Idaho Department of Environmental Quality standards. A spill response and spill prevention plan shall be submitted for approval as part of the Contractor's source operation plan.
- No items will be buried or burned on site. All solid waste/refuse and hazardous materials will be removed and disposed in an approved landfill.
- A fire control plan shall be submitted for approval as part of the Contractor's source operation plan.
- Dust abatement will be utilized when required.
- It is the Contractor's responsibility to acquire all required agreements, permits and clearances to obtain water (if necessary) and provide copies of this documentation to the Source Manager.
- It is the Contractor's responsibility to complete a contract with the Idaho Department of Lands to gain permission to camp at the source sites.

Alternative Off-Site Project Components - off-site project components include staging areas, source areas, waste sites, and any mitigation sites that have not been pre-determined. To be consistent with the overall effects determinations for this action, the off-site project components will not be located:

- Any additional contractor furnished sites such as staging areas, source areas and waste sites that have not been included in this evaluation will not be located within a mapped Lynx Analysis Unit (LAU).
- Any additional contractor furnished sites such as staging areas, source areas and waste sites that have not been included in this evaluation will not be located within 0.25 miles of any other cottonwood or willow communities that are potential yellow-billed cuckoo habitat. Sites in dry, upland areas of this radius do not need additional review.
- Any additional contractor furnished sites such as staging areas, source areas and waste sites that have not been included in this evaluation will not be located within the riparian habitat conservation area (RHCA) as determined by SNRA.

Water Drafting

- Water withdrawal will occur on the south side of Galena Summit (Big Wood River drainage) in order to avoid impacts to ESA listed waterways that occur on the north side of Galena Summit (Upper Salmon River drainage).

- The contractor may choose to pump water from the river for ancillary construction activities (e.g., water for dust abatement). A 3/32-inch mesh screen as per NOAA Fisheries standards would be placed over the intake of the pump to prevent fish from being sucked into the pump. The water would be applied at a volume that would not cause surface run-off. Water drafting operations will conform to NOAA Fisheries standards found at http://swr.nmfs.noaa.gov/hcd/WaterDrafting-02.PDF.

- Access to sites for obtaining water will be coordinated with the USFS by the contractor, when on USFS lands.

Blasting

- Blasting will occur to remove rock from the cut-slopes. All blasting will be conducted in association with the proposed action and will occur on the sections of SH-75 at the Galena Summit (MP 157.90) and Camp Creek (MP 159.30) sites. There will be no more than five blast shots per day.

Reclamation

- The soil surfaces will be left with a rough, corrugated surface to help anchor seed.
- If the slopes are cat-tracked, the tracks will be perpendicular to the slope contour.
- Disturbed areas, new cut and fillslopes, and the reclaimed roadway will be seeded with a mixture of SNRA reviewed native grasses, forbs, and/or shrubs suitable for the site.

- Flatter slopes will be drill seeded for slope protection and seed germination.
- Dry sites may be covered with mulch such as certified weed-free straw, compost, or erosion blankets to retain moisture and facilitate seed germination and survival.
- Earthwork will be completed as quickly as possible and site restoration will occur immediately following use. Planting and re-seeding will use native species indigenous to the project area and reviewed by SNRA.
- Prior to commencing ground disturbing activities, the Contractor shall submit a Weed Control Management Plan that will identify measures to avoid the establishment and spread of noxious weeds. At a minimum, the plan shall include the inspection and cleaning of all construction equipment, use of weed free seed mulches, topsoil and seed mixtures during temporary or final stabilization of the project areas, and the use of eradication strategies in the event a noxious weed invasion occurs. Prior to entering the confines of the USFS-SNRA the Contractor shall thoroughly wash all equipment to be utilized within the project areas or material source sites in order to remove all contamination by noxious weeds.

  A visual inspection shall be performed by the ITD Project Manager or designated appointee for the existence of noxious weeds onsite and shall identify the areas of concern prior to the contractor conducting operations in any area associated with the project. All areas that contain noxious weed seeds and/or plants shall be avoided, treated or removed from the site prior to disturbance or excavation.

  No pesticide applications are allowed within 50 feet of live water.
- No surface application of inorganic fertilizer may occur within 50 feet of live water.
- Fencing must be installed as necessary to prevent access to re-vegetated sites until vegetation is established.

AFFECTED ENVIRONMENT

The project is located on United States Department of Agriculture (USDA) Sawtooth National Recreation Area (SNRA) administered lands. The action area extends approximately 66 feet on each side of the existing SH-75 approximately 8 miles from MP 153.65 to 161.00. The action area includes adjacent SNRA lands such as Galena Summit, the slide zone, several material source locations, and several staging areas, for a total of approximately 182 acres. Specifics are outlined in the Project Description section above.

The Big Wood River subbasin is located on the south side of Galena Summit. The slide zone, proposed toe berm/buttress work area, and the Galena Summit through-cut rock/soil extraction site occur in this subbasin.

The Upper Salmon River subbasin is located on the north side of Galena Summit. The Camp Creek through-cut rock/soil extraction site and the State-controlled mineral materials source site, Cu-83s, occurs in this subbasin.

As the slide project area and both through-cut rock/soil source areas occur at or very near Galena Summit, environmental information for the summit area (e.g., Big Wood River subbasin) will be used to complete the analysis. All other material source sites, processing sites, staging areas, etc. occur in approved State-controlled areas and/or in highway pullouts within the existing ITD 132-foot SH-75 Right Of Way.

The Big Wood River subbasin is made up of three elevation-ecological areas that include the Sawtooth National Forest (> 5,800 feet higher elevation, including the project area near SH-75 MP 156.70), the Wood River Valley (4,000-5,800 feet middle elevation), and the agricultural area (< 4,000 feet lower elevation) (IDEQ 2002).

The annual average precipitation of the Big Wood River subbasin decreases from the higher elevation (20.4”) through the middle elevation (13.4”) through the lower elevation (10.2”) areas. The greatest precipitation occurs in the months of November through March and represents 58.4% of the total annual average precipitation (IDEQ 2002).

The average annual snowfall for the Big Wood River subbasin is 139.6” in the higher elevation, 52.4” in the middle elevation, and 20.1” in the lower elevation. The greatest amount of snowfall occurs from November through March. The average annual snow depth for the Big Wood River subbasin is 128.7” in the higher elevation, 37.0” in the middle elevation, and 6.7” in the lower elevation. The greatest snow depth occurs from November through March (IDEQ 2002).

The annual air temperature range is from 20.9 to 53.8 °F in the higher elevation, from 29.4 to 58.1°F in the middle elevation, and from 35.6 to 64.1°F in the lower elevation, based on a 1931-1998 average (IDEQ 2002).

The slide project area (including the slide slope, the proposed toe berm/buttress area, and access to the toe berm/buttress) and both through-cut rock/soil extraction sites occur at >8,000 feet.

The slide slope is south-facing, is composed of rock and sand/gravel, and is sparsely vegetated with various brush and grass species.

The toe berm buttress area includes the “valley” between the slide slope and the opposing north-facing hillside. Towards the bottom of the slope (south half of the slide area), a relic channel, numerous smaller active channels, and several areas of sheet flow with no defined channel were identified. This is the only area where approximately 3,300 square feet of wetlands will be impacted by the fill of the buttress materials. All other wetlands will be avoided. An intermittent drainage/swale occurs at the slide toe in

the spring during snow-melt. A culvert/drain pipe will be placed through the toe berm/buttress to accommodate this drainage. No instream water work is proposed. Various tree species occur on the north-facing hillside, including a mix of mostly beetle killed lodgepole pine, live and dead subalpine fir, and minor amounts of Douglas-fir and whitebark pine.

Proposed access to the work area on the slide slope and the toe berm/buttress area is along the existing Sawtooth Park Highway/Old US-93 road/trail, which occurs on and adjacent to the slide zone (as described above). Minor improvements (e.g., grading) will be made to the road/trail to accommodate work vehicles.

The Galena Summit through-cut rock/soil extraction site is a rock slope that is very sparsely vegetated.

The Camp Creek through-cut rock/soil extraction site is a vegetated rock slope. Tree species to be removed to accommodate rock and soil extraction include a mix of beetle killed lodgepole pine and lesser amounts of aspen.

With the exception of the mineral materials source site, Cu-83s, there are no project areas in close proximity to a perennial and/or fish-bearing waterway connected to either the Salmon River or the Big Wood River.

The Cu-83s mineral materials source site (SH-75, MP 174.50) includes organic soil and rock that may be used for landscaping/reclamation of the toe berm/buttress. The proposed area of use occurs in an upland area dominated by rock and sagebrush, on the south side of FS 209/4th of July Creek Road, >1.0 mile from the Salmon River. FS 209 occurs between the source site and 4th of July Creek. No disturbance or use will occur within 100 feet of FS 209/4th of July Creek Road. No waterways or wetlands will be affected by the proposed work. ITD has a mineral lease with the Idaho Department of Lands (IDL) for this site.

The existing Horse Creek staging and production area (SH-75, MP 153.80) is located at the base of Galena pass to the south (Big Wood River side). The proposed area of use occurs in an upland area with little to no vegetation. No waterways or wetlands will be affected by the proposed work.

EFFECTS OF PROPOSED ACTION

Cumulative Effects

Cumulative effects are those effects of future State or private activities involving Federal actions that are reasonably certain to occur within the Action Area. No additional future actions are known that will occur within the Action Area. Potential effects on listed species related to existing actions (e.g., road maintenance) will continue.

Interrelated and Interdependent Effects

After two to three years, reinforcement of the highway subgrade should be included to bridge across old slide cracks and to improve pavement performance in the event some subsidence occurs. Since the toe berm would be constructed in the lower section of the slope, it could take a few years for the slide mass to stop moving as passive resistance develops and voids are compressed. Subgrade reinforcement could consist of several layers of geogrid sandwiched between lifts of crushed rock fill. Once the toe berm is constructed, a replacement inclinometer will be installed to verify slowing of slide movements. Access to the inclinometer will be from the reconnected portion of the Sawtooth Park Highway/Old US-93. Shifting the highway back onto its original alignment will be delayed for a few years to allow the remaining “take-up” deformations to occur.

Determination of Effects – ESA listed species

Canada Lynx *(Lynx Canadensis)*

On March 24, 2000 the USFWS listed the Canada lynx as threatened under the ESA across the contiguous United States. The listing provided protection for lynx within 13 states including Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, and Wisconsin (65 FR 16051). On September 12, 2014, the listing was revised to include the state of New Mexico (79 FR 54781).

On November 9, 2006 critical habitat for the Canada lynx was designated within the states of Minnesota, Montana, and Washington (71 FR 66008). On February 25, 2009 (74 FR 8616), and again on September 12, 2014 (79 FR 54781), the critical habitat designation was revised to include additional areas in Minnesota, Montana, and Washington, and added areas within the states of Idaho (in Boundary County), Maine and Wyoming.

The lynx is a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back, and grayish-white or buff-white fur on the belly, legs and feet. Summer pelage of the lynx is more reddish to gray-brown. Adult males average 22 pounds in weight and 33.5 inches in length (head to tail), and females average 19 pounds and 32 inches. The lynx’s long legs and large feet make it highly adapted for hunting in deep snow (ECOS 2017).

Lynx habitat can generally be described as moist boreal forests that have cold, snowy winters and a high-density snowshoe hare (*Lepus americanus*) prey base. Canada lynx primarily occur in the boreal, sub-boreal, and western mountain forests of North America. The quality of Canada lynx habitat is thought to decrease toward its southern range due to a decrease in density of prey (primarily snowshoe hare) and the fragmentation of habitat. In the western United States, Canada lynx occur most often in spruce/fir and fir/hemlock forests dominated by lodgepole pine *(Pinus contorta)*, Engleman spruce *(Picea engelmannii)*, sub alpine fir *(Abies lasiocarpa)*, quaking aspen (*P. tremuloides*) and white bark pine *(Pinus albicaulis)* at elevations that range from 1,400 to 2,700 meters (4,592 to 8,856 feet). Lynx require a landscape mosaic of forest habitats for foraging, denning, and travel. An uninterrupted forest community with low topographic relief and stands of varying ages is preferred lynx habitat (Koehler and Aubry 1994).

Snowshoe hares are the primary prey of lynx, comprising the bulk of the lynx diet throughout its range. Without high densities of snowshoe hares, lynx are unable to sustain populations despite utilizing a multitude of other prey when snowshoe hare numbers are low. Other prey species include red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus, Dendragopus spp., Lagopus spp*.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii, S. Richardsonii*), porcupine (*Erethrizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus spp*.), voles (*Microtus spp*.), shrews (*Sorex spp*.), and fish. Ungulate carrion may also be consumed (ECOS 2017).

Individual lynx maintain large home ranges generally between 12 to 83 square miles. The size of lynx home ranges varies depending on abundance of prey, the animal's gender and age, season, and the density of lynx populations. When densities of snowshoe hares decline, for example, lynx enlarge their home ranges to obtain sufficient amounts of food to survive and reproduce. Lynx also make long distance exploratory movements outside their home ranges. Preliminary research supports the hypothesis that lynx home ranges at the southern extent of the species' range are generally large compared to those in the core of the range in Canada, indicating a relative reduction of food resources in these areas (ECOS 2017).

Breeding typically occurs through March and April, and kittens are born in May to June. The male lynx does not help with rearing young. Yearling females may give birth during periods when hares are abundant. During periods of hare abundance in the northern taiga, litter size of adult females averages four to five kittens. Litter sizes are typically smaller in lynx populations in the contiguous United States (ECOS 2017).

In all regions within the range of the lynx in the contiguous United States, timber harvest and recreation, and their related activities, are the predominant land uses affecting lynx habitat. The primary factor that caused the lynx to be listed was the lack of guidance for the conservation of lynx and snowshoe hare habitat in plans for federally managed lands. Landscape connectivity between lynx populations and habitats in Canada and the contiguous United States must be maintained. Lynx movements may be negatively

affected by high traffic volume on roads that bisect suitable lynx habitat, such as in the Southern Rockies, and in some areas, mortalities due to road kill are high (ECOS 2017).

The project area includes 3 different Lynx Analysis Units (LAUs). The slide area occurs in the Upper Big Wood LAU. The Camp Creek through-cut area occurs in the Upper Salmon-Beaver LAU. The State-controlled mineral material source site Cu-83s occurs in the Fisher-Taylor LAU (Garwood 2016).

No lynx populations have been recently documented in the SNRA (Klingler 2015).

There are 5 Idaho Department of Fish and Game (IDFG) recorded Canada lynx occurrences within a 5-mile radius of the Galena Summit Slide Project Area, dating between 1896 (confirmed specimen, 2.3 miles from the project area) and 1998 (confirmed tracks, 4.33 miles from the project area) (Waterbury 2017). Refer to the Lynx and Wolverine Occurrences Map in Appendix B.

There are no recorded Canada lynx occurrences within a 5-mile radius of Cu-83s (Waterbury 2017).

The proposed project **may affect** Canada lynx because 1) there are recorded lynx occurrences within a 5-mile radius of the summit slide work area, and 2) suitable habitat, including suitable preferred prey habitat, exists throughout the BA project area.

The proposed project is **not likely to adversely affect** Canada lynx because 1) project timing will avoid the lynx reproductive period, 2) much of the work area is already part of the existing transportation facility, and therefore, no measurable change in habitat is expected, and 3) habitat connectivity is high throughout the BA project area and the species will be able to easily avoid the project area.

North American Wolverine *(Gulo gulo luscus)*
The North American wolverine is currently listed as proposed threatened. On October 26, 2011 the wolverine was included by the USFWS in an updated list of species regarded as candidates for addition to the ESA list (76 FR 66370). On February 4, 2013, the USFWS proposed to list the distinct population segment of the North American wolverine occurring in the contiguous United States as a threatened species under the ESA (78 FR 7863). On August 13, 2014, the USFWS withdrew the proposed rule to list this same population segment of wolverine as threatened (790 FR 47521). And, on October 8, 2016, the public was notified that the USFWS was reopening the comment period on their February 4, 2013 proposed rule to list the distinct population segment of the North American wolverine occurring in the contiguous United States as a threatened species under the ESA (81 FR 71670).

The wolverine is the largest terrestrial mustelid (a member of the weasel family). Adult males typically weigh 26 to 40 pounds, while adult females average 17 to 26 pounds. The wolverine resembles a small bear with a bushy tail, a broad head, small eyes, and

short, rounded ears. Wolverines have glossy, dark-brown fur, a light face-mask, and stripes running down both sides of their bodies. They are powerfully-built animals, with short legs and wide feet built for traveling across deep snow. Each foot has five toes with curved, semi-retractile claws used for digging and climbing (USFWS 2017).

The North American wolverine inhabits arctic, boreal, (northern, sub-arctic forest) and alpine habitats in Alaska, western Canada, and the western contiguous United States. South of the Canadian border, wolverines are restricted to high mountain environments near the treeline, where conditions are cold year-round and snow cover persists well into the month of May. Deep, persistent, spring snow is required for successful wolverine reproduction because female wolverines dig elaborate dens in the snow for their offspring. These den structures are thought to protect wolverine kits from predators and the harsh conditions of alpine winters (USFWS 2017).

Wolverines live in remote and inhospitable places, at high elevations away from human populations. They naturally occur at low densities, and are rarely encountered where they do occur. In the contiguous United States, wolverines currently occur in the North Cascades Range in Washington and the Northern Rocky Mountains of Idaho, Montana, Oregon (Wallowa Range), and Wyoming. Individual wolverines have also moved into historic range in the Sierra Nevada Mountains of California and the Southern Rocky Mountains in Colorado, but have not established breeding populations in these areas (USFWS 2017).

A small number of historical records confirm that wolverines once occurred in the Great Lakes region of the United States and Canada. However, based on the low number of records and the current lack of suitable wolverine habitat in the Great Lakes area (such as year-round cold and persistent spring snow), it is concluded that this region, as well as areas further east, likely did not support resident wolverines in the past and does not provide climatic conditions suitable for wolverine occupancy and reproduction today (USFWS 2017).

Wolverines require a lot of space; the availability and distribution of food is likely the primary factor in determining wolverine movements and home range size. Wolverines travel long distances over rough terrain and deep snow, and adult males generally cover greater distances than females. Home ranges of wolverines are very large, but vary greatly depending on availability of food, gender, age, and differences in habitat. These home range sizes are large for mammals of the size of wolverines and may indicate that wolverines occupy a relatively unproductive niche (USFWS 2017).

Wolverines breed from late spring to early fall. Females undergo delayed implantation until the following winter to spring, when active gestation lasts from 30 to 40 days. Females give birth between February and April to litters containing one to five young, with an average in North America of between one and two kits. Females use birthing dens that are excavated in snow. Persistent, stable snow greater than 5 feet deep appears to be a requirement for natal denning because it provides security for offspring and buffers cold winter temperatures. Wolverine reproduction is food-limited, meaning

that females often are not able to bear and raise young to adulthood due to lack of nutritional resources. Female wolverines only reproduce every other year on average, enabling them to conserve energy and improve the odds of success in breeding years. This erratic reproduction pattern, combined with small litter sizes, makes the reproductive rate for wolverines one of the lowest known for mammals (USFWS 2017).

Wolverines, while primarily carnivorous scavengers, are opportunistic feeders that consume a variety of foods, depending on availability. They are known for scavenging the carrion of large animals like elk, deer, and moose, but they are also capable of killing small mammals and birds. Wolverines prey upon pikas, marmots, ground squirrels, porcupines, and snowshoe hares. Occasionally, wolverines also consume insects, eggs, berries, and roots (USFWS 2017). Wolverines exhibit consistent use of avalanche chute habitats in all season given the prevalence of avalanche killed large mammals in winter and availability of marmots and ground squirrels in summer (IDFG 2014).

Climate change is the threat with the greatest potential to impact the North American wolverine. A warming climate will likely result in a loss of suitable habitat due to increased summer temperatures and a reduced incidence of persistent spring snowpack. According to analyses completed by the University of Washington's Climate Impacts Group and the USDA Forest Service's Rocky Mountain Research Station, wolverine habitat in the contiguous United States is likely to decrease in aerial extent by 23% by 2045 and 63% by 2099. With lower elevation habits becoming unsuitable, remaining wolverine habitat is likely to become more fragmented. Connectivity between remaining wolverine habitats will be reduced, increasing rates of loss of genetic diversity and making the retention of small populations more difficult (USFWS 2017).

Other threats have the potential to act in concert with climate change to exacerbate impacts on wolverines. Recreation, especially during the denning season, is one such threat, as mother wolverines tend to move their kits to alternate denning areas once humans have been detected nearby. Recreational activities such as snowmobiling and backcountry skiing have the potential to affect wolverines. However, further research is needed to confirm whether these activities have measurable impacts on the species (USFWS 2017).

There are 4 IDFG recorded wolverine occurrences within a 5-mile radius of the Galena Summit Slide Project Area, dated 1976 (confirmed specimen, trapped 2 miles from the project area) and 1990 (3 different sets of tracks, 4.0, 4.2 and 4.6 miles from the project area) (Waterbury 2017). Refer to the Lynx and Wolverine Occurrences Map in Appendix B. These wolverine records are recent and indicate year-round presence on Galena Summit, which is expected given the species is cold- and snow-adapted (Waterbury 2016).

There are multiple USFS recorded occurrences of wolverines within a 5-mile radius of the project area (Garwood 2016). Refer to the Galena Summit Slide Wolverine Locations Map in Appendix B.

There are 4 IDFG recorded wolverine occurrences within a 5-mile radius of the State-controlled mineral material source site Cu-83s: 1989, live observation 0.4 mile from SH-75; 1989, tracks 0.1 mile from SH-75; 1993, 2 separate live observations on SH-75 (Waterbury 2017).

Suitable habitat exists throughout the BA project area (Waterbury 2016).

The proposed project will **not jeopardize** the continued existence of the North American Wolverine Distinct Population Segment because 1) road projects have not been identified as a threat to wolverines in the proposed listing rule, and transportation corridor development is specifically cited as an allowed activity in the proposed rule, 2) much of the work area is already part of the existing transportation facility, and therefore, no measurable change in habitat is expected, and 3) project timing will avoid the species' critical denning and birthing season.

ITD is committed to reevaluate the ESA determination if the wolverine is listed prior to the end of construction because 1) there are recorded wolverine occurrences within a 5-mile radius of the summit slide work area and the two State-controlled mineral material source sites, and 2) suitable habitat exists throughout the BA project area.

Determination of Effects – USFS R4 Sensitive Species

Spotted Bat (*Euderma maculatum*)
"Spotted bats characteristically occur in association with open forests, marshy areas, open pastures and riparian habitats. Individuals roost solitarily in cracks or crevices in rocky outcrops and cliffs and occasionally have been documented to roost in trees (Rabe et al 1998). Dominant vegetation at Idaho sites includes sagebrush, juniper, mountain mahogany, and cottonwood. Elsewhere this species has been found in ponderosa pine forests. In Idaho, the species occurs predominately in the deep, narrow canyons in the southwest, but scattered records have been reported in the south-central part of the state, as well as in the Salmon River canyon in central Idaho. They forage nocturnally on large flying insects especially moths. They hibernate during the winter and emerge in spring, generally March or April depending on daytime temperatures." (qtd. in Klingler 2015)

"Population trends for this species are unknown in the SNRA. There are no observations for spotted bat in both the IDFG Natural Heritage Database (July 2014) or SNRA wildlife records." (qtd. in Klingler 2015) No surveys have been conducted in the project area.

Foraging and possible roosting habitat exists in the project area (Garwood 2016).

There are no IDFG recorded observations within the project area (Waterbury 2017).

Blasting has the potential to disturb bats if they are present when it occurs. Rock outcrops along the excavation sites (Galena Summit and Camp Creek) may provide

potential bat roosting habitat. However, it is expected that a low number of bats utilize these areas immediately adjacent to the highway corridor, and there are many sites suitable for roosting away from the roadway and immediate project area. Temporary disturbance to spotted bat foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)
"Townsend's big-eared bats are nocturnal insectivores feeding primarily on moths along forest edges, roads, or open areas within the forest. They roost in crevices of rocky outcrops, caves, old mines or buildings (Kunz and Martin 1982, Christy and West 1993). Unlike many species that seek refuge in crevices, Townsend's big-eared bat forms highly visible clusters on open surfaces making them extremely vulnerable to disturbance (Christy and West 1993). Townsend's big-eared bats hibernate during the winter and emerge in spring, generally March or April depending on daytime temperatures." (qtd. in Klingler 2015)

"Population trends for this species are unknown in the SNRA." (qtd. in Klingler 2015) Townsend's big-eared bats have been found in the Warm Springs drainage on the Ketchum Ranger District." (qtd. in Garwood 2007) No surveys have been conducted in the project area.

Foraging and possible roosting habitat exists in the project area (Garwood 2016).

The IDFG database shows only two occurrences anywhere near the project vicinity (both are approximately 30 km to the east in 2010). However, the species may occur in the area due to the presence of abandoned and legacy mines and adits in the local mountains (Waterbury 2010).

Blasting has the potential to disturb bats if they are present when it occurs. Rock outcrops along the excavation sites (Galena Summit and Camp Creek) may provide potential bat roosting habitat. However, it is expected that a low number of bats utilize these areas immediately adjacent to the highway corridor, and there are many sites suitable for roosting away from the roadway and immediate project area. Temporary disturbance to Townsend big-eared bat foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Pygmy Rabbit (*Brachylagus idahoensis)*
"Pygmy rabbits are considered a sagebrush obligate species. They are typically found in areas of tall, dense sagebrush (Artemisia spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. Their diet in the winter

consists of up to 99 percent sagebrush. Home range size can vary from 0.5 acres to 2.5 acres (Katzner and Parker 1997). Pygmy rabbits excavate and use extensive burrow systems in relatively deep loose soils that allow ease of excavation (Weiss and Verts 1984)." (qtd. in Klingler 2015)

"Population and distribution of pygmy rabbits have declined range wide due to habitat loss and fragmentation caused by: conversion of sagebrush rangeland to agriculture; development, including oil and gas production; and wildfire frequency in some areas (Rachlow and Svancara 2006). Population trend for pygmy rabbits is unknown within the SNRA. No observations have been made on the SNRA, but surveys have not been conducted. A University of Idaho research project was initiated in 2003 conducting surveys for pygmy rabbits in areas mapped as having the highest potential using GIS techniques and habitat characteristics from known species locations (Rachlow and Svancara 2006). Based on this analysis potential habitat does occur on the SNRA. There are no observations for pygmy rabbits in both the IDFG Natural Heritage Database (July 2014) or SNRA wildlife records in the project area. What little habitat there is occurs in isolated patches among large forested areas." (qtd. in Klingler 2015)

The project area does not provide habitat for pygmy rabbit (Garwood 2016).

The project area occurs out of range for the species (Waterbury 2017).

Gray Wolf (*Canis lupus*)
"Gray wolves are habitat generalists inhabiting a variety of plant communities that typically contain a mix of forested and open areas with a variety of topographic features. Historically, they occupied a broad spectrum of habitats including grasslands; sagebrush-steppe; and coniferous, mixed, and alpine forests. According to the Wolf Recovery Plan, the three key components of wolf habitat are relatively simple: (1) year-round prey base of ungulates and alternate prey; (2) secluded denning and rendezvous sites; and (3) open spaces with minimal exposure to humans (USFWS 1987). Wolves prey mainly on ungulates year-round (Mech 1970). The basis of a wolf population is the pack, which Mech (1970) defined as a cohesive group of two or more individual wolves traveling, hunting, and resting together throughout the year. Packs generally consist of two breeding adults, pups, yearlings, and/or extra adults. Wolf packs generally require large home ranges. Actual size of a pack's home range depends mainly on pack size, weather, and prey abundance, and distribution. Territories in the northern Rocky Mountains tend to range from 200-400 square miles (USFWS 2003)." (qtd. in Klingler 2015)

"The USFWS released 35 wolves in central Idaho during the winters of 1995 and 1996 as part of the Northern Rockies Wolf Recovery Plan. While the Northern Rocky Mountain Distinct Population Segment of the gray wolf was removed from the Federal List of Endangered and Threatened Wildlife by the USFWS on March 28, 2008, the U.S. Federal District Court in Missoula, Montana, issued a preliminary injunction that immediately reinstated the ESA protections for gray wolves in the northern Rocky Mountains effective July 18, 2008. On May 5, 2011, the USFWS reissued the April 2,

2009, final rule that identified the Northern Rocky Mountain population of gray wolf as a distinct population segment. As a result of this action, wolves were again delisted in Idaho and wolf management responsibility returned to the State of Idaho on May 5, 2011." (qtd. in Klingler 2015)

The Sawtooth Valley is in the Sawtooth Wolf Management Zone that as of 2015 had 13 documented packs with 3 other documented groups with a total of 71 wolves detected (IDFG 2015).

The Southern Mountains Wolf Management Zone includes the Smokey and Soldier Mountain Ranges in the central portion and the Boulder, White Cloud, Pioneer and Beaverhead Mountain Ranges in the northeast portion. These mountain ranges are intersected by several major river drainages, including the South Fork Boise, Big Wood River (project area), Big Lost, Little Lost, East Fork Salmon, Salmon, Pahsimeroi and Lemhi rivers. As of 2015 this management zone had 9 documented packs with 1 other documented group with a total of 30 wolves detected (IDFG 2015).

There are two documented observations near the project area. One public observation approximately 2 km north of the project area, and one public observation approximately 4 km south of the project area, both in 2010 (Waterbury 2017).

Gray wolf foraging habitat occurs in the project area. The entire project area has habitat and the major prey species (elk, deer and moose) that wolves need to exist (Garwood 2016).

The highway stabilization project is not expected to cause direct disturbance to the species. Much of the work area is already part of the existing transportation facility, and therefore, no measurable change in habitat is expected. Temporary disturbance to gray wolf foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Fisher (*Martes pennanti*)
"Fisher habitat can best be described as a variety of low and mid-elevation forested plant communities that have moderate to dense forest canopy and a diversity of forest successional stages (Lofroth et al 2011). The structural diversity of forest stands may be a more important factor for fisher than are plant community types. A research project in central Idaho observed fisher shifting their use of habitat seasonally, with mature and old-growth forests being used in the summer, and young forest cover types used in the winter (Lofroth et al. 2011). Various studies have reported fisher associations with water or riparian areas with 70% of fisher locations being within 100 meters of riparian areas in the central Idaho project (Lofroth et al. 2011). Fishers rest primarily in live trees, and will often select trees with rust brooms or mistletoe, which are structural features that provide rest platforms (Lofroth et al. 2011). Snags are used less

often as resting sites; when snags are used, they are usually large snags with large cavities. Coarse down wood is also used as rest structures, including hollow portions of logs or spaces created by coarse down wood under the snow. Fishers are obligate users of tree cavities and are a critical resource for reproductive dens (Lofroth et al. 2010). Cavities in both live and dead trees are utilized, and provide both thermal insulation and security from potential predators for kits. Females utilize internal cavities with relatively small openings for natal dens—using openings as small as 3-4"—openings may be created by branches breaking away from the bole, fire scars, cracks in the bole, and pileated woodpecker excavations (Lofroth et al. 2011). Fishers are opportunistic predators, primarily of small forest mammals—e.g., snowshoe hares, voles, squirrels, and mice— and birds. Home range sizes for fishers in Idaho, based on the central Idaho study, were 31.8 square miles for males and 15.7 square miles for females (Lofroth et al 2011)." (qtd. in Klingler 2015)

"Population trends for this species in unknown on the SNRA." (qtd. in Klingler 2015)

There are two IDFG documented observations near the project area (Sawtooth Valley). One public observation (low certainty) approximately 10 km west of the project area in 2010. One verified observation 15 km northwest of Stanley in 2014 (Waterbury 2017).

There is one USFS confirmed occurrence (camera trap picture) within the Sawtooth Valley from 2016, approximately 12 air miles from the slide area (Garwood 2018).

Fisher foraging habitat occurs in the project area (Garwood 2016). Fisher foraging habitat within the project area most likely occurs near the State-controlled mineral material source site, Cu-83s, in the Sawtooth Valley. This is an established staging and source area, and therefore, no measurable change in potential fisher habitat is expected.

The Galena Summit Slide construction area occurs at a high elevation and therefore may not be suitable for fisher (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species. Temporary disturbance to fisher foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Bighorn Sheep (*Ovis Canadensis*)
"Bighorn sheep are primarily animals of open habitats, such as alpine meadows, open grasslands, shrub-steppe, talus slopes, rock outcrops, and cliffs. Habitat is often naturally fragmented within a much larger landscape, resulting in many populations that are comparatively small, often consisting of less than 150 individuals. In general, bighorn sheep forage opportunistically, feeding on plant species that are available seasonally, include a combination of forbs, grasses, and browse (Beecham et al. 2007).

Foraging typically occurs in open habitats that enable earlier predator detection and provide ample vegetation. Densely forested areas provide little forage and poor visibility and are rarely used, but open forests are sometimes used for foraging and thermal cover (Beecham et al. 2007). Many populations migrate between seasonal ranges, with movements involving elevation and aspect shifts driven by behavioral, physiological, or environmental factors. The general pattern of seasonal migrations is for movement to higher elevations in May or June to take advantage of high quality, highly digestible new vegetative growth (Beecham et al. 2007). Winter migration to lower elevation, south-facing slopes typically occurs in October and December and is also defined as escape terrain that receives less than 10 inches of snow (Smith et al. 1991). Escape terrain typically consists of steep slopes with sparse to no vegetation and are important features in any bighorn habitat. Females are generally found within 100 to 300 meters of escape terrain (Smith et al. 1991). Males are found to venture further from escape terrain, most likely to pursue optimal foraging ground to support their greater body mass and because they are at less risk of predation and have no young to protect (Beecham et. al. 2007)." (qtd. in Klingler 2015)

"Idaho Department of Fish and Game currently ranks the bighorn sheep population (north of the Snake River) as a G4 S4 species which is defined as 'apparently secure: uncommon but not rare; some cause for long–term concern due to declines or other factors' (IDFG 2005). Bighorn sheep populations have declined rapidly throughout the state in recent decades from 3,850 in 1990 to 1,873 in 2008 (IDFG 2010). Within the SNRA bighorn sheep populations historically occurred in the Sawtooth Mountains and throughout the White Cloud and Boulder mountain ranges (Toweill and Geist 1999). Individual bighorn sheep have been observed in other portions of their historical range in the SNRA and Ketchum Ranger Districts over the past two decades but no documented populations have reestablished." (qtd. in Klingler 2015)

Although the project area overlays with the Payette summer range model for suitable bighorn sheep habitat, bighorn sheep are not distributed in the area. The nearest populations are the East Fork Salmon River and Pioneer population management units (PMU) to the north and east of the project area (Waterbury 2017). The East Fork Salmon PMU had a count of 68 bighorn sheep in 2008 (IDFG 2010). On average, there are confirmed sightings of bighorn sheep in the Pioneer PMU every 2-3 years. Often, these sheep are young rams that are observed once or a few times, but then apparently leave the area. It is uncertain of the source populations for these sheep; they may migrate from either the East Fork Salmon River population or the Lost River population. There does not appear to be a persistent bighorn sheep population in the Pioneers PMU (IDFG 2010).

Bighorn sheep dispersal habitat exists in the project area (Garwood 2016).

The highway stabilization project is not expected to cause direct disturbance to the species. Much of the work area is already part of the existing transportation facility, and therefore, no measurable change in habitat is expected. Temporary disturbance to bighorn sheep dispersal habitat may occur during construction. Habitat connectivity is

high throughout the project vicinity and the species will be able to easily avoid the immediate project area. The temporary disturbance is not expected to result in a change in survivorship or reproductive success.

Common Loon (*Gavia immer*)
"Common loons breed on large (usually greater than nine acres), clear lakes at elevations of 5,000 to 9,000 feet. A territory generally contains a secluded shoreline area that protects the nest from wave action and an area of shallow water with emergent vegetation within a protected cove or bay for chick rearing. Loons avoid lakes with high levels of human activity for breeding. During migration, loons will forage at staging lakes along their way. Fish are the primary prey, but loons will also eat amphibians, crustaceans, aquatic insects, and some vegetation (Ritter 1989)." (qtd. in Klingler 2015)

"Population trends for this species is unknown within the SNRA. No confirmed breeding has occurred in the SNRA though nesting habitat is present on the large moraine lakes. Currently the developments in the Redfish Lake complex and associated human activity preclude common loon nesting. Loons are known to use these lakes, including Redfish Lake, during spring and fall migrations when there is less human activity. Multiple observations have been recorded on Redfish Lake both in the IDFG Natural Heritage Database (July 2014) and in SNRA wildlife records." (qtd. in Klingler 2015)

The project area does not provide habitat for common loon (Garwood 2016).

Bald Eagle (*Haliaeetus leucocephalus*)
"Bald eagles require tall, large diameter trees in order to build their large nests. Most are built near open water with an adequate food supply. Fish are the primary food for bald eagles but they are also known to eat waterfowl and upland game birds, small mammals and carrion. Winter habitat is variable but generally requires open water for foraging or a reliable source of carrion with adequate perch trees nearby. Human presence can disturb and, at least temporarily, displace bald eagles. Displacement during the nesting season can cause adults to change nest sites or allow eggs to become so chilled that they fail to hatch. If disturbed too much, parent eagles will abandon a nest site, but are less likely to leave after their young hatch." (qtd. in Klingler 2015)

"Population trend for this species is positive within the SNRA over the past 25 years. Bald eagles frequently use the moraine lakes during spring and fall and the Salmon River during the winter where open water exists. Since 2006 one breeding pair of eagles established a breeding territory on the SNRA and one breeding pair established a territory on private land adjacent to the SNRA. Both of these territories are located in the northern Sawtooth Valley close to the Salmon River. Both the IDFG Natural Heritage Database (July 2014) and SNRA wildlife records have observations of bald eagles on Redfish Lake, Little Redfish Lake and the Salmon River. Currently, developments and associated human activity within the Redfish Lake complex likely prohibit bald eagle nesting in this area." (qtd. in Klingler 2015)

The project area occurs in a migratory path for the Bald Eagle (Garwood 2016).

The nearest known nest site is in new territory in Pole Creek approximately 10 km north of the project site (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species. Vegetation removal for the proposed project will be timed to avoid interference with migratory birds. The project would not affect any known nest sites. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area. The temporary disturbance is not expected to result in a change in survivorship or reproductive success.

Northern Goshawk (*Accipter gentilis*)
"Goshawk home ranges in mixed coniferous forests are approximately 6,000 acres and comprise a nest area of approximately 30 acres, a post fledgling area—PFA—of approximately 420 acres and a foraging area of 5,400 acres (Reynolds et al. 1992). Nest area generally has high canopy cover—50-60%—and a high density of trees larger than 20" dbh. Data from nests on the SNRA show that goshawks will successfully nest in smaller trees and a lower canopy cover. The PFA provides cover and prey for the fledglings while developing their flying and hunting skills. These areas should have canopy cover greater than 50% with well-developed understories. Goshawks tend to use mature forests and forest edges for foraging. Snags, downed logs, small openings, herbaceous and shrubby understories are also necessary requirements for their prey (Reynolds et al. 1992). Goshawks prey on a wide range of forest-dwelling birds and mammals such as grouse, woodpeckers, squirrels and snowshoe hare. Goshawks do not migrate long distances, but may move off their breeding territories during winter in order to find food. They tend to move to lower elevations with less snow during the winter and return to breeding territories in March and April." (qtd. in Klingler 2015)

"Population trend estimates for the goshawk tend to be stable on the SNRA. This estimate is based on surveys for goshawks conducted on the north end of the Sawtooth National Forest over the past 17 years. There are several known territories in the Sawtooth Valley that have produced fledglings." (qtd. in Klingler 2015)

Two Goshawk nesting territories occur within five miles of the project area, one within 2 miles and one within 3 miles (Garwood 2018).

Recent observations have been recorded at Alturas Lake and Pole Creek, each about 10 km from the project area (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species even though forests surrounding the project vicinity are potential goshawk habitat. Temporary disturbance to goshawk foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging

habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Peregrine Falcon (*Falco peregrinus*)
"Peregrine Falcon habitat includes many terrestrial biomes in North America. Most often, breeding Peregrine Falcons utilize habitats containing cliffs and almost always nest near water (BNA 2005). Peregrine Falcons generally utilize open habitats for foraging. Non-breeding Peregrine Falcons may also occur in open areas without cliffs. Many artificial habitats like towers, bridges and buildings are also utilized by Peregrine Falcons (BNA 2005). Their prey mainly consists of birds ranging from small passerines to mid-sized waterfowl. Peregrine Falcons are aerial and perching hunters that rarely scavenge. From perches, Peregrines dive quickly to capture prey." (qtd. in Klingler 2015)

"Population trend for this species is unknown on the SNRA, however, the discovery of three nesting territories in the Sawtooth Wilderness within the past 17 years indicates an increasing trend on the SNRA. Both the IDFG Natural Heritage Database (July 2014) and SNRA wildlife records have observations throughout the Sawtooth Valley." (qtd. in Klingler 2015)

Peregrine Falcon foraging habitat exists in the project area (Garwood 2016).

The nearest known territory is in Frenchman's Creek approximately 5 km west of the project area (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species even though forests surrounding the project vicinity are potential falcon habitat. Temporary disturbance to falcon foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Greater Sage-grouse (*Centrocercus urophasianus*)
"Sage-grouse depend on sagebrush (Artemisia spp.) for much of their annual food and cover during all periods of the year (Connelly et al. 2004). Home range sizes vary greatly based on habitat quality and season of use and have been documented from 25-7,000 acres (Schroeder et al. 1999). Summer habitats used by sage-grouse include riparian and upland meadows and sagebrush grasslands where females are able to find sufficient forbs and insects to help rear young (Connelly et al. 2004). Sage-grouse breeding habitats are defined as those where lek attendance, nesting, and early brood-rearing occur (Connelly et al. 2000, Connelly et al. 2003). These habitats are sagebrush-dominated rangelands, typically consisting of large, relatively contiguous sagebrush stands, and are critical for survival of sage-grouse populations (Connelly et al. 2000). Winter habitats of sage-grouse are dominated by above snow sagebrush that

provides shelter and food during this time of the year (Connelly et al. 2000 and 2004)." (qtd. in Klingler 2015)

"Sage-grouse populations have been on the decline throughout its range since the 1950's (Braun 1998). The main causes for the decline are habitat loss, fragmentation and degradation. Cumulative factors including sagebrush control and removal, inappropriate livestock management, energy development and urbanization add to those causes (Connelly et al. 2004). Increased fire frequency in lower elevation sagebrush habitats, often closely tied to invasion of annual grasses, has resulted in losses of sagebrush. Decreased fire frequency in higher elevation sagebrush habitats and impacts from inappropriate livestock grazing and other factors have resulted in conifer encroachment and subsequent reduction of the herbaceous understory and sagebrush canopy cover (Connelly et al. 2004). Population data from IDFG show declines in sage-grouse numbers throughout the state. Breeding Bird Survey Data for Idaho show a -2.43% change per year from 1966-2012 (Sauer et al. 2014)." (qtd. in Klingler 2015)

"Population trend for this species is unknown within the SNRA. A small, remnant population of greater sage-grouse is present within the upper Sawtooth Valley. The status of this population is unknown, but thought to be stable to declining." (qtd. in Garwood 2007)

Nesting and brood-rearing habitat is available on the State-controlled mineral material source site, Cu-83s (Garwood 2016). This is an established staging and source area, and therefore, no measurable change in potential sage grouse habitat is expected.

A small population existed historically in the Sawtooth Valley, but its current status is unknown. IDFG surveys every two years, but has not documented any sage grouse for almost two decades. The nearest populations are approximately 25 miles to the east and 30 miles to the south (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species. The temporary disturbance near potential sage grouse habitat is not expected to result in a change in survivorship or reproductive success.

Mountain Quail (*Oreortyx pictus*)
"Mountain quail breed and winter in shrub–dominated communities. The composition of these communities may vary from manzanita and oak–dominated areas in more coastal habitats to riparian areas of hawthorn, willow, and chokecherry in the intermountain West (BNA 2005). Diet is dominated by plant material though invertebrates are very important during the first 8 weeks. Use of the seed heads and bulbs are important food sources in Idaho (Reese et al. 2005). Perennial forbs and mast–producing shrubs also are both important for foraging (Reese et al. 2005)." (qtd. in Klingler 2015)

“There are no known populations of mountain quail on the SNRA, though no surveys for this species have been conducted. (qtd. in Klingler 2015) An individual was observed on the Boise Forest approximately 50 miles from the SNRA.” (qtd. in Garwood 2007)

The project area does not provide habitat for mountain quail (Garwood 2016).

The project area occurs out of range for the species (Waterbury 2017).

Great Gray Owl (*Strix nebulosa*)
“Great gray owls are found in a large range of habitats including subalpine coniferous forests, dense boreal and montane coniferous forests (Johnsgard 1988). They primarily forage in open stands of mature forest and along meadow edges (Bull et al. 1988). Important factors of foraging habitat include high prey density, perch availability and forests that are open enough to allow the owls to move freely (Bull et al. 1988). Great gray owls do not build their own nests instead using existing nests built by other species, debris platforms, mistletoe brooms and tops of broken off snags. Great gray owls forage on small mammals particularly voles and pocket gophers.” (qtd. in Klingler 2015)

“Population trend for this species is unknown on the SNRA. Surveys for great gray owls have been conducted on the SNRA and the Sawtooth Valley with both individuals and nesting pairs being detected in lodgepole pine forests adjacent to meadows. Great gray owls have also been observed throughout the Sawtooth Valley using old Northern Goshawk nests for their own nesting purposes.” (qtd. in Klingler 2015) No surveys have been conducted within the project area.

Great gray owl foraging habitat may exist in the project area (Garwood 2016).

Great gray owls are typically resident, so may also nest in the project vicinity (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species even though forests surrounding the project vicinity are potential great gray owl habitat. The project will not impact any known nest sites. Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season. Temporary disturbance to great gray owl foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Flammulated Owl (*Otus flammeolus*)
“Flammulated owls occupy mid-elevation old-growth or mature stands of open ponderosa pine, Douglas-fir, and stands co-dominated by these two species (Groves et al. 1997). Owls have also been documented to use cavities in aspen stands throughout

their range (Groves et al. 1997). Multiple canopy layers, low tree densities, moderate to low canopy closure and moderate ground cover were also characteristics of Flammulated owl habitat in Central Idaho (Groves et al. 1997). Flammulated owls are cavity nesters, using natural cavities and—more commonly— old woodpecker holes in large trees and snags. They hunt exclusively at night, preying on invertebrates—moths, beetles, crickets and grasshoppers—, using foraging tactics uniquely adapted for open forest habitats. This species is migratory and does not arrive on its breeding territories until May in Central Idaho." (qtd. in Klingler 2015)

"Population trend for this species is unknown on the SNRA. A few surveys have been conducted on the SNRA and Ketchum Ranger District where they have been observed in Douglas-fir dominated forests." (qtd. in Klingler 2015) No surveys have been conducted in the project area.

Flammulated owl foraging and possible nesting habitat exists in the project area (Garwood 2016).

The IDFG database has no flammulated owl observations in the project vicinity, which is subalpine forest, atypical for the flammulated owl. Flammulated owl observations occur in lower elevations in the Wood River Valley and below Stanley (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species even though forests surrounding the project vicinity are potential flammulated owl habitat. The project will not impact any known nest sites. Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season. Temporary disturbance to flammulated owl foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Boreal Owl (*Aegolius funereus*)
"The boreal owl inhabits boreal and subalpine forested habitats of the Rocky Mountain States (Hayward et al. 1993). Mature, mixed stands of subalpine fir and Engelmann spruce are favored, with nesting associated with deciduous (primarily aspen) and mixed deciduous-conifer habitats (Hayward et al. 1993). Other conifer types used include Douglas-fir, lodgepole pine, and mature mixed conifer. In Idaho and Montana, 75% of breeding sites are above 5,000 feet. Boreal owls nest in natural tree cavities and old woodpecker holes in snags and live trees, favoring cavities created by large woodpeckers (Hayward et al. 1993). Boreal owls prey on forest dwelling small mammals such as voles, shrews, mice and flying squirrels. Boreal owls use new roost sites each day, which are dispersed throughout the home range, typically in conifers. Seasonal roost characteristics in Idaho suggest boreal owls are not stressed by winter temperatures but do select roosts with higher canopy cover higher basal area, and greater tree density to reduce summer heat stress (Hayward et al. 1993). Boreal owls

are year-round residents within their home ranges, but may make periodic, food-induced irruptions southward in winter (Hayward et al. 1993). Males arrive at potential breeding territories in mid-February and begin calling to locate females." (qtd. in Klingler 2015)

"Population trend for this species is unknown on the SNRA. Several surveys have been conducted in the Sawtooth Valley with detections of boreal owls. Portions of the Redfish Lake area have been surveyed for boreal owls multiple times including 1996, 2000, 2002, 2004 and 2010 resulting in no detections of boreal owls." (qtd. in Klingler 2015) No surveys have been conducted in the project area.

Boreal owl nesting and foraging habitat exists in the project area. The USFS completed surveys in this area and have documented several occurrences within 5 miles of the project area including the tree stand that will be partially removed for the fill (Garwood 2018).

The IDFG database has no boreal owl observations in the project vicinity, but there is a credible public record from August 15, 2015, within the project area. This timeframe suggests a breeding occurrence in the project area. There is suitable habitat for boreal owl in the project area (sufficiently high elevation subalpine forest) (Waterbury 2017).

Forests surrounding the project vicinity are potential boreal owl habitat. The project will not impact any known nest sites. Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season. Temporary disturbance to boreal owl foraging habitat may occur during construction (e.g., noise from night time hauling). Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

White-headed Woodpecker (*Picoides albolarvatus*)
"White-headed woodpeckers occupy montane coniferous forests, which are dominated by ponderosa pine in the species' northern range (BNA 2005). Stands are typically multi-storied and open-canopied mature and old-growth ponderosa pine. Throughout its range, the dominant habitat components are the abundance of large-diameter pine trees (with large cones and abundant seed production), relatively open canopy—50–70%—, and availability of snags and stumps for nest cavities (BNA 2005). White-headed woodpeckers breed in late April in Central Idaho." (qtd. in Klingler 2015)

"Population trend for this species is unknown on the SNRA. Habitat for the white-headed woodpeckers occurs on the west side of the SNRA and the southwestern corner of the Sawtooth Wilderness where there are stands of Ponderosa pines." (qtd. in Klingler 2015)

The project area does not contain habitat for the white-headed woodpecker (Garwood 2016).

The project area occurs out of range for the species (Waterbury 2017).

American Three-toed Woodpecker (*Picoides tridactylus*)
"Three-toed woodpeckers are found in mature and old growth boreal and montane coniferous forests that have an abundance of insect-infested snags or dying trees (BNA 2005). They excavate cavities in snags and live trees of multiple species. This species may make small movements off its breeding territory in the winter to find food, but is generally a resident. Breeding begins in May in Central Idaho." (qtd. in Klingler 2015)

"In the last 10 years there has been an increase in three-toed woodpeckers as a result of the mountain pine beetle epidemic on the SNRA, mostly in the Sawtooth Valley. There have been multiple observations of three-toed woodpeckers including active nests within the Sawtooth Valley." (qtd. in Klingler 2015) No surveys have been conducted within the project area.

Northern three-toed woodpecker nesting and foraging habitat exists in the project area (Garwood 2016).

The IDFG database documents several breeding season and a few winter records for this species in the project vicinity, dated 2005-2015 (Waterbury 2017).

The highway stabilization project is not expected to cause direct disturbance to the species even though forests surrounding the project vicinity are potential three-toed woodpecker habitat. The project will not impact any known nest sites. Clearing/grubbing/tree and shrub removal will occur prior to the first year of construction, in the fall outside the June 1 – August 15 bird breeding and nesting season. Temporary disturbance to woodpecker foraging habitat may occur during construction. Habitat connectivity is high throughout the project vicinity and the species will be able to easily avoid the immediate project area, and access suitable foraging habitat away from the immediate project area. The anticipated impacts are not expected to result in a change in survivorship or reproductive success.

Columbia Spotted Frog (*Rana luteiventris*)
"Spotted frogs live in spring seeps, meadows, marshes, ponds and streams, and other areas where there is abundant vegetation. They often migrate along riparian corridors between habitats used for spring breeding, summer foraging and winter hibernation (Munger et al. 1998). Adult Columbia spotted frogs are opportunistic feeders, consuming many types of insects, mollusks, and even other amphibians. Spotted frogs breed from late February to early July. They hibernate during winter and emerge when open water becomes available." (qtd. in Klingler 2015)

“Population trend for this species is unknown on the SNRA. Surveys were conducted in Little Redfish Lake in 1993 and 2002. No spotted frogs were observed.” (qtd. in Klingler 2015) No surveys have been conducted within the project area.

Breeding habitat for the Columbia spotted frog may occur in the project area (Garwood 2016).

The IDFG database has a few observations of the species in the upper Sawtooth Valley. One in the upper Petit Creek drainage in 2017 and one in the mid-drainage of Smiley Creek, both in 2013. The Smiley Creek drainage location is approximately 2 km from the project area. It is very possible that other breeding populations occur in the project vicinity (Waterbury 2017).

Towards the bottom of the slope (south half of the slide area), a relic channel, numerous smaller active channels, and several areas of sheet flow with no defined channel were identified. This is the only area where approximately 3,300 square feet of wetlands will be impacted by the fill of the buttress materials. All other wetlands will be avoided. An intermittent drainage/swale occurs at the slide toe in the spring during snow-melt. A culvert/drain pipe will be placed through the toe berm buttress to accommodate this drainage. No instream water work is proposed.

There is a small probability of direct mortality to an individual from heavy equipment use during project implementation in this area. Additionally, there are permanent impacts to potential spotted frog habitat in this area.

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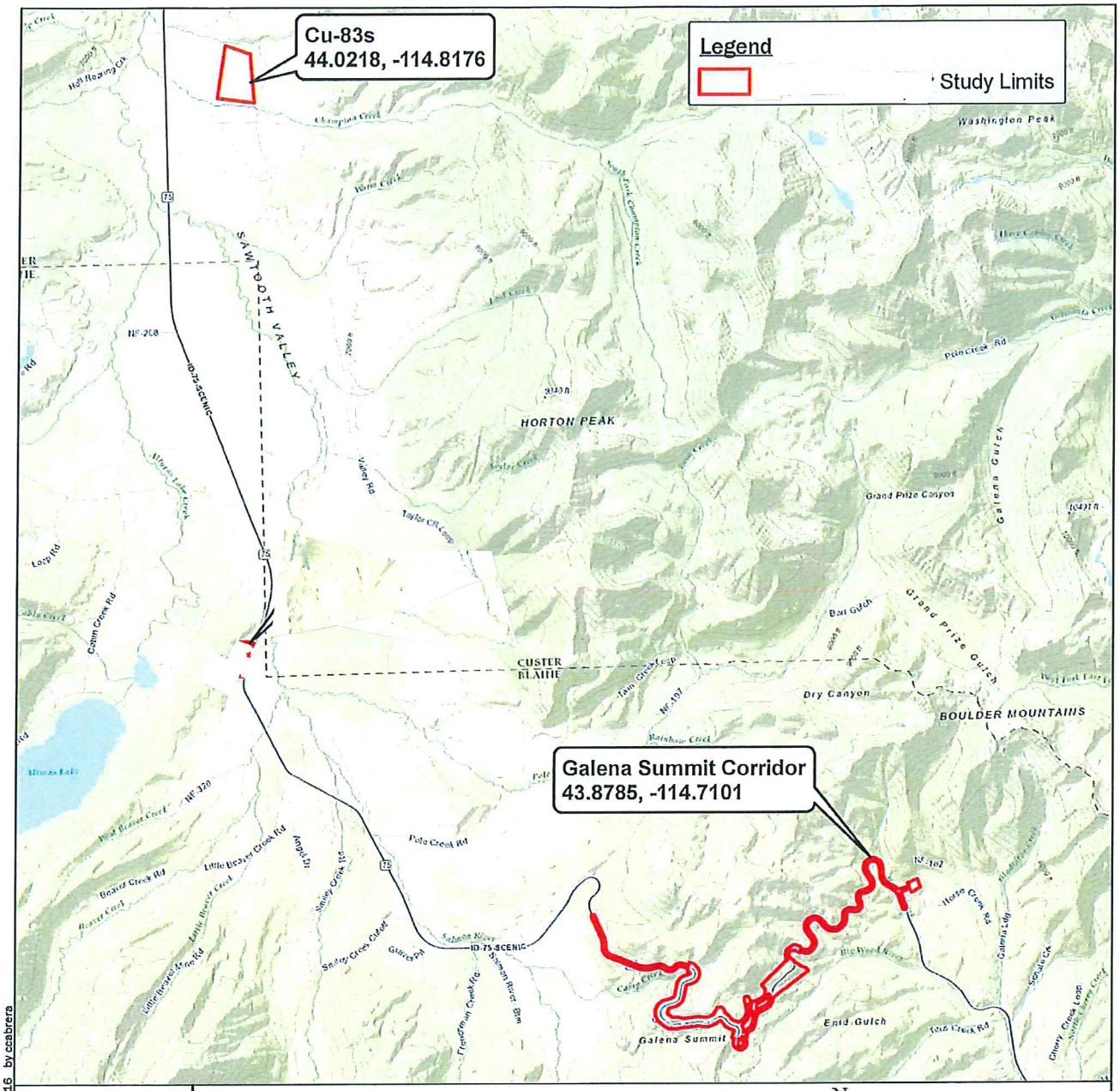
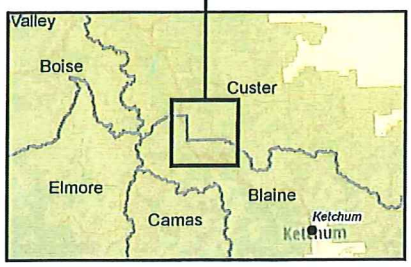
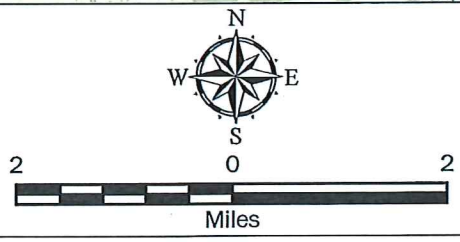
APPENDIX A

VICINITY MAP







Notes:

1. The locations of all features shown are approximate.

Data Source: ESRI Data & Maps, Street Maps 2008.
Base map from ESRI Data Online.
Projection: NAD 1983 UTM Zone 11N

Vicinity Map

Galena Summit Slide
ITD Project No. A019 (171); Key No. 19171
Blaine and Custer Counties, Idaho

Figure

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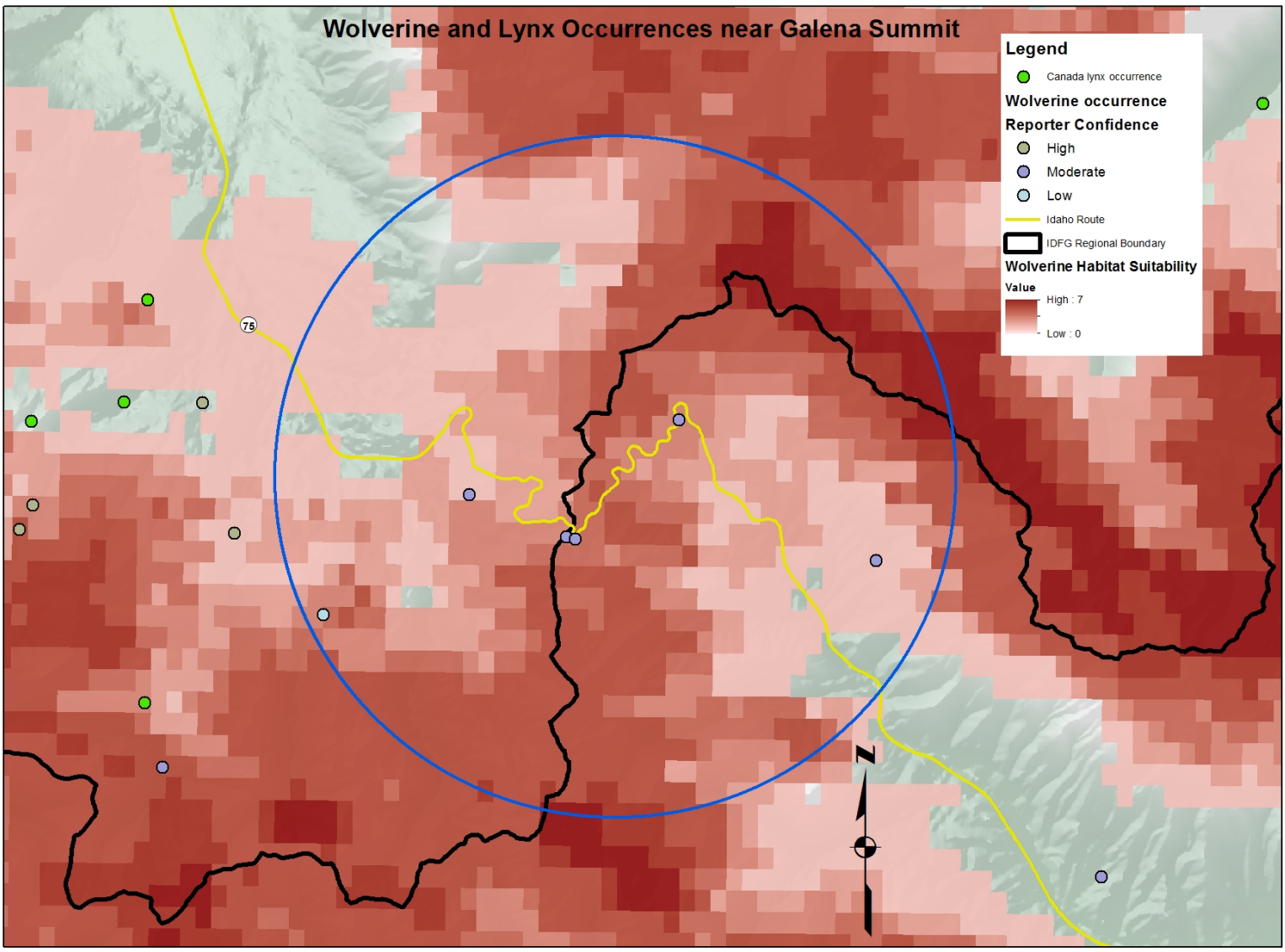
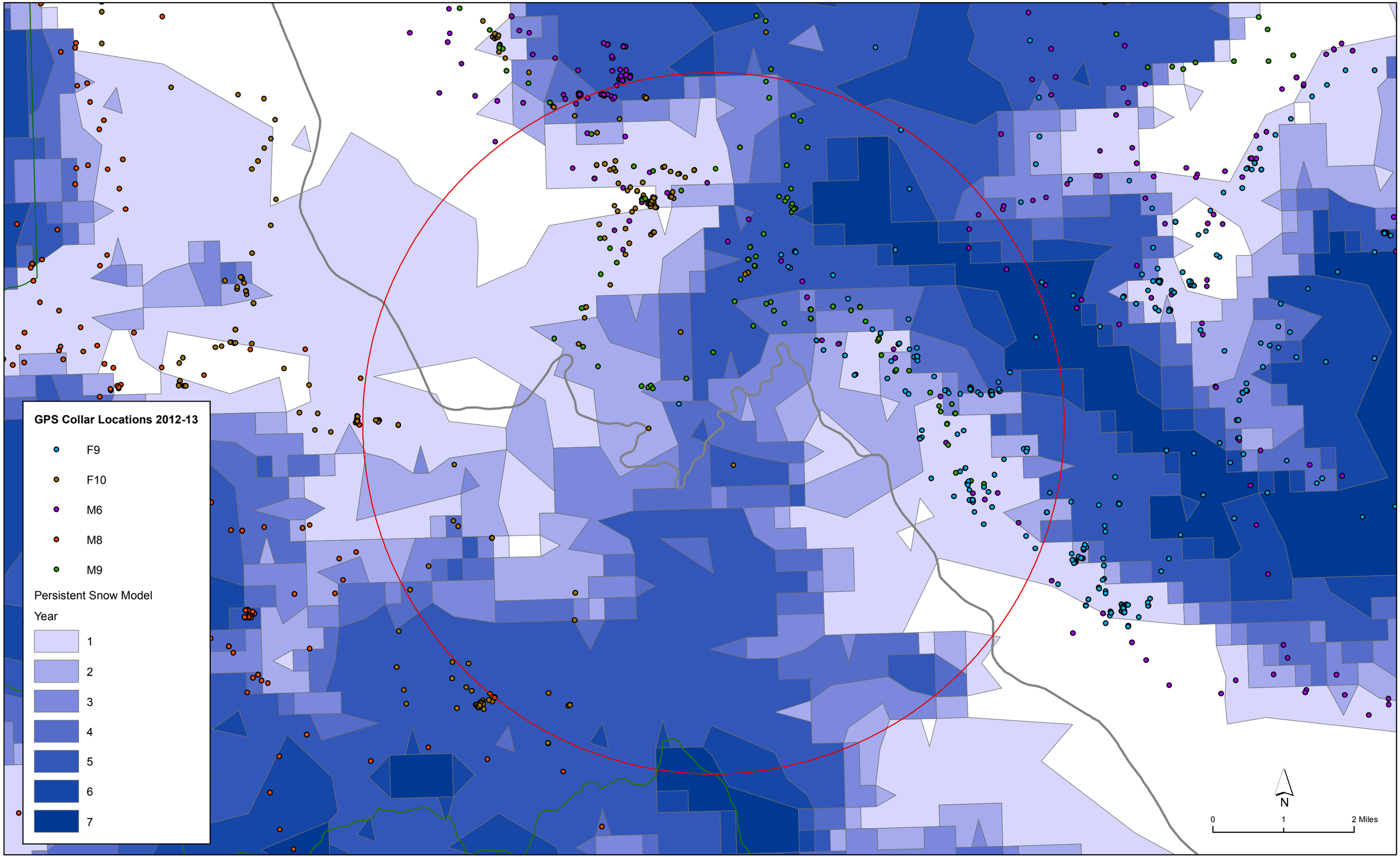
APPENDIX B

LYNX AND WOLVERINE OCCURRENCES MAP

GALENA SUMMIT SLIDE WOLVERINE LOCATIONS MAP


Wolverine and Lynx Occurrences near Galena Summit
Legend
Canada lynx occurrence
Wolverine occurrence
Reporter Confidence
High
Moderate
Low
Idaho Route
IDFG Regional Boundary
Wolverine Habitat Suitability
Value
High : 7
Low : 0
75
N



Wolverine locations from Central Idaho Wolverine-Recreation Project 2012-13 near Galena Summit.

Prepared by Robin Garwood
Sawtooth National Recreation Area
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