Biological Assessment	USDA Forest Service	Idaho Panhandle National Forests	Priest Lake Ranger District 32203 Hwy. 57 Priest River, ID 83856 Phone: (208) 443-2512 Fax: (208) 443-6845

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To: Mary Farnsworth, IPNF Forest Supervisor

INTRODUCTION

Threatened and Endangered species are managed under authority of the Federal Endangered Species Act (36 U.S.C. 1531-1544)[ESA 1973] and the National Forest Management Act (16 U.S.C. 1600-1614)[NFMA 1976]. The Endangered Species Act requires that Federal agencies ensure all actions that they "authorize, fund, or carry out" are not likely to jeopardize the continued existence of any threatened or endangered species. Agencies are also required to develop and carry out conservation programs for threatened and endangered species.

USDA Forest Service Policy (FSM 2670) requires a Biological Assessment (BA) to be completed to review programs or activities in sufficient detail to determine how a project or proposed activity may affect any threatened, endangered or proposed species or critical habitat. The biological assessment process is intended to analyze and document activities necessary to ensure proposed management activities will not jeopardize the continued existence of listed species or cause adverse modification of critical habitat.

PROPOSED ACTION

The Tower Fire and Reforestation Project area is located about 6 miles northeast of Usk, Washington and 6 miles west of Priest Lake, Idaho. The project area is within the Tower Fire perimeter and consists of all burned areas in T35N –R45E, T35N-R44E, T34N-R45E, and T34N-R44E in Pend Oreille County, Washington. The project is located on National Forest System lands on the Idaho Panhandle National Forests (see Map 1). Within the perimeter of the Tower Fire on the Priest Lake Ranger District, the Forest Service proposes to cut dangerous or hazardous trees along the roads and trails, harvest some of the burned timber, and plant tree seedlings. The proposed activities would begin in the late spring or summer of 2016, and continue for approximately 5 years. The harvest activities are anticipated to be completed the first year with tree planting continuing into the future.

This project would remove dead and dying trees from approximately 5,500 acres, which includes approximately 4,271 acres of salvage logging and approximately 1,209 acres of roadside danger tree removal. This represents approximately 47 percent of the total fire area that occurs on the Priest Lake Ranger District and 32 percent of the fire area that occurs on National Forest System lands on both the Idaho Panhandle and Colville National Forests. The salvage units represent 36 percent of the total fire area that occurred on the Priest Lake Ranger District.

Salvage Operations

The project proposes to salvage harvest approximately 4,271 acres (see Map 2). Table 1 displays the acres being proposed for each harvesting system.

Table 1. Salvage Operations Summary

Logging System	Acres
Ground based	1,735
Cable Yarding	2,536
Total	**4,271**

Most of the merchantable dead, dying or otherwise damaged trees would be cut and removed from within the salvage units. Unmerchantable trees (e.g. very rotten, checked, small diameter) would be left as well as enough merchantable trees to meet or exceed the snag retention and snag recruitment guidelines for wildlife habitat and soil productivity purposes. Although the minimum number of snags and snag recruitment trees specified for retention varies according to a number of different factors (see Table 4 associated with FW-GDL-VEG-04, p. 20 of the Forest Plan), a minimum of five to seven snags per acre and one to six live trees per acre for snag recruitment would be left in all salvage units except where the Tower Fire has burned with such severity that achieving the retention standards is unfeasible. In units with more live trees per acre, those trees would also be left if it is determined that they would not succumb to secondary agents.

Some acres proposed for treatment may eventually be dropped during project layout and implementation. For example, it is likely that more small streams, springs and wet areas would be located in the proposed units. Once riparian buffer zones are implemented, the units may no longer be viable. In addition, other areas may be eliminated because they are too steep (> 40% slope) for ground based machinery and do not have the topography or proper access suitable for cable yarding. It is estimated that approximately 30 to 50 percent of the proposed acres (1,281 to 2,136 acres) will be dropped during this process. For the pre-fire old growth stands, this would be a reduction of 240 to 400 acres.

Pre-Fire Old Growth

The proposed salvage operations in stands that no longer meet old growth criteria would result in future stands that are more resistant and resilient to root diseases, insects and drought. Within the burned areas, grand fir, western hemlock, western red cedar, and occasionally Douglas-fir were tree species in pre-fire old growth stands. Natural regeneration in the post-fire environment would reflect the pre-fire species composition. There are not enough healthy, surviving white pine, larch or ponderosa pine to provide enough seed to adequately stock the sites. In addition, lethal surface fire left much of the overstory canopy intact, which casts substantial shade on the sites. Shading from dead overstory, particularly on north and east aspects, would give shade tolerant natural regeneration a significant competitive advantage over the less shade tolerant early seral species. Therefore, it is expected that grand fir, Douglas-fir and western hemlock would dominate the newly regenerating stands in the absence of post-fire management. Grand fir and Douglas-fir are highly susceptible to root diseases. Western hemlock and grand fir are both susceptible to drought stress due to high water demand. All three species are hosts for spruce bud worm. Stands stocked primarily with any or all of these three species would be susceptible to root diseases, defoliating insects, and drought. Without the proposed management activities, conditions in the pre-fire old growth stands would move away from desired conditions for species composition as stated in the Forest Plan.

Many of the larger diameter grand fir, western hemlock and/or western red-cedar that are present in these stands would be retained to contribute to Forest Plan snag and coarse woody debris retention guidelines. Western larch, Douglas-fir and western white pine are also present in some of the stands that previously met the old growth definition. Where present, these species would be preferentially retained, unless they

pose a safety hazard during logging operations or their removal is required incidental to location of skid trails or skyline corridors. As such, cutting designations for this project would focus on removal of trees less than 28-inches diameter at stump height.

Size of Openings

The fires killed so many trees that extensive openings with very little or no live forest canopy now exist within the fire perimeters. The majority of proposed salvage units occur within high and moderate mortality areas, which are now considered openings. Locations where salvage of dead and dying trees occurs would appear more open than areas that are not salvaged. When the Forest Service proposes to conduct harvest activities in a wildfire area using even-aged management (as in this case) and the harvest areas are in excess of 40 acres in size, it is a requirement that we notify the public (Forest Service Manual 2741[1]). Sixteen openings within the project area where salvage operations would occur exceed 40 acres. In all but four of these, the openings that exceed 40 acres would involve two or more proposed salvage units that share common boundaries. These areas range from approximately 41 to 813 acres.

Danger Tree Removal

Within the project area, there are approximately 52 miles of open roads (see Map 3). For safety reasons, these roads are currently closed by Forest Order. It is anticipated that the Forest Order will remain in effect until the danger trees have been treated and the roads can be safely travelled. With a 200-foot safety buffer along both sides of the roads, 2,373 acres of danger trees would be treated. The 200 foot width was determined to be appropriate for the danger tree removal buffer based on average maximum tree heights and hillslopes. As discussed previously, the 200-foot buffer width would address hazards to travel routes better than would a shorter distance.

Approximately 1,209 acres are outside salvage units and would receive danger tree treatment. This includes approximately 200 acres within the RHCAs and 147 acres of pre-fire and existing old growth. These roadside danger tree treatments would only take place outside the salvage harvest units. If a unit is dropped during layout, the danger trees would be felled and may be removed from along the open road system; no other salvage treatments would be implemented.

Danger trees would be selected for removal based on their risk of falling (failure potential) and their likelihood of striking the road. For example, more trees would likely be removed above a road (where there is greater risk of the tree falling down into the road) than from below the road. Identification of green danger trees would follow the Field Guide for Danger Tree Identification and Response (Toupin et al. 2008). The danger trees that are cut down would be sold or left on-the-ground. For example, the danger trees would be felled and left on-the-ground in RHCAs, unless these down trees pose a risk to block road drainage structures (i.e., excessive tree crowns or branches above a culvert inlet). Within RHCAs, trees would be removed by equipment that does not leave the road surface or is located outside the RHCAs.

Danger trees would also be treated along trails within the fire perimeter. There are approximately 7.7 miles of trails that are used in the summer. Danger trees classified as having an imminent or likely failure potential with a likelihood of striking the trail would be felled. Where the trails fall within the salvage units, these trees would be removed for their commercial value. If the trails fall outside a salvage unit, the danger trees would be removed from the trail and left on the ground. In addition, there are approximately

[1] Northern Region (Region 1) Supplement of Forest Service Manual 2400-Timber Management, Chapter 2470 – Silvicultural Practices states: "Where natural catastrophic events such as fire, windstorms, or insect and disease attacks have occurred, 40 acres may be exceeded without 60-day public review and Regional Forester approval, provided the public is notified and the environmental analysis supports the decision."

16.8 miles of snowmobile routes within the fire perimeter. These routes are along roads within the project area, so they would be treated as part of the roadside hazard tree treatments.

Reforestation

Reforesting the burned areas with native tree species would enhance the overall recovery process and trend the vegetation component toward desired future conditions. Tree seedlings would be planted in the salvage units and in the roadside danger tree removal areas following the completion of harvest activities. Tree seedlings would also be planted in areas within or adjacent to the units where treatments are not being conducted and where the fire burned moderately or severely (e.g., in RHCAs). On the moist sites, western white pine seedlings that are resistant to the blister rust disease would be planted. In addition, if the moist sites are open enough to support the shade intolerant species, western larch would be planted. On drier sites, ponderosa pine and/or western larch seedlings would be planted. Lastly, in very moist riparian type settings, western red cedar would be planted as well.

Temporary Roads

The implementation of this project would require building approximately 4.6 miles of temporary roads to facilitate harvest activities (see Map 4). Temporary roads are roads that are constructed to access landings and are rehabilitated upon completion of all harvest activities. Upon completion of harvest activities, the temporary roads would be recontoured to the approximate shape of the surrounding terrain. These roads would also be closed to the general public using berms, gates or debris placed near the entrance and along the first portion of the road. These temporary road segments are generally on dry ridgetop locations and are not located in wet/moist areas.

To minimize impacts to the environment and natural resources, pre-existing temporary road alignments and alignments of non-system roads would be utilized wherever practicable. There are cases where it is not feasible or desirable to use the same alignments or landings. In some places, in order to protect residual trees, soil, and water, new temporary roads are proposed to access landings where existing system roads and old alignments are not adequate for accessing strategic locations on the ground.

Map 4 shows the possible locations of the temporary roads for this project. The exact locations of temporary roads may change during the layout phase of this project, but the overall mileage would be the same or less. It is anticipated that all temporary roads would be recontoured following harvest activities in 2016.

Managing the Road System

Road maintenance and reconstruction is needed along the haul routes to implement the proposed action. Motorized access would remain unchanged. We are not proposing to construct any new system roads or decommission any existing roads with this project.

To support large trucks and equipment, some road reconstruction and typical road maintenance would need to occur on approximately 83 miles of existing National Forest System roads (see Table 2 and Map 4). These activities would include clearing brush from the road shoulders to improve sight distance, blading and shaping the road, cleaning ditches, maintaining or improving drainage structures, and improving the road surface. If a maintenance level 1 road (closed road) is opened and used for project implementation, it would only be open to administrative use, including timber haul. Only the road improvements needed to complete the treatments would be implemented; if a unit drops from the project, the associated road work would be dropped as well.

The road work on Forest Service Road 1089 may include a culvert replacement on Solo Creek. Currently, that culvert is acting as an impediment to fish movement up and down the creek. The existing culvert

would be replaced with a structure that allows fish and other aquatic organisms to freely move along the creek. In addition, this improvement would be designed to accommodate a higher water flow; therefore, this action would have another beneficial effect of reducing the chances of a storm event causing a road failure in this area. This part of the project would be implemented when funding is available, after the salvage operations are completed.

Table 2. Summary of haul routes, including road maintenance and reconstruction

Road Number	Maintenance Level[2]	Miles	Miles Reconstruction	Miles Maintenance
305	4	9.3	0.0	9.3
312	4	13.2	0.0	13.2
312C	1	1.1	1.1	0.0
460	2	2.2	0.0	2.2
460 A	2	0.2	0.0	0.2
460 B	2	0.8	0.0	0.8
460 C	2	0.1	0.1	0.0
460 D	2	0.9	0.9	0.0
460 E	2	0.5	0.5	0.0
659	4	6.8	0.0	6.8
659 B	1 & 2	4.9	4.9	0.0
659 D	1 & 2	1.4	1.4	0.0
659 G	1 & 2	0.4	0.4	0.0
1075	3	6.8	0.0	6.8
1075 A	2	1.2	1.2	0.0
1075 B	2	2.2	2.2	0.0
1075 F	1 & 2	2.1	2.1	0.0
1075 G	1	0.3	0.3	0.0
1075 H	1 & 2	1.2	1.2	0.0
1075 J	2	1.4	1.4	0.0
1075 K	2	0.6	0.6	0.0
1075 L	2	1.2	1.2	0.0

[2] Maintenance level 1 roads are closed to vehicular traffic, but available for intermittent administrative use.
Maintenance level 2 roads are open to the public and suitable for high clearance vehicles.
Maintenance level 3 roads are open to the public and suitable for passenger cars.
Maintenance level 4 roads are open to the public and provide a moderate degree of user comfort.
Maintenance level 5 roads are open to the public and provide a high degree of user comfort.

Road Number	Maintenance Level[2]	Miles	Miles Reconstruction	Miles Maintenance
1075 M	1	1.0	1.0	0.0
1075 N	1 & 2	2.6	2.6	0.0
1075 P	1 & 2	0.5	0.5	0.0
1076	2	2.7	2.7	0.0
1076 A	1 & 2	1.1	1.1	0.0
1076 C	1 & 2	0.6	0.6	0.0
1089	2	2.4	2.4	0.0
1089 A	1	0.1	0.1	0.0
1089 D	1	1.6	1.6	0.0
1090	2	2.2	0.0	2.2
1137	2	5.1	5.1	0.0
1137.1	2	0.7	0.0	0.7
306	2	2.0	0.0	2.0
4306 D	1	1.4	1.4	0.0
Total Miles		82.6	38.5	44.1

Project Design Features

The interdisciplinary team developed design features to minimize, avoid or mitigate adverse effects which could occur as a result of implementing proposed activities in the Tower Fire Salvage and Reforestation project area. The National Environmental Policy Act (NEPA 1969) defines “mitigation” as avoiding, minimizing, rectifying, reducing, eliminating or compensating project impacts. The design features are based on the 2015 Idaho Panhandle National Forests Land Management Plan (Forest Plan) direction and policy, best available science, and site-specific evaluations. These are an integral part of this project and would be applied to the proposed action during project implementation.

Project implementation includes the physical on-the-ground design of the project completed by layout crews; timber sale contract administration; and reforestation activities such as site preparation and planting. Design features are applied on the ground through physical design as instructed in silvicultural prescriptions, marking guides, and cruise plans. Some features address conditions found on-the-ground during project activities, and are applied through the timber sale contract, which includes both standard and site-specific provisions.

The effects analysis for each resource area is based on these design features being implemented. Additional mitigation measures or design features may be added during the analysis, if additional measures are needed to minimize, avoid or mitigate adverse effects to a resource area. If these additions or changes result in substantive changes, additional public comments will be solicited.

Forest Vegetation

Snag Management

- Vegetation management activities should generally retain snags greater than 20 inches diameter at breast height (dbh) and at least the minimum number of snags that are displayed in the table below. Exceptions occur for issues, such as human safety and instances where the minimum numbers are not present prior to the management activities.

Table 3. Recommended Snag and Snag Recruitment Levels to retain (where they exist) after Vegetation Management Activities (including Post-harvest Activities), by Harvest Type [Table 4 of the Forest Plan (FW-GDL-VEG-04; USDA Forest Service 2015)]

Dominance Group	Biophysical Setting	Snags > 15"+ DBH	Live Trees > 15.0" DBH
Ranges per Acre where Treatments Result in a Seed/Sap Size Class (Regeneration Harvest)			
All except lodgepole pine	Warm/Dry	2.0 – 4.0	0.5 – 3.0
	Warm/ Moist	4.5 – 6.5	1.0 – 5.5
	Subalpine	3.0 – 5.0	1.0 – 3.5
Lodgepole pine	All	1.0 – 2.5	0.5 – 3.0

- Where vegetation management activities occur and snags (or live trees for future snags) are retained, the following direction should be followed (FW-GDL-VEG-05):
    - Group snags where possible;
    - Retain snags far enough away from roads or other areas open to public access to reduce the potential for removal (generally more than 150 feet);
    - Emphasize retention of the largest snags and live trees as well as those species that tend to be the most persistent, such as ponderosa pine, larch, and cedar; and,
    - Favor snags or live trees with existing cavities or evidence of use by woodpeckers or other wildlife.

Coarse Woody Debris

- Vegetation management activities should retain the amounts of coarse woody debris (including logs) that are displayed in table below. A variety of species, sizes, and decay stages should be retained. Exceptions may occur in areas where a site-specific analysis indicates that leaving the quantities listed in the table would create an unacceptable fire hazard to private property, people, or sensitive natural or historical resources. In addition, exceptions may occur where the minimum quantities listed in the table are not available for retention.

Table 4. Level of Logs and other Coarse Woody Debris to Retain after Vegetation Management Activities for each Biophysical Setting [Table 3 of the Forest Plan (FW-GDL-VEG-03; USDA Forest Service 2015)]

Biophysical Setting	Total Coarse woody Debris to Retain (tons/acre)	Number and Size of Logs to Retain	
		Number of Logs/Acre	Desired Size
Warm/Dry	Drier Sites: 5-12	6-14	Diameter: >10" with at least 2 pieces >20"
	Moister Sites: 10-20		Length: >12'
Warm/Moist	12-33	20-30	Diameter: >12" with at least 10 pieces >20"
			Length: >12'
Subalpine	Moister Sites: 12-25	Moister Sites: 20-30	Diameter: >10" (8" for lodgepole pine)
	Drier Sites: 7-15	Drier Sites: 15-20	Length: >12'

Old Growth Characteristics

- Where proposed salvage units contain one or more stands that were classified as old growth prior to the wildfire, those stands would be reviewed in the field to verify that they no longer meet the definition of old growth. These units are: 3A, 5, 5A, 10, 13, 15, 42, 43, 44, 46, 47, 48, 49, 50, 53, 54, 55, 56, 59, 67, 79, 80, and 81. If any of the "pre-fire" old growth stands in the proposed salvage units still contain the characteristics to meet the definition of old growth, they would not be included in a timber sale contract for salvage activities.

Fuels

- To mitigate any short-term risk caused by leaving concentrations of logging slash adjacent to values at risk, one or both of the following may be considered in those areas: whole-tree yarding; or, spot piling, either by hand or machine, followed by pile burning. This includes: Units 42, 43, 44 and 52 along with the southeast corner of Unit 49 and the eastern half of Unit 80.

- To reduce the risk of human-caused fire starts in the short-term, concentrations of logging slash would be evaluated in the roadside danger tree treatments to determine if piling and pile burning is necessary to reduce the concentrations of fuels. If fuels concentrations pose an increased ignition potential, piling locations would be determined by the interdisciplinary team to ensure the effects remain within those analyzed and all resource concerns are mitigated. No piling or burning would occur within the RHCAs.

Soils

Coarse Woody Debris

- Coarse woody debris would be retained in accordance with Forest Plan Guideline FW-GDL-VEG-03 (FW-GDL-SOIL-02) [Table 4 above]. Where soil burn severity is moderate to high, leave coarse woody debris at high end of recommended range for the site.

- Fines (material less than three inches in diameter) would be left on site (FW-GDL-SOIL-03). When combined with required coarse woody debris retention, the units should have a minimum of 60 to 70 percent ground cover where feasible. Amounts of coarse woody debris and fines on trails and landings should be higher. Exceptions to this would be places that do not currently contain enough material to attain 60 to 70 percent ground cover.

Detrimental Soil Disturbance

- All units would be evaluated prior to implementation to determine detrimental soil disturbance levels. Appropriate design features would be implemented in order to ensure units are at or below 15% detrimental soil disturbance per Forest Plan and Regional Standards. Such actions could include scarifying/decompacting soils and placement of slash, woody material and/or duff over exposed soil. Equipment would remain on designated skid trails; if the equipment leaves the skid trail, the additional soil disturbance would be rehabilitated if 15% detrimental soil disturbance standard has been exceeded.

- Soil disturbance monitoring would occur in up to ten percent of the salvage units in order to assure Forest Plan and Regional Standards are met. Units would be identified after analysis and field verification is completed.

- Ground-based equipment would only operate on slopes less than 40 percent (FW-GDL-SOIL-01). Where slopes within an activity area contain short pitches greater than 40 percent, but less than 150 feet in length, ground-based equipment may be allowed, as designated by the timber sale administrator.

- All ground based operation activities in harvest units would occur when the soil profile is dry (top 2 to 4 inches) to reduce the effects from compaction. In general, these conditions occur during summer and into fall prior to fire season ending rains. The exception to this is winter harvest operations which are covered below.

- Pivoting of machinery should be avoided in order to prevent soil displacement (timber sale contract provision, C6.24: Site Specific Special Protection Measures).

- No yarding across designated riparian habitat conservation areas would occur with this project, unless full suspension of logging can be achieved.

- The leading end of logs would be suspended during cable yarding.

Skid Trails and Landings

- All skid trails would be designated and laid out to take advantage of topography and minimize disruption of natural drainage patterns. Where terrain is conducive, trails would be spaced at least 100 feet or more apart. Mechanized felling and skidding would allow skid patterns to be closer, provided slash mats are used. Reuse existing skid trails where possible.

- Post-harvest, ground disturbance associated with skid trails would be covered with randomly placed logs (on the contour) and seeded with the latest seed mix recommended at time of implementation to help increase the microtopography needed to reduce runoff.

- If skid trails are to be decompacted or scarified following ground based harvest and fuel reduction activities, use timber sale contract provision, C6.633: Temporary Road, Skid Trail/Skid Road and Landing Scarification, in order to reduce compaction and potential for erosion. An excavator should be utilized in order to reduce impacts. Decompaction activities should go no deeper than 14 inches and should avoid mixing the soil layers or disrupting their orientation. These activities would be conducted when the soil is dry. In general, operations during the dry period typically occur July 1 to October 15, but may vary by year, depending on local weather conditions. As much slash as possible should be left on the skid trails following decompaction. The timber sale administrator, in conjunction with a Forest Service soil scientist would determine those areas that need to be decompacted.

- Placement of landings and skid trails should avoid, where possible, high severity burn areas within units.

- All landings other than landings adjacent to existing system roads utilized would be decompacted with an excavator and covered with some residual slash (within guidelines provided by FW-GDL-VEG-03), and seeded upon completion of the sale.

Temporary Roads

- All temporary roads would be scarified and rehabilitated (all new construction would be recontoured; existing prisms would be placed in a stable condition through recontouring and/or decompaction). Cut/fill slopes and crossings would be reshaped to natural contours. Available slash and large wood material (>3 inches) would be applied to the recontour surface (slash is considered "available" where the equipment can reach it from the working area where the rehabilitation is occurring).

Winter Harvest Operations

- For any units harvested in the winter, equipment would operate on soil that is frozen to a minimum depth of four inches, or on 12 inches of settled snow and a slash mat (timber sale contract provision, C6.4: Conduct of Logging). Snow may be removed, prior to operations, from trails to facilitate freezing into the soil profile.

- Suspend operations under wet or thawing conditions. Harvesting during winter conditions requires extra vigilance in monitoring ground conditions in order to recognize the appropriate time to cease operations. Conditions can change rapidly throughout the day, especially in early and late winter.

- Operations utilizing the winter harvest design features are still bound by contract provision timber sale contract provision, B6.6 Erosion Protection and Control.

Hydrologic Resources and Fish Habitat

- Salvage harvest units would be located at least 300 feet from any fish bearing streams, 150 feet from perennial non-fish bearing streams, and 100 feet from intermittent streams.

- Any danger trees that are along roadsides and within an RHCA would be felled by hand and left in place, except where the down trees pose a risk to road drainage structures (i.e. excessive tree crowns or branches above a culvert inlet). In this situation trees would be removed by equipment that does not leave the road surface. Trees that are left in place in RHCAs should be directionally felled, oriented parallel to the contour of the slope and effort should be made to ensure the bole is in contact with the ground.

- Any salvage operations conducted on slopes greater than 40 percent would require cable yarding techniques and hand felling with chainsaws. In ground-based harvest units, additional slash would be required and placed over skid trails and other disturbed soils to reduce the potential for erosion and further loss of soil. Keep skid trails as far as practicable from RHCA boundaries. Leave as much slash as possible adjacent to RHCA boundaries.

- Any temporary roads built to assist with salvage operations would not be permitted in RHCAs. Temporary roads would be completely rehabilitated soon after salvage operations in the associated units that have been completed and should occur before the following spring runoff season.

- Install new drainage features, such as waterbars, rolling dips, and relief swales on the following roads: Forest Service Road 460, 659B, portions of 659, and 1089 if they are used for salvage

operations. Additional roads requiring improved drainage features may be identified and added during the project development phase. Drainage features should be installed as soon as practicable upon completion of the harvest units that are accessed by each road. These roads were identified in the analysis as having greater risk of failure.

- All in-stream work associated with the culvert replacement on Forest Service Road 1089 on Solo Creek would take place during the in-water work window from July 15 to March 1 in order to avoid adverse impacts to cutthroat trout.

Wildlife

Canada Lynx

- Within the Tola-Pelke LAU, roads that are not designated as open on the MVUM would be restricted to public motorized access. See the grizzly bear design features on road management for more details on how that would be accomplished.

Grizzly Bear

- No timber harvest, hauling, road reconstruction, road storage, grapple piling or slashing activities would take place between April 1 and June 15. Additionally, no trail improvement activities would take place during these dates.

- No increase in linear miles of open road with the implementation of Tower Fire Salvage and Reforestation Project would occur. Increases in linear miles of open roads must be compensated for with in-kind reductions in linear miles of open road concurrently with, or prior to, project implementation within the same Bears Outside Recovery Zone (BORZ) Occupancy Area.

- No net increase in the linear miles of total roads with implementation of the Tower Fire Salvage and Reforestation Project would occur. Increases in linear miles of total roads must be compensated for with in-kind reductions in linear total road miles concurrently with, or prior to, new road construction or reconstruction of currently bermed or barriered roads.

- Temporary increases in linear miles associated with this project would be acceptable under the following conditions:

    - All roads not designated as open on the MVUM would be effectively gated and would require a CFR (code of federal regulation) closure clarifying they are not open for public use.

    - All roads not designated as open on the MVUM would be closed immediately upon completion of activities requiring use of the road. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access, and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years.

    - Upon completion of the Tower Fire Salvage and Reforestation project, linear miles of total roads would be returned to or below the baseline levels.

- Forest Service personnel, contractors and subcontractors would be given a copy of the Grizzly Bear Management and Protection Plan and the Idaho Panhandle National Forests (IPNF) Food Storage Order. The National Forest System lands within the proposed action areas are covered by the IPNF Food Storage Order. The order would be included in all contracts. Compliance with the provisions of the IPNF Food Storage Order is mandatory.

- Contractors and subcontractors would not be permitted to hunt, transport hunters, discharge firearms, or transport big game animals with vehicles in any areas that are otherwise closed to motorized vehicles. Timber sale contract provision C5.41 -Closure to use by others, would be included in any timber sale contract and implemented.

Gray Wolf

- Any gray wolf den or rendezvous sites identified in or adjacent to proposed activity areas would be spatially and/or temporally buffered as appropriate. No project activities (excluding maintenance and hauling on year-round open road systems) would be allowed within one (1) mile of occupied sites, from April 1 to July 1 for den sites and from July 1 to August 15 for rendezvous sites. Upon review by a qualified Forest Service wildlife biologist, these distances could decrease based on topographical characteristics at each site.

Raptors

- If a raptor nest is discovered before or during project implementation, timing restrictions and distance buffers, based on the best available information, as well as site-specific factors (e.g., topography, available habitat), would be implemented to reduce disturbance.

Goshawk Nest Site Protection

- A no activity area of 40-acres would be placed around any known or newly discovered goshawk nest, or any other nest that has been active in the past five years. If the nest tree is not roughly centered within the 40-acre no activity area, an additional no activity distance of up to 745 feet (the radius of a 40-acre circle) may be implemented between the nest tree and harvest units to reduce impacts to habitat around the nest site from project activities. A qualified Forest Service wildlife biologist would determine if this additional no activity distance would be implemented based on factors such as topography, the location of the nest tree within the 40-acre nest area and the distance of the nest tree from existing disturbances (e.g. roads).

- No mechanized project activities (with the exception of hauling on open road systems) would be allowed within up to a half mile of active nest areas from April 15 to August 15 to promote nesting success and provide forage opportunities for adults and fledgling goshawks during the fledgling dependency period. Activity restrictions may be removed after June 30 if a qualified Forest Service wildlife biologist determines the nest site is inactive or unsuccessful.

Other Threatened, Endangered, and Sensitive Wildlife Species Management

- If any threatened, endangered or sensitive species are located during project layout or implementation, the timber harvest and associated activities would be altered, as necessary, so that proper protection measures are taken. Timber sale contract provision B(T)6.25: Protection of Threatened, Endangered and Sensitive Species, would be included in any timber sale contract and implemented.

Down wood

- Down wood, especially down logs, for terrestrial mollusks, reptiles, amphibians, small mammals, and other species whose habitat requirements includes this component is required. Vegetation management activities should retain the amounts of coarse woody debris (including logs) that are displayed in Table 4 above. See the forest vegetation design features section for more detail on how this design feature would be met.

Wildlife Tree Retention

- Trees and snags greater than 20 inches dbh would be available for wildlife species that utilize these habitats for nesting, roosting, and denning. Vegetation management activities should generally retain snags greater than 20 inches dbh and at least the minimum number of snags and live trees (for future snags) that are displayed in Table 3 above. See the forest vegetation design features section for more detail on how this design feature would be met.

Protection of Wetlands, Seeps, Bogs, Wallows and Springs

- All known or discovered wetlands, seeps, bogs, elk wallows and springs less than one acre in size would buffered according to Inland Native Fish Strategy (INFS) guidelines.

Rare Plants

- A qualified Forest Service botanist would determine areas of potentially-suitable habitat for rare plants within the proposed treatment areas. Floristic surveys would be conducted as necessary prior to project implementation. Any newly-documented occurrences or highly-suitable habitat would be evaluated, with specific protection measures implemented to protect population viability. Such measures could include the following:

    a. Dropping units from harvest activity;

    b. Modifying unit boundaries to provide adequate buffers around documented occurrences, as determined by a qualified Forest Service botanist and based on topography, extent of contiguous suitable habitat for documented occurrences and the type of treatment proposed;

    c. Modifying harvest methods, fuels treatment or logging systems to protect rare plants and their habitats; and/or

    d. Implementing, if necessary, Timber sale contract provisions B6.24: Protection Measures Needed for Plants, Animals, Cultural Resources, and Cave Resources; C6.24: Site Specific Special Protection Measures; and B8.33: Contract Suspension and Modification.

- Microsites of highly suitable rare plant habitat that occur within proposed treatment units, including seeps, springs and other seasonally or perennially wet areas, would be protected from all project activities by site-specific buffers established by a qualified Forest Service botanist.

- All standard RHCA buffers would be implemented on both perennial and intermittent wet areas to exclude those areas from treatment, which should also serve to protect highly-suitable moist forest and wet forest habitat for many rare plant species.

- Any changes to the proposed action that may occur during layout would be reviewed by a qualified Forest Service botanist, and rare plant surveys would be conducted as necessary prior to project implementation.

Non-Native Invasive Species (Noxious Weeds)

- Gravel or borrow pits to be used during road reconstruction, maintenance, and temporary road construction would be chosen from a list of suitable borrow pits (those which either are State-certified as “weed free” or those National Forest System borrow pits which are routinely treated for weed control) included in the project file.

- Road segments (i.e., temporary roads) proposed for rehabilitation or storage would be treated for weed control prior to rehabilitation or closure.

- Weed treatment of all haul routes and associated turn-outs or landings on National Forest System lands would occur prior to ground disturbing activities where feasible. If the timing of ground disturbing activities would not allow weed treatment to occur when it would be most effective, it would occur in the next treatment season following the disturbance.
- All timber sale and/or public works contracts would require cleaning of road maintenance and off-road equipment prior to entry onto National Forest System lands. If operations occur in areas infested with new invaders (as defined above), all equipment would be cleaned prior to moving to new sites.
- All newly constructed roads, skid trails, landings, fuel breaks or other areas of disturbance (including cut/fill slopes, as well as maintenance and reconstruction of existing roads) would be seeded with the most current Idaho Panhandle National Forests native, moist site, locally-adapted, certified, weed-free seed mix upon activity completion. Revegetation species utilized should be source-identified, site-appropriate, and genetically-adapted to the project area, when feasible, to comply with Forest Service Manual 2070. Areas would also be fertilized and/or mulched if deemed necessary by a Forest Service soil scientist or qualified botanist.
- When reseeding is necessary, seeding would occur during an appropriate season (spring or fall) or weather conditions (at least two weeks prior to forecasted cool, wet weather) to ensure the most effective germination/establishment.
- All mulch to be used in conjunction with revegetation or for erosion control or watershed restoration activities would be either wood straw or certified weed-free agricultural straw.
- All noxious weed treatment would be conducted according to guidelines and priorities established in the Priest Lake Noxious Weed Control Final Environmental Impact Statement. Methods of control may include biological, chemical, mechanical and cultural. Follow-up treatments and monitoring would be conducted as needed.
- Any priority weed species (as defined by a qualified Forest Service botanist) identified during road maintenance or timber harvest would be reported to a Forest Service weed specialist to aid in monitoring and expedite treatment. A list of priority or “new invader” weed species is included in the project file.
- Monitoring of all haul routes and service landings on National Forest System lands would occur during project implementation, with treatment of identified weed infestations as needed.

Trails and Recreation Use

Developed Recreation Facilities

- Currently, a closure order (Forest Order #01010815012) is in place Icy Spring Trail (#197). This closure order should be extended throughout the duration of active salvage logging.
- If the Icy Springs Trailhead is used for log decking it would be returned to the condition found prior to logging operations. Forest Service recreation staff would flag the boundaries of the parking area and timber sale administrators would work with the logging companies to remove all slash and other debris, and regrade the parking area.

Forest Service System Trails

- Trail closures would remain in effect throughout all active logging operations for all of the trails found within the project area.
- Temporary trail closures or activities along Forest Service system trails would be clearly signed and the signs would be maintained throughout harvest activities (all access points). Announcements would be provided to public and special interest groups prior to activities.
- Mill Point-Galena Trail (#199) and Grouse Knob Trail (#198) would be reconstructed to accommodate their designed use upon completion of logging operations. Maintenance would be completed on the existing mapped route wherever possible. If rerouted segments are required to reestablish trail tread, a flag line would be laid out and resource specialists would assist with final layout to avoid any potential resource concerns.

Snowmobile Routes

- The Forest Service would work with timber industry to maintain a single, pre-existing snowmobile route through the project area connecting the Kings Lake Parking Area with the system of groomed trails provided on the Priest Lake Ranger District during harvest operations.
- Temporary snowmobile route closures would be clearly signed and announcements would be made to the affected groomer boards through project completion.

Dispersed Recreation Opportunities

- Hunting outfitter and guides historically operating within the project area would be notified of active logging operations.
- Increased forest protection officer patrols would occur within the project upon completion of logging operation to promote compliance with Forest Service policies and regulations.

Visual Resources Design Features

Cable Yarding

- Location of cable yarding corridors and skid trails would be designed to minimize visual impact and should be designed so that the edges of the unit emulate natural edge patterns with a minimum of geometric lines (e.g., unit boundary edge resulting from cable corridors or skid trails).
- Widely spaced green trees that are silhouetted along the cable yarding would be avoided.
- The number of cable corridors in visually sensitive areas would be minimized. Maximum corridor spacing is 150 feet (75 feet lateral yarding distance).
- Cable systems with lateral yarding capabilities would be preferred.

Slash Treatment

- Slash, root wads, and other debris would be removed, burned, chipped or lopped to a height of two feet or less in sensitive view sheds. If slash is burned, it would be located in previously-disturbed areas.
- Where feasible, in high concern level recreation areas, such as the Pelke Warming Hut and Forest Service Trail #197, stumps should be cut to a maximum height of 6 inches, except for in the

immediate foreground where they should be flush cut. Areas to be flush cut would be identified prior to harvest activities by the scenery specialist assigned to the project.

- Slash would be abated approximately 50 feet from landings by scattering, chipping, or other techniques.

Road, Skid Trail, and Landing Construction

- Where feasible, retain screening trees one tree-height below roads and landings (including cable landings) when viewed from below. Avoid creating a straight edge of trees by saving clumps of trees and single trees with varied spacing.
- Where temporary roads and skid trails meet a primary travel route, they should (where feasible) intersect at a right angle and curve after the junction to minimize the length of route seen from the primary travel route.

Shape and Edges of Individual Units

- Edges would be shaped and/or feathered to avoid a shadowing effect in the cut unit.
- Where the unit interfaces with an opening, the percent of thinning would be progressively increased toward the outside edge of the unit. When unit interfaces with denser forest the thinning would be decreased toward the outside edge. In addition, this transition zone should avoid being uniform in size and should vary in width.
- Treatment boundaries should extend up and over ridgelines to avoid the “mohawk” look. This is especially important along ridgelines silhouetted against the sky.

Pattern Created By Multiple Units

- Retention of vertical structure would be a goal within harvest units.
- Boundaries for units visible in the foreground would be designed and feathered to reduce any unnaturally shaped, hard edges on the landscape.
- To protect the scenic quality, design of proposed harvest units may include grouping of reserve trees to emulate natural retention patterns.

Cultural Resources

- Prior to any salvage activities, in-field inventory would be conducted in areas defined as the high and medium probability for the occurrence of cultural resources within project implementation areas. If any cultural resources are located during these inventories, the area of that resource plus a 50-foot buffer would be excluded from all salvage or danger tree activities.
- Landings and slash piling would not be located within 100 feet of known cultural resource sites.
- Pursuant to the provisions found in 36 CFR 800.13, should any previously unrecorded cultural resources be discovered during project implementation, activities that may be affecting that resource would be halted immediately; the resource would be evaluated by a qualified archaeologist; and consultation would be initiated with the State Historic Preservation Office (SHPO), as well as with the Advisory Council on Historic Preservation, if required, to determine appropriate actions for protecting the resource and for mitigating any adverse effects on the resource. Project activities would not be resumed until the resource is adequately protected and until agreed-upon mitigation measures are implemented with SHPO approval.

- Any unanticipated discovery of human remains during salvage efforts would follow protocols as defined in Forest Service Manual 2361.3 and 2364.1 and the IPNF Heritage Program Plan. All activities that may be affecting the remains would be halted immediately; the remains would be protected until they can be evaluated by the coroner to determine age; and, if appropriate, consultation would be initiated with the appropriate Tribal governments, the SHPO, as well as with the Advisory Council on Historic Preservation, if required, to determine appropriate actions. Project activities would not be resumed until consultation is complete and all agreed-upon actions and mitigation measures are implemented.

LISTED SPECIES

On February 29, 2016 the FWS issued a refined site specific project list for the Tower Fire Salvage project (USDI Fish and Wildlife Service 2016). The list for the Tower project contains two threatened species: grizzly bear (*Ursus arctos*) and Canada lynx (*Lynx canadensis*). There are no endangered species on the Tower project list. On September 12, 2014 the FWS issued a final rule to revise designation of critical habitat for Canada lynx (USDI Fish and Wildlife Service 2014).

EFFECTS ANALYSIS AND DETERMINATION

Based on the known distribution of these species, habitat requirements, and habitat availability, Canada lynx and grizzly bear may be affected by the proposed action (table 5).

Table 5. Summary of Effects

Species	Species or Habitat Present?	Species or Habitat Potentially Affected?	Likelihood of Adverse Effects	Determination of Effects
Threatened				
Canada Lynx	Yes	Yes	Low	**May Affect, Not Likely to Adversely Affect**
Grizzly Bear	Yes	Yes	Low	**May Affect, Not Likely to Adversely Affect**
Canada Lynx Critical Habitat	No	No	None	**No Effect**

Canada Lynx

Canada lynx occur in boreal, sub-boreal and western montane forests, and their distribution is nearly coincident with that of the snowshoe hare, their primary prey (Ruediger et al. 2000). Lynx habitat consists of a variety of forest ages and structural stages, including young regenerating forests and mature multi-storied forests that provide snowshoe hare habitat. Both snow conditions and vegetation types are important factors to consider in defining lynx habitat. North Idaho primary lynx habitat is mostly associated with subalpine fir/Engelmann spruce (*Abies lasiocarpa/Picea engelmannii*) potential vegetation types, except in the extreme northern portion of Idaho and northeastern Washington (i.e. Priest Lake Ranger District – Priest River watershed) where the colder portions of the moist western redcedar-western hemlock (*Thuja plicata-Tsuga heterophylla*) potential vegetation types are considered primary habitat. These areas have long, cold winters with longer and more persistent snow accumulations than elsewhere on similar potential vegetation types. Secondary habitat, defined as the transition between vegetation communities, also contributes to lynx habitat. On the Idaho Panhandle National Forests secondary habitat includes moist grand fir (*Abies grandis*) and cedar-hemlock potential vegetation types where they are not part of primary habitat (USDA Forest Service 2013).

The Canada lynx was listed as threatened on March 21, 2000. The conservation of lynx populations is the greatest concern in the western mountains of the United States because of the peninsular and disjunct distribution of suitable habitat at the southern periphery of the species' range. Identified risk factors that can impact lynx populations mainly address alteration of forest habitats. Upon listing, lynx management on Federal lands was guided by the Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000). The LCAS directed agencies to delineate Lynx Analysis Units (LAUs) in order to evaluate and analyze effects of planned and on-going projects on lynx and their habitat, and provided recommendations for management within these habitats. In 2007, based on the recommendations of the LCAS and more recent research findings, the Forest Service adopted the Northern Rockies Lynx Management Direction (NRLMD) (USDA Forest Service 2007), which provides lynx management standards and guidelines that were incorporated into existing forest plans. This direction was subsequently retained in the Revised Land Management Plan for the IPNF (USDA Forest Service 2015) and associated Biological Opinion (USDI Fish and Wildlife Service 2013).

The NRLMD contains four vegetation management standards, with two of them remaining essentially the same as the 2000 LCAS: 1) if more than 30 percent of the lynx habitat in a LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects (Standard VEG S1), and 2) timber management projects shall not regenerate more than 15 percent of lynx habitat on NFS lands within a LAU in a ten year period (Standard VEG S2).

Snowshoe hares may reach highest densities in young coniferous forests or in “mature forests with a dense understory of shrubs, aspen and/or conifers” (Ruediger et al. 2000). Mature and late successional forests may provide more stable habitat for a longer time period compared to early successional forests; and also provide habitat for red squirrels, an important secondary prey species (Buskirk et al. 2000). In response to subsequent research (for example, Squires et al. 2006) that associated the presence of mature or late-successional multi-storied forests with persistence of lynx populations, the NRLMD identified the importance of these stands for providing winter snowshoe hare habitat. Winter habitat may be the most limiting for lynx, since starvation mortality is more common during this season and lynx use a narrower range of available habitat than in summer (Squires et al. 2010). As a result, vegetation management that reduces snowshoe hare habitat in these stands is prohibited (Standard VEG S6) with minor exceptions.

Recent (since listing) research has stressed the importance of multi-storied mature or late-successional forests to snowshoe hare populations, and subsequently to lynx (USDA Forest Service 2007, USDI Fish and Wildlife Service 2007, Squires et al. 2010). As a result, vegetation management that reduces snowshoe hare habitat in these stands is prohibited (Standard VEG S6) with some exemptions (including fuels treatment projects within the wildland-urban interface). Similarly, the Northern Rockies Lynx Management Direction does not allow precommercial thinning in lynx habitat (Standard VEG S5), although it also makes an exemption for precommercial thinning within the wildland-urban interface. However, the combined acres exempted from Standards VEG S1, VEG S2, VEG S5 and VEG S6 may not exceed 6 percent of lynx habitat on each National Forest.

The Northern Rockies Lynx Management Direction labels two older multi-storied stages – the understory reinitiation and old forest multi-storied – as providing winter hare habitat. Squires et al. (2010) perhaps offer the best description of these stands as forests composed of mixed conifers, but predominately consisting of Engelmann spruce and subalpine fir “in the overstory and midstory” with branching that descended to the snow surface to provide dense horizontal cover for hares.

Precommercial thinning has been identified as a risk factor for lynx because it has the potential to reduce winter snowshoe hare habitat in young, regenerating forests. While recent research indicates that lynx spend relatively little time hunting in these juvenile stands during winter in the Northern Rockies (Squires et al. 2010, Squires et al. 2006), they likely serve as source habitats for snowshoe hare populations.

Direction for denning habitat protection in the Northern Rockies Lynx Management Direction is addressed by Guideline VEG G11. This guideline is based on the general consensus of lynx researchers that denning habitat, in most cases, is not limiting in lynx habitat. At the time of listing, lynx denning habitat had been described as "dense, mature forest habitats that contain large woody debris, such as fallen trees or upturned stumps, to provide security and thermal cover for kittens" (Koehler and Aubry 1994). Subsequent research in northwest Montana has found that lynx use a variety of conditions for den sites, and used young regenerating forests as well as mature forests (USDA Forest Service 2007). The key component for lynx den sites appears to be the presence of down woody debris, rather than stand age.

Since most of the national forests affected by the Northern Rockies Lynx Management Direction (including the Idaho Panhandle) have existing direction to provide old growth and retain dead and down material, denning habitat was not considered a limiting factor.

Road density does not appear to affect lynx habitat selection (Ruediger et al. 2000). Lynx may tolerate some level of human disturbance (including roads), and most research indicates that lynx do not alter their behavior to avoid humans (Aubry et al. 2000, McKelvey et al. 2000, Mowat et al. 2000). Lynx may use little-traveled roadways for travel and foraging in good snowshoe hare habitat, but they prefer to move through continuous forests frequently using ridges, saddles and riparian areas (Ruediger et al. 2000). It is possible that the road construction associated with historic timber sales may have resulted in long-term negative impacts to lynx through increased access for trappers. Trapping can be a substantial source of mortality in areas where lynx are legally trapped (Canada and Alaska) (Koehler and Aubry 1994), and some level of incidental take from traps meant for other species occurs even though intentional lynx harvest has been illegal in Idaho since 1996.

Critical habitat that has been designated for Canada lynx on the IPNF includes virtually all identified lynx habitat in the American-Canuck and Deer-Skin LAUs in the extreme northeastern portion of the Forest (USDI Fish and Wildlife Service 2014). There is no designated lynx critical habitat on the Priest Lake Ranger District. No Canada lynx critical habitat would be affected by this proposal.

Tower Fire Salvage and Reforestation Project activities would take place in the Tola-Pelke LAU, which does not include designated critical habitat. This LAU is approximately 16,463 acres in size, of which 13,802 acres (84%) are considered lynx habitat. Approximately 532 acres of the Tola-Pelke LAU are non-Federal ownership and were not included in the lynx habitat assessment and these acres may be providing lynx habitat. Because of the preponderance of lynx habitat on Forest Service, BLM, and National Park lands, Federal land management assumes the largest single role in the conservation of lynx in western portions of its range. Additionally, habitat on private ownerships is highly susceptible to adverse habitat modifications, and the presence of suitable habitat on these lands cannot be relied upon over time. For these reasons, a conservative approach to calculations in this analysis will consider the 532 acres of other ownership to be perpetually in an early successional stage that does not yet provide winter snowshoe hare habitat (ES habitat), and will be counted towards Standard VEG S1. Prior to the Tower Fire approximately 44 acres of lynx habitat on federal land within the Tola-Pelke LAU was considered ES habitat.

The Tower Fire has also created additional acres within the Tola-Pelke LAU that are now considered in the ES habitat stage. The amount of current ES habitat in the LAU was calculated by using a combination of the Tower reclassified BARC layer and some post-fire field information that was collected in burned forest stands. BARC is a Burned Area Reflectance Classification system that utilizes satellite-derived data to categorize burned areas into severity classes. It is assumed that all acres of very high severity and high severity have been converted to ES habitat. It is predicted in these areas that at least 60% and up 100% of the trees in these stands are dead or dying. This will result in large areas of open canopy so the stands have been converted to the stand initiation structure stage. The stand initiation stage generally develops after a stand-replacing disturbance by fire (USDA Forest Service 2007). All moderate severity and low severity acres are assumed to remain in the current condition and the burn didn't convert these

stands into ES habitat. The moderate severity areas have more trees that are expected to survive and would not be considered a stand replacement disturbance (40 to 55% of the trees in the stand are expected to survive). In the low severity areas even more trees are expected to survive as it is predicted that 55 to 100% of the trees in the stand are expected to survive. With this many live trees left on the landscape these stands did not experience a stand replacement event and should not be converted to ES habitat. The Tower Fire created approximately 5,168 acres of ES habitat within the Tola-Pelke LAU (Table 6).

Table 6. Tower Fire Burn Severity to Lynx Habitat in the Tola-Pelke LAU

Burn Severity	Acres	Acres of early successional stage that does not yet provide winter snowshoe hare habitat
Low Severity	44	0
Moderate Severity	511	0
High Severity	4,124	4,124
Very High Severity	1,044	1,044
Total	**5,723**	**5,168**

The updated baseline for the Tola-Pelke LAU with the addition of the Tower Fire has as many as 5,744 acres (5,212 acres Federal lands plus up to 532 acres private), or 40 percent of lynx habitat in the Tola-Pelke LAU (Map 5), in an early successional stage not yet providing lynx habitat (Standard VEG S1). Again, this estimate reflects the highest amount of acres possible in this stage, and the actual amount is likely slightly lower.

There are no acres that have been regenerated on National Forest System lands by timber management projects in the previous 10 years (Standard VEG S2). Within the Tower Fire Salvage project area there are no stands within lynx habitat that meet the definition of multi-story or late successional forest (Standard VEG S6).

Lynx presence has been historically reported throughout the Idaho Panhandle, including both verified and unverified sightings from several locations on the Priest Lake Ranger District. Confirmed lynx sightings have been infrequent on the IPNF. Two potential sighting have occurred since 2000. One occurred just outside the Kalispell LAU that is adjacent to the Tola-Pelke LAU in 2001. That sighting is approximately 7 miles northeast of the Tower Fire Salvage Project area. The other sighting that occurred in 2000 and occurred in the Upper Priest LAU about 29 miles north of the Tower Project area. There are no confirmed sightings of lynx within the Tola-Pelke Lynx Analysis Unit.

Direct and Indirect Effects

Salvage operations activities have the potential to disturb or displace lynx that may use the project area. There are approximately 2,174 acres of lynx habitat that would be salvage harvested in the Tola-Pelke LAU. Of those 2,174 acres, about 1,927 acres (89%) are considered stand initiation structural stage that does not yet provide winter snowshoe hare habitat (ES habitat). Salvage within ES habitat is expected to have very limited effects to lynx habitat, as the fire impacts have already re-initiated the stands. Any trees expected to live would remain within the areas. The only effect other than potential disturbance to lynx would be the removal of snags that could reduce denning habitat in the future. A minimum of five to seven snags per acre and one to six live trees per acre for snag recruitment would be left within the units. The retention snags and trees would provide future potential denning habitat. Down wood requirements would also be met, so 20 to 30 additional logs would be left per acre to supply future denning habitat.

Within the 247 acres of salvage harvest that is occurring in lynx habitat but outside ES habitat; effects would be similar to effects described above for the ES habitat. Salvage harvest in lynx habitat outside of ES habitat is not expected to convert stands into an early seral stage. There would be no increase of acres

of ES habitat as a result of the salvage operations, as all trees expected to live would remain. There could be a minor effect on lynx habitat by reducing understory growth that may be providing snowshoe hare habitat. This would occur most likely in the 56 acres within salvage units that either did not burn or received a low severity burn. The only activity that could reduce understory in these areas would include skidding logs. There are also unburned or low severity areas adjacent that snowshoe hares could utilize. Again this action would not occur within multi-story or late successional stands.

Roadside danger tree removal and salvage activities have the potential to disturb or displace lynx that may use the project area. There are approximately 397 acres of lynx habitat that would be roadside danger removal and salvage in the Tola-Pelke LAU. Of those 397 acres, about 51 acres (13%) are considered stand initiation structural stage that does not yet provide winter snowshoe hare habitat (ES habitat). The other 346 acres of roadside danger tree removal is occurring in lynx habitat that burned but has not been reclassified as ES habitat. Roadside danger tree removal and salvage would have similar effects to lynx habitat whether in the ES habitat stage or other stages. Any trees expected to live would remain within the areas, only danger trees classified as having an imminent or likely failure potential with a likelihood of striking the roads would be felled and salvaged. Snag retention guidelines would not apply to the danger tree areas. However if a snag does not have the likelihood of striking the road it would remain. This would reduce available denning structure in the future. Down wood requirements would be met, so 20 to 30 additional logs would be left per acre to supply future denning habitat. The down wood would be available for future denning habitat unless the public utilizes it for firewood. In areas outside of ES habitat there could also be a minor effect on lynx habitat by reducing understory growth that may be providing snowshoe hare habitat, this would occur most likely in the 7 acres within roadside danger tree and salvage units that either did not burn or received a low severity burn, representing less than 2% of the total danger tree removal area. Roadside danger tree and salvage activities are not expected to convert any lynx habitat into the early seral stage (i.e. ES habitat).

Trail and riparian habitat conservation areas (RHCAs) danger tree felling also have the potential to disturb or displace lynx that may use the project area. Approximately 127 acres of danger tree felling is occurring in ES habitat as well as 25 acres occurring in lynx habitat that isn't considered ES habitat. There are limited effects to lynx as danger trees would be felled and left in place. The felled trees would supply potential denning habitat in the future.

Road maintenance, road reconstruction, and temporary roads would have relatively minor effects on lynx. Road density does not appear to affect lynx habitat selection and lynx are tolerant of some level of human disturbance. The Tower Fire Salvage and Reforestation project would temporarily increase linear miles of roads in the project area up to 8.9 miles. However, public motorized use would be restricted (see "Conservation Measures").

Reforestation would occur in approximately 2,720 acres of lynx habitat. About 80% of the reforestation would occur within areas identified as ES habitat. Tree seedlings would be planted in the salvage units and in the roadside danger tree removal areas following the completion of harvest activities. Tree seedlings would also be planted in areas within or adjacent to the units where treatments are not being conducted and where the fire burned moderately or severely (e.g., in RHCAs). Tree species that would be planted in lynx habitat could include blister rust resistant white pine, western larch, and western red-cedar. While only these species will be planted, natural regeneration is also expected to occur with lodgepole, Douglas-fir, western hemlock, grand fir, subalpine fir and Engelmann spruce, thereby restocking lynx habitat also. Reforestation activities within lynx habitat is expected speed up the recovery time of habitat. Overall, reforestation would hasten and enhance overall recovery and trend the vegetation toward the desired condition. The reforestation would have a minor disturbance effect on lynx.

Trail reconstruction and maintenance would occur on about 1 mile of trail 199 and 1.6 miles of trail 198 within the Tola-Pelke LAU. Trail improvement activities would make inconsequential changes to habitat

and have minor disturbance effects on lynx. There is a possibility that trail maintenance activities and lynx may occur in the same general vicinity at the same time. Based on the nature of the activities and the above factors the potential for disturbance of lynx is low, and effects are inconsequential.

During salvage activities a temporary closure will be in place. Snowmobile routes within the Tower Salvage Project area will be reduced to a single route that will connect the Kings Lake Parking area to the system of groomed trails on the Priest Lake Ranger District. The single route would be on an already designated snowmobile route and over the snow routes and designated play areas would not increase.

The culvert replacement on road 1089 at the Solo Creek Crossing project is occurring outside of lynx habitat and the Tola-Pelke LAU, so there would have no effects to lynx or their habitat from this activity.

Approximately 7,945 acres of lynx habitat within the Tola-Pelke LAU was not altered by the Tower Fire and will not be impacted by the Tower Project. In addition, about 3,098 acres of lynx habitat within the Tola-Pelke LAU was altered by the Tower Fire but will not be impacted by the Tower Project. Untreated areas within the Tower Fire are expected to provide the best future denning habitat with large amounts of large woody debris and "jack-strawed" piles as all snags created by the Tower Fire will remain on the landscape in these areas.

Relevant Standards and Guidelines from the Northern Rockies Lynx Management Direction are addressed as follows:

Standard ALL S1: *New or expanded permanent development and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area*.

> The Tower Salvage will not change connectivity. The Tower Fire reduced connectivity within the fire area for lynx. All treatment areas do not currently provide connectivity, but over time they are expected to return to conditions that existed pre-fire. This proposal would comply with Standard ALL S1.

Standard LAU S1: *Changes in LAU boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.*

> LAU boundaries on the IPNF were refined based on the best available science of what constitutes lynx habitat, more accurate habitat mapping, and multiple discussions with members of the interagency Canada Lynx Biology Team and a review by the Forest Service Regional Office. Previous remapping of LAU boundaries on the IPNF complies with Standard LAU S1. The Tower Salvage project is not proposing any changes in LAU boundaries.

Standard VEG S1: *Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages limit disturbance in each LAU as follows: If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.*

> The updated baseline for the Tola-Pelke LAU with the addition of the Tower Fire has as many as 5,744 acres (5,212 acres Federal lands plus up to 532 acres private), or 40 percent of lynx habitat in the lynx analysis unit, in an early successional stage not yet providing snowshoe hare habitat. There are no activities associated with the Tower Fire Salvage and Reforestation Project that would increase the percentage of the Tola-Pelke LAU in the early successional stage not yet providing snowshoe hare habitat.

Standard VEG S2: *Timber management projects shall not regenerate more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period.*

The Tola-Pelke LAU does not have any acres of NFS lands that has been regenerated by timber management activities within the last 10 years. The Tower Fire Salvage and Reforestation Project is a salvage project and will not increase the acres of regeneration in the LAU. The proposal would not add to acres of regeneration within the Tola-Pelke LAU, so the project would comply with Standard VEG S2.

Standard VEG S5: *Precommercial thinning projects that reduce snowshoe hare habitat may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat only: 1) within 200' of administrative sites, 2) for research studies or genetic tree tests evaluating genetically improved reforestation stock, 3) based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of FWS, where a written determination states that a project is not likely to adversely affect lynx or that a project is likely to have short-term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx or its habitat, 4) for conifer removal in aspen, or daylight thinning around individual aspen trees, where aspen is in decline, 5) for daylight thinning of planted rust-resistant white pine where 80% of the winter snowshoe hare habitat is retained, or 6) to restore whitebark pine.*

Precommercial thinning is not part of the Tower Fire Salvage. Future precommericial thinning in the Tower Fire Salvage area would completed in a separate action. However, lynx habitat would not be part of any proposed precommercial thinning as it would violate Standard VEG S5.

Standard VEG S6: *Vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late successional forests may occur only: 1) within 200' of administrative sites, 2) for research studies or genetic tree tests evaluating genetically improved reforestation stock, 3) for incidental removal during salvage harvest (e.g. removal due to location of skid trails).*

No timber harvest in multi-story mature or late-successional forests would occur in this proposal. Therefore, this proposal would comply with Standard VEG S6.

Standard LINK S1: *When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings.*

There is no highway or forest highway construction or reconstruction proposed. Forest road reconstruction would take place on currently drivable roads, or roads that would be placed in long-term storage following implementation, so no crossings would be needed. Consequently, this proposal would comply with Standard LINK S1.

Guideline ALL G1: *Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across Federal land. Methods could include fencing, underpasses, or overpasses.*

There is no highway or forest highway construction or reconstruction proposed. Forest road reconstruction would take place on currently drivable roads, or roads that would be placed in long-term storage following implementation, so no crossings would be needed. Consequently, this proposal would be consistent with Guideline ALL G1.

Guideline VEG G1: *Vegetation management projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat should be near denning habitat.*

The majority of acres identified as treatment areas have been burned in the Tower Fire and have been reinitiated into the stand initiation phase. Over time the areas will become winter showshoe hare

habitat once trees regenerate and grow to the required height. Within units snag and downwood retention will leave structure for future denning habitat structure. In addition all snags and downwood would be left outside of units to provide future denning habitat structure. This proposal would be consistent with Guideline VEG G1.

Guideline VEG G4: *Prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.*

The Tower Salvage project is not proposing prescribed fire activities and the project will not create permanent travel routes. This project would be consistent with Guideline VEG G4.

Guideline VEG G5: *Habitat for alternate prey species, primarily red squirrel, should be provided in each LAU.*

There are about 7,945 acres of forested lynx habitat to the north and south of the Tower Project areas in the Tola-Pelke LAU, providing habitat for alternate prey species such as red squirrels. The Tower Salvage project will not treat any red squirrel habitat. The Tower Fire removed the majority of red squirrel habitat in the project area. This project would be consistent with Guideline VEG G5.

Guideline VEG G10: *Fuel treatment projects within the WUI as defined by HFRA should be designed considering Standards VEG S1, S2, S5 and S6 to promote lynx conservation.*

The Tower Salvage project is not proposing a fuel treatment project. This project would be consistent with Guideline VEG G10.

Guideline VEG G11: *Denning habitat should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris, piles, or residual trees to provide denning habitat in the future.*

Approximately 54% of the lynx habitat within the Tower Fire will not be treated with the Tower Salvage project. All snags and down wood on those acres will remain to provide future denning habitat in the form of pockets of down woody debris. In the approximate 38% of the lynx habitat that is proposed for salvage harvest, snag retention and down wood retention guidelines would retain structures that could provide future denning habitat. In the danger tree removal areas, down wood retention guidelines would ensure large woody debris would remain that could provide denning habitat. Also, any snag that wouldn't have the likelihood of striking the road would remain to provide future denning habitat. Consequently, this proposal would be consistent with Guideline VEG G11.

Guideline LINK G1: *NFS lands should be retained in public ownership.*

The project does not involve transfer of ownership of NFS lands and therefore would be consistent with Guideline LINK G1.

Guideline HU G6: *Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.*

Unpaved roads would be improved only to the extent necessary to make them safe for timber haul. Roads would not be upgraded to maintenance levels 4 or 5, and proposed improvements are not expected to considerably increase traffic speeds or volumes, or human activity. Consequently, this proposal would be consistent with Guideline HU G6.

Guideline HU G7: *New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forest stringers.*

No new permanent roads would be built for this project. Consequently, this proposal would be consistent with Guideline HU G7.

Guideline HU G8: *Cutting brush along low-speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.*

Cutting brush along designated haul routes would be done to the Forest Service standard, and then allowed to revegetate naturally on roads to be placed into long-term storage. This proposal would be consistent with Guideline HU G8.

Guideline HU G9: *On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.*

Any roads that will be used for the Tower Salvage project that are not currently designated as open on the MVUM would be restricted to public motorized access. In addition, all roads not designated as open on the MVUM would be closed immediately upon completion of activities requiring use of the road. This proposal would be consistent with Guideline HU G9.

Guideline HU G11: *Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs.*

Snowmobile routes within the Tower Salvage Project area will be reduced to a single route that will connect the Kings Lake Parking area to the system of groomed trails on the Priest Lake Ranger District. The single route would be on an already designated snowmobile route and over the snow routes and designated play areas would not increase. Once harvest operations are complete snow mobile designated routes would return to levels that existed pre-fire.

Since the project does not involve livestock management, guidelines pertaining to this issue (Guidelines GRAZ G1-G4, LINK G2) do not apply to this project. In addition, this project does not involve ski areas, recreation areas, mineral and energy development, or authorization of over-the-snow travel, so Guidelines HU G1-G5, G10, and -G12 do not apply. Consequently, this proposal would be consistent with these Guidelines.

Cumulative Effects

Approximately 532 acres of the Tola-Pelke LAU is in non-federal ownership. Within the 532 acres, four hundred and six acres within two parcels under other ownerships (near Ojibway Knoll) are heavily roaded, so additional activities may occur in the future. The other 126 acres are currently not roaded and activities are not anticipated. All non-federal ownership would be considered lynx habitat. Therefore, there are 14,334 acres of lynx habitat within the Tola-Pelke LAU (13,802 acres FS land plus 532 acres of other ownership). Using a conservative habitat approach assumes all 532 acres of other ownership lynx habitat would be in a perpetually stand initiation stage not yet providing winter snowshoe hare habitat. Therefore non-federal ownership would contribute 4% stand initiation not yet providing snowshoe hare habitat within the Tola-Pelke LAU.

Determination of Effect

The Tower Fire Salvage and Reforestation Project would be consistent with standards and guidelines in the NRLMD (see above). Actions from the Tower Project would not add acres or increase the percentage of lynx habitat in the stand initiation structural stage not yet providing winter snowshoe hare habitat. While there is 40% of the Tola-Pelke LAU in this stage (above the 30% threshold standard for VEG S1), this is due to effects of the Tower Fire itself. Harvest activities related to the Tower Salvage would also not add to the regenerated stands within a ten-year period. Currently no acres of lynx habitat on NFS lands within the Tola-Pelke LAU have been regenerated within the last ten-year period. No mature multi-story or late successional stands would be affected. The project would not affect designated Canada lynx critical habitat.

Salvage operations on approximately 2,174 acres of lynx habitat, 397 acres of roadside danger tree removal and salvage, 152 acres of trail and RHCA danger tree removal, 2,720 acres of reforestation, 2.6 miles of trail reconstruction and maintenance, a temporary increase of 8.9 linear miles of roads in the project area, 44 miles of road maintenance , 38.5 miles of road reconstruction, and 4.6 miles of temporary roads would make minor modifications to habitat and would not disturb or displace resident lynx at a level that would result in mortality or significantly disrupt behavioral patterns such as breeding, feeding or sheltering. Consequently, these activities ***may affect***, but are ***not likely to adversely affect*** Canada lynx.

There would be ***no effect*** on lynx critical habitat.

Grizzly Bear

Populations of grizzly bears persist in those areas where large expanses of relatively secure habitat exist and where human-caused mortality is low. Grizzly bears are considered habitat generalists, using a broad spectrum of habitats. Use patterns are usually dictated by food distribution and availability combined with a secure environment. Grizzlies commonly choose riparian areas and wet meadows during the spring and generally are found at higher elevation meadows, ridges, and open brush fields during the summer (Volsen 1994).

Grizzly bears are opportunistic feeders and will prey or scavenge on almost any available food. Plants with high crude protein content and animal matter are important food items. The search for food has a prime influence on grizzly bear movements. Upon emergence from the den grizzlies move to lower elevations, drainage bottoms, avalanche chutes, and ungulate winter ranges where their food requirements can be met. Throughout spring and early summer grizzlies follow plant phenology back to higher elevations. In late summer and fall, there is a transition to fruit and nut sources, as well as herbaceous materials. This is a general pattern, however; bears will go where they can meet their food requirements (USDI Fish and Wildlife Service 1993).

Grizzly bear habitat across the region is best described in terms of the availability of large tracts of relatively undisturbed land that provide some level of security from human depredation and competitive use of habitat by humans (including roading, logging, grazing and recreation) (USDI Fish and Wildlife Service 1993). The Grizzly Bear Recovery Plan (USDI Fish and Wildlife Service 1993) indicates that the most important element in grizzly bear recovery is securing adequate effective habitat. This is a reflection of an area's ability to support grizzly bears based on the quality of the habitat and the type and amount of human disturbance imposed on the area. Controlling and directing motorized access is one of the most important tools in achieving habitat effectiveness and managing grizzly bear recovery (USDI Fish and Wildlife Service 1993).

The historic range of the grizzly bear once included most of the continental United States west from the Great Plains, but widespread reductions in range and population numbers led to the grizzly bear being listed as threatened under the ESA in 1975. Today, it is confined to less than two percent of its former range and is represented in five or six population centers south of Canada, including the Cabinet-Yaak and Selkirk Ecosystems that are located in northeastern Washington, northern Idaho and northwestern Montana. Habitat loss and direct and indirect human-caused mortality are related to its decline (USDI Fish and Wildlife Service 1993).

It was recognized at the time of the 1993 Recovery Plan update that grizzly bear presence would occur outside the recovery zones (U.S. Fish and Wildlife Service 1993). More recently, credible observations of grizzly bears and radio-telemetry research data on collared grizzly bears have documented use in specific areas outside of existing recovery zone boundaries. While observation data is limited and these habitats have not been evaluated to determine if they are of significant biological value, ongoing and future land management activities in these areas have the potential to affect grizzly bears. These areas—subsequently termed "Bears Outside Recovery Zones" (BORZ) Occupancy Areas—were incorporated into the Forest Plans amendments of the Kootenai, Idaho Panhandle, and Lolo National Forest Plans in 2011 (USDA Forest Service 2011). This amendment is known as the Access Amendment (USDA Forest Service 2011). The Idaho National Forests Land Management Plan 2015 Revision Standard (FW-STD-WL-02) states the IPNF will continue to use the 2011 Access Amendment to manage motorized access within the Selkirk and Cabinet-Yaak Bear Recovery Zones (USDA Forest Service 2015). The Tower Fire Salvage and Reforestation Project area lies within the Priest BORZ area adjacent to the Selkirk Recovery Zone (Map 6). The process for selecting and delineating the boundaries of this BORZ area is described in Allen (2011).

Between 1994 and 2009, 17 credible sightings of grizzly bears were documented in the Priest BORZ area, no females with cubs were sighted during that time frame (Allen 2011). Allen (2011) reports only one grizzly bear mortality occurring on National Forest System lands in the Priest BORZ area during this time period. The majority of the Priest BORZ area is easily accessed by motor vehicle; and portions are heavily used during the snow-free season by local residents for hunting, firewood gathering, dispersed camping, hiking, and huckleberry picking.

Within Recovery Zone boundaries, access management standards for grizzly bear habitat contained within in the Access Amendment include thresholds for open and total motorized route densities, and core area. Research indicates that increasing densities of both open and restricted (gated) roads have negative effects upon grizzly bear behavior and habitat use (Mace et al. 1996, Wakkinen and Kasworm 1997). However, these standards are not appropriate for describing the existing conditions in the BORZ area or the effects of motorized access on grizzly bears in these areas for a number of reasons.

The value of these areas to grizzly bears is currently unknown, since no assessment of seasonal habitat availability has yet been completed. Bears using these areas apparently tolerate substantially greater levels of human disturbance (highways, residences, heavy industrial use and highly roaded areas) than those in bear management units (USDI Fish and Wildlife Service 2011). While sizes of bear management units are generally similar to facilitate comparison between units, the BORZ areas are highly variable in size. Additionally, the boundaries of these areas are not static, but may be adjusted as grizzly bear use patterns are reevaluated in future years. There is limited basis of comparison between units of substantially different acreages, or within individual units that may vary in size and shape over time.

The Access Amendment quantified the nature and amount of motorized access in these areas in order to discuss the potential impacts to grizzly bears. Through the Endangered Species Act Section 7 consultation process, the affected national forests and U.S. Fish and Wildlife Service agreed to define motorized use in BORZ areas using linear miles of open and total roads, as they are more easily communicated and monitored than road densities (and small changes in linear road miles could easily be obscured when

measuring road densities over large areas). Additionally, while external boundaries were drawn to intentionally exclude non-federal ownerships whenever possible, some BORZ areas (as delineated) contain substantial private or other inholdings. Because the Forest Service has no control over development of adjacent private lands (and grizzly bear presence on many of these lands would not be encouraged due to the potential for grizzly bear-human conflicts and subsequent bear mortality), measuring road miles across an entire BORZ area would not necessarily be an accurate reflection of the effects of National Forest management on grizzly bears. Consequently, the Access Amendment direction for the affected Forests is for no increases in permanent linear miles of open road and no net permanent increases in linear miles of total roads on National Forest System lands within individual BORZ areas above the baseline conditions identified at that time (USDA Forest Service 2011).

Table 7 shows the existing condition for the Priest BORZ. The 2010 baseline is reported in the recently revised Forest Plan (USDA Forest Service 2015, Table 26, page 155). In 2012 the baseline was updated due to mapping errors that included: An existing road that had been on the landscape for at least 10 years was not included in the 2010 baseline. During a review of the Motor Vehicle Use Maps (MVUM) it was discovered that two open roads were not included in the BORZ road coverage as open.

During the Tower Fire Salvage and Reforestation project analysis process it became apparent that an additional open road that exists on the landscape was not included in the Priest BORZ baseline mapping. The 460C road (about 0.2 miles) is mapped as open on the MVUM so it needs to be counted as open on the BORZ layer. Map 6 shows the current open roads within the Priest BORZ.

Table 7. Existing Habitat Conditions for the Priest BORZ (Baseline)

Year	Total Size (Acres)	National Forest Lands		
		Total Area NFS (Acres)	Total Roads (Miles)	Open Roads (Miles)
2010	80,733	75,793	316.4	314.4
2012	80,733	75,793	319.0	317.0
2015	80,733	75,793	319.2	317.2

Habitat conditions within the Tower Fire Salvage and Reforestation Project were altered with the Tower Fire of 2015. A majority of the hiding cover that existed within the project area was removed as a result of the fire. The Tower Fire also reduced the amount of huckleberries available in the project area. Approximately 2% of the Tower Fire incurred light soil damage and may return to huckleberry production within 5 to 8 years. About 18% of the Tower Fire incurred moderate soil severity and it is expected to take 8 to 15 years to return to pre-fire huckleberry productivity. Approximately 80% of the burned area incurred high or very high burn severity resulting in complete destruction of any present shallow huckleberry rhizomes. Therefore, approximately 80% of the burned area may take 15-30 years to return to pre-fire huckleberry productivity. However, likely all of the burned area will return to better huckleberry productivity than pre-fire conditions, beginning for some areas within 5-8 years, reaching full huckleberry productivity in years 15-60 post-fire for most areas, and likely declining after that without further ecological disturbances. Other forage species (grasses and forbs) should increase within the Tower Fire for 10 to 15 years or until the tree and shrub canopy begins to reduce available light to the forest floor.

Direct and Indirect Effects

The Tower Fire Salvage and Reforestation Project would temporarily increase linear miles of roads in the Priest BORZ up to 8.9 miles. However public open road miles would not increase as conservation measures are in place to restrict the public's access to roads needed for the salvage activities. The temporary linear increase in road miles is expected to be short in duration as harvest activities are anticipated to be completed in 2016. The Tower Project would also place approximately 4.7 miles of roads classified as open in the BORZ roads layer into storage once harvest activities have been completed (312C, 1075M, 1089A, and 4306D roads; see Map 7). The 4.7 miles classified as open in the BORZ roads layer are already closed on the MVUM, so public motorized access would not change. Roads that are placed into storage are unavailable for vehicular use (including maintenance) for a minimum of 10 years, and are no longer counted toward linear road miles for purposes of grizzly bear habitat assessment per direction from the Interagency Grizzly Bear Committee (IGBC 1986, 1998) and Fish and Wildlife Service (USDI Fish and Wildlife Service 2011).

Table 8. Habitat Conditions for the Priest BORZ (Baseline)

Time Period	Total Size (Acres)	National Forest Lands		
		Total Area NFS (Acres)	Total Roads (Miles)	Open Roads (Miles)
Existing Condition	80,733	75,793	319.2	317.2
During salvage activities	80,733	75,793	328.1	317.2
Post salvage activities	80,733	75,793	314.5	312.5

Temporary road construction associated with salvage activities has the potential to disturb or displace grizzly bears that may occasionally use the project area. There are approximately 4.6 miles of temporary roads proposed to facilitate harvest activities (Map 4). The temporary roads would temporarily increase total linear miles of roads within the Priest BORZ. The temporary roads would be recontoured to the approximate shape of the surrounding terrain after salvage. The temporary roads would be managed in a way to make sure the Tower Fire Salvage and Reforestation project is consistent with the Access Amendment within a BORZ (see "Conservation Measures").

Road maintenance and reconstruction associated with salvage activities have the potential to disturb or displace grizzly bears that may occasionally use the project area. There are approximately 44.1 miles of road maintenance and 38.5 miles of road reconstructions proposed to facilitate harvest activities (Map 4). Of the 38.5 miles of road reconstruction only 1.9 miles would temporarily increase the total linear miles of roads within the Priest BORZ (1075G and 1089D roads). The other 34.2 miles of roads to be reconstructed are already open in the Priest BORZ. Post-harvest the 1.9 miles of reconstructed roads would be stored. The road maintenance and reconstruction would be managed in a way to make sure the Tower Fire Salvage and Reforestation project is consistent with the Access Amendment within a BORZ (see "Conservation Measures").

Salvage operations and roadside danger tree removal with associated salvage activities have the potential to disturb or displace grizzly bears that may occasionally use the project area. Proposed salvage harvest includes 1,735 acres of ground based logging and 2,526 acres of cable yarding totaling 4,271 acres total (Map 2). Roadside danger tree removal with associated salvage activities would occur on 1,009 acres (Map 3). No timber harvest, hauling, road reconstruction, road storage, grapple piling or slashing activities would take place between April 1 and June 15, which is considered to be the most sensitive time period for grizzly bears (see "Conservation Measures").

Trail danger tree removal outside of salvage units and roadside RHCA danger tree removal also would have the potential to disturb or displace grizzly bears that may occasionally use the project area. There is approximately 245 acres of trail danger tree removal occurring outside of salvage units and about 200 acres of danger tree felling in RHCAs along open roads (Map 3). Only danger trees classified as having an imminent or likely failure potential with a likelihood of striking the trail or road would be felled. The activities associated with these treatments would not take place between April 1 and June 15, which is considered to be the most sensitive time period for grizzly bears (see "Conservation Measures").

There is about 2.7 miles of trail reconstruction and 1.5 miles of trail maintenance proposed outside of salvage and roadside danger tree areas. Trail improvement activities would make inconsequential changes to habitat, but have the potential to disturb or displace grizzly bears that may occasionally use the project area.

Reforestation would have the potential to disturb or displace grizzly bears that may occasionally use the project area. Approximately 5,754 acres would be replanted in the salvage units and in the roadside danger tree removal areas following the completion of harvest activities. Tree seedlings would also be planted in areas where treatments are not being conducted but the fire burned with enough severity that adequate openings in the forest canopy were created to allow the successful growth of the planted trees (e.g., in RHCAs). Reforestation would have the potential to speed up recovery times within the project area for hiding cover, especially within the large contiguous areas that burned with high or very high severities where few if any live trees remain. Planting trees in those areas is likely to substantially decrease the time that the stands would not be considered hiding cover. Areas that burned with high and very high severity levels not only lost the conifer seed source from live trees, but also the seed that was in the duff soil layers was consumed. Therefore, natural regeneration in those severely burned areas has to come from relatively distant seed sources and that would take a considerable amount of time. The activities associated with reforestation are the only project activities that will be allowed to occur from April 1 to June 15, which is considered to be the most sensitive time period for grizzly bears. Most of the planting would likely occur in May, with some lower elevation planting occurring in April and some high elevation planting not occurring until June. Some snow plowing may be required to gain access to planting sites at the right time. All snow plowing would occur on roads designated as open to the public on the MVUM map. The snow plowing is unlikely to displace grizzly bears since the existing source of disturbance is already present: while plowing will allow a different type of motorized vehicle on the roads, motorized vehicle use in the form of over snow or atv/utv use would most likely be occurring already.

The culvert replacement on Road 1089 at the Solo Creek crossing has the potential to disturb or displace grizzly bears that may occasionally use the project area. The culvert would be replaced between July 15 and March 1. The activities associated with the culvert replacement would not take place between April 1 and June 15, which is considered to be the most sensitive time period for grizzly bears (see "Conservation Measures"). The road is currently designated as an open road on the MVUM map. The culvert replacement is unlikely to displace grizzly bears since an existing source of disturbance is already present.

Relevant Design Elements from the Grizzly Bear Access Amendment are addressed as follows:

II. *The following access management applies to seven grizzly bear recurring use areas (i.e., BORZ areas) located outside of the Cabinet-Yaak Grizzly Bear Recovery Zone (KNF and IPNFs) and Selkirk Grizzly Bear Recovery Zone (IPNFs):*

- **A.** *The Forests shall ensure no increases in permanent linear miles of open road on National Forest System lands in any individual BORZ, above the baseline conditions identified in table 26, except in cases where the Forest Service lacks discretion to prevent road building across National Forest System lands due to legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares). Potential increases in linear miles of open roads*

must be compensated for with in-kind reductions in linear miles of open road concurrently with, or prior to, project implementation within the same BORZ.

The Tower Fire Salvage and Reforestation Project would result in a net decrease (4.7 miles) of linear miles of open road in the Priest BORZ area. Any roads currently closed to public on the Motor Vehicle Use Maps (MVUM) that are used for project activities would be made unavailable for public use during implementation. There would be no permanent increase in linear miles of open road on NFS lands from this proposal. Consequently, the Tower Fire Salvage and Reforestation project would comply with Design Element II.A.

B. *The Forest shall ensure no net permanent increases in linear miles of total roads in any individual BORZ area above the baseline conditions identified in table 26, except in cases where the Forest Service lacks discretion to prevent road building across National Forest System lands due to legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares, etc.).*

The Tower Fire Salvage and Reforestation Project would result in a net decrease (4.7 miles) of linear miles of total road in the Priest BORZ area. There would be no permanent increase in linear miles of total road on NFS lands from this proposal. Consequently, the Tower Project would comply with Design Element II.B.

1. *Temporary increases in linear miles of total roads are acceptable under the following conditions:*

    a. *Newly constructed roads would be effectively gated and would be restricted with a CFR closure clarifying they are not open for public use.*

    b. *These roads shall be closed immediately upon completion of activities requiring use of the road, except as described in Part II. A.1., above. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access, and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years.*

    c. *Upon completion of a land management project, linear miles of total roads would be returned to or below the baseline levels contained in Table 26.*

All roads not designated as open on the MVUM would be effectively gated and would require a CFR (code of federal regulation) closure clarifying they are not open for public use. These roads would also be closed immediately upon completion of activities requiring use of the road. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access (**front end obliteration is the preferred method**), and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years. Upon completion of the project the linear miles of roads would be reduced by 4.7 miles. Consequently, the Tower Project would comply with Design Element II.B.1.

C. *Timber harvest activities that would occur within multiple watersheds shall be scheduled such that disturbance of grizzly bears resulting from road use is minimized. The appropriate scale for scheduling harvest activities would be determined pursuant to project level consultation.*

The Tower Fire and Salvage and Reforestation Project is the only project that proposes harvest activities within the Priest BORZ during the anticipated time frame of 2016. The majority of the Priest BORZ would not have disturbance from road use associated with harvest activities. Consequently, the Tower Project would comply with Design Element II.C.

Cumulative Effects

About 0.7 square miles of property in the Priest BORZ are private industrial timberlands. These lands are already roaded, so any future activities would probably emanate from existing roads. As a result, potential additional road building on these properties is unlikely to significantly increase linear road miles in this area; and any future timber harvest activities would originate from the existing road system. There is also 7.0 square miles of private lands that are mostly tracts of lands with numerous private residences. Residences (existing and future) in the area create the potential for conflicts with bears (black and grizzly) resulting from food conditioning and habituation that often leads to the removal of these bears from the population. The potential effects of this are difficult to quantify and predict. It is also possible (if not likely) that this development could inhibit grizzly bear movement through the BORZ area. However, sufficient hiding cover would remain on NFS lands in the Priest BORZ area to allow grizzly bear movement, and the Access Amendment direction for BORZ areas is for no net permanent increase of linear road miles on NFS lands (USDA Forest Service 2011).

Determination of Effect

The Tower Fire Salvage and Reforestation Project would authorize salvage harvest on up to 4,271 acres, along with roadside danger tree removal and salvage (1,209 acres), roadside danger tree treatment in RHCAs (200 acres), danger tree treatments along trails, trail reconstruction and maintenance, temporary road construction, road reconstruction and maintenance, road storage, reforestation, and a culvert replacement on Road 1089 at the Solo Cr. crossing outside of the Selkirk Recovery Zone. The project would reduce linear road miles in the Priest BORZ area, consistent with the Access Amendment. While it would result in a temporary increase in linear road miles during project implementation, this situation would not increase the risk of mortality to grizzly bears since restricted and reopened roads used as haul routes would remain closed to the public and be used exclusively for the completion of project activities. With the exception of the reforestation activities, project activities would not take place during the grizzly bear spring season (April 1-June 15), a sensitive time period for grizzly bears.

The Tower Fire Salvage and Reforestation Project is expected to result in long-term (post-implementation) improvements to grizzly bear habitat by reducing road miles within the Priest BORZ. The project will not retard huckleberry production in the salvage and danger tree removal areas. While project activities may temporarily disturb or displace grizzly bears that are present during implementation, activities would be of relatively short duration, and ample displacement habitat would be available for bears to use. The Tower Fire Salvage and Reforestation Project would make minor modifications to habitat and would not disturb or displace grizzly bears at a level that would result in mortality or significantly disrupt behavioral patterns such as breeding, feeding or sheltering. Consequently, these activities ***may affect***, but are ***not likely to adversely affect*** grizzly bears or their habitat.

CONSERVATION MEASURES

The following measures are included to remove or reduce any questionable conflicts. These measures are non-discretionary and **are necessary** to achieve the determination of effects.

Canada Lynx

- Within the Tola-Pelke LAU, roads that are not designated as open on the MVUM would be restricted to public motorized access. See the grizzly bear design features on road management for details on how restricting public motorized access would be accomplished.

Grizzly Bear

- No timber harvest, hauling, road reconstruction, road storage, grapple piling or slashing activities would take place between April 1 and June 15. Additionally, no trail improvement activities (including danger tree removal) would take place during these dates.

- No increase in linear miles of open road with the implementation of Tower Fire Salvage and Reforestation Project would occur. Increases in linear miles of open roads must be compensated for with in-kind reductions in linear miles of open road concurrently with, or prior to, project implementation within the same Bears Outside Recovery Zone (BORZ) Occupancy Area.

- No net increase in the linear miles of total roads with implementation of the Tower Fire Salvage and Reforestation Project would occur. Increases in linear miles of total roads must be compensated for with in-kind reductions in linear total road miles concurrently with, or prior to, new road construction or reconstruction of currently bermed or barriered roads.

- Temporary increases in linear miles associated with this project would be acceptable under the following conditions:

    - All roads not designated as open on the MVUM would be effectively gated and would require a CFR (code of federal regulation) closure clarifying they are not open for public use.

    - All roads not designated as open on the MVUM would be closed immediately upon completion of activities requiring use of the road. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access (**front end obliteration is the preferred method**), and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years.

    - Upon completion of the Tower Fire Salvage and Reforestation project, linear miles of total roads would be returned to or below the baseline levels.

- The Grizzly Bear Management Protection Plan would be included in the contract and would be adhered to by all IPNF employees, contractors or subcontractors (see Attachment A).

- Contractors and subcontractors would not be permitted to hunt, transport hunters, discharge firearms, or transport big game animals with vehicles is any areas that are otherwise closed to motorized vehicles. Timber sale contract provision C5.41 -Closure to use by others, would be included in any timber sale contract and implemented.

STATEMENT OF FINDINGS

Based on the above analysis, I conclude that Tower Fire Salvage and Reforestation Project ***may affect***, and is ***not likely to adversely affect*** Canada lynx; may ***affect***, and is ***not likely to adversely affect*** grizzly bear; and would have ***no effect*** on Canada lynx critical habitat.

Prepared by: /s/ Date: 04/29/2016
Kris R. Hennings
North Zone Wildlife Biologist

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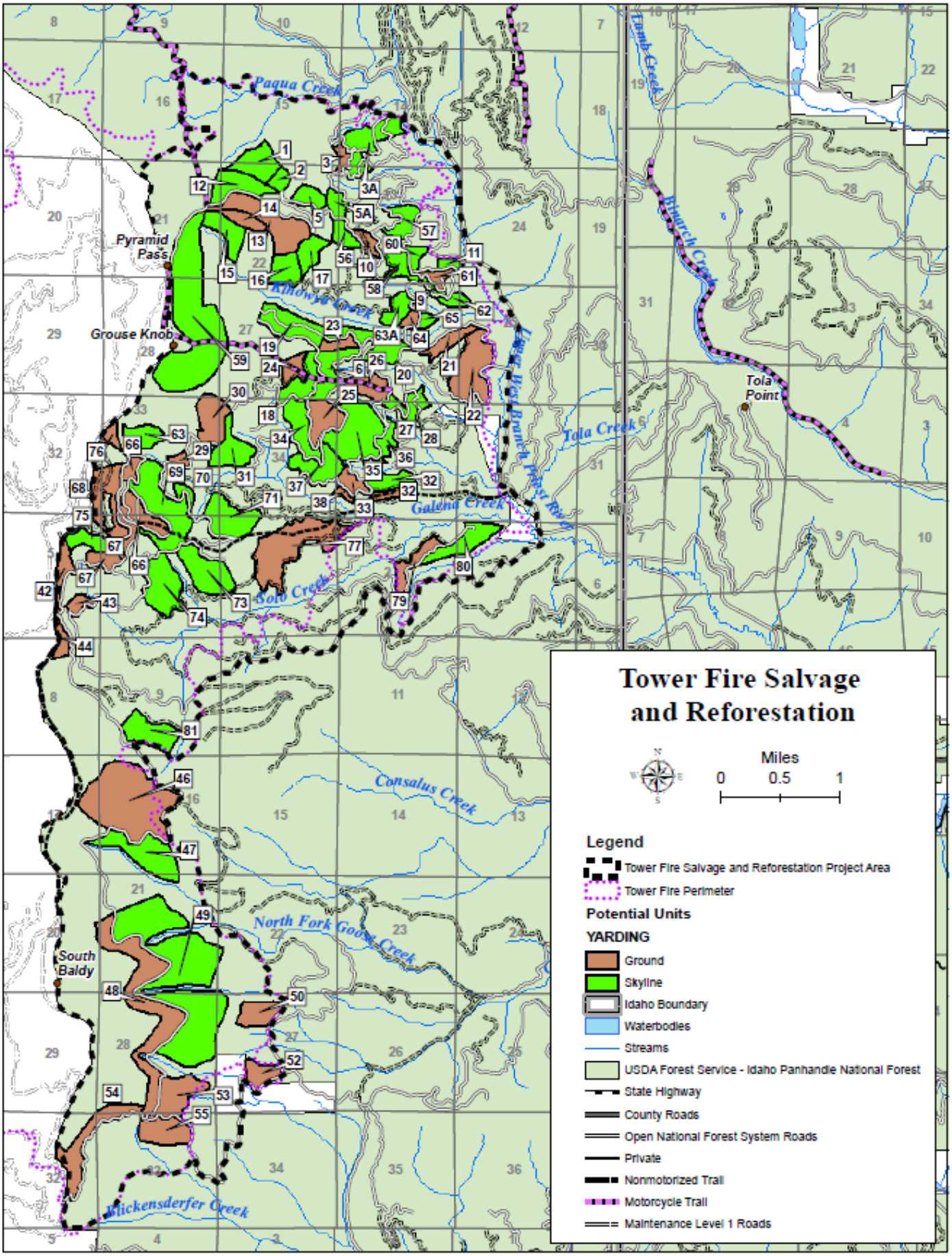
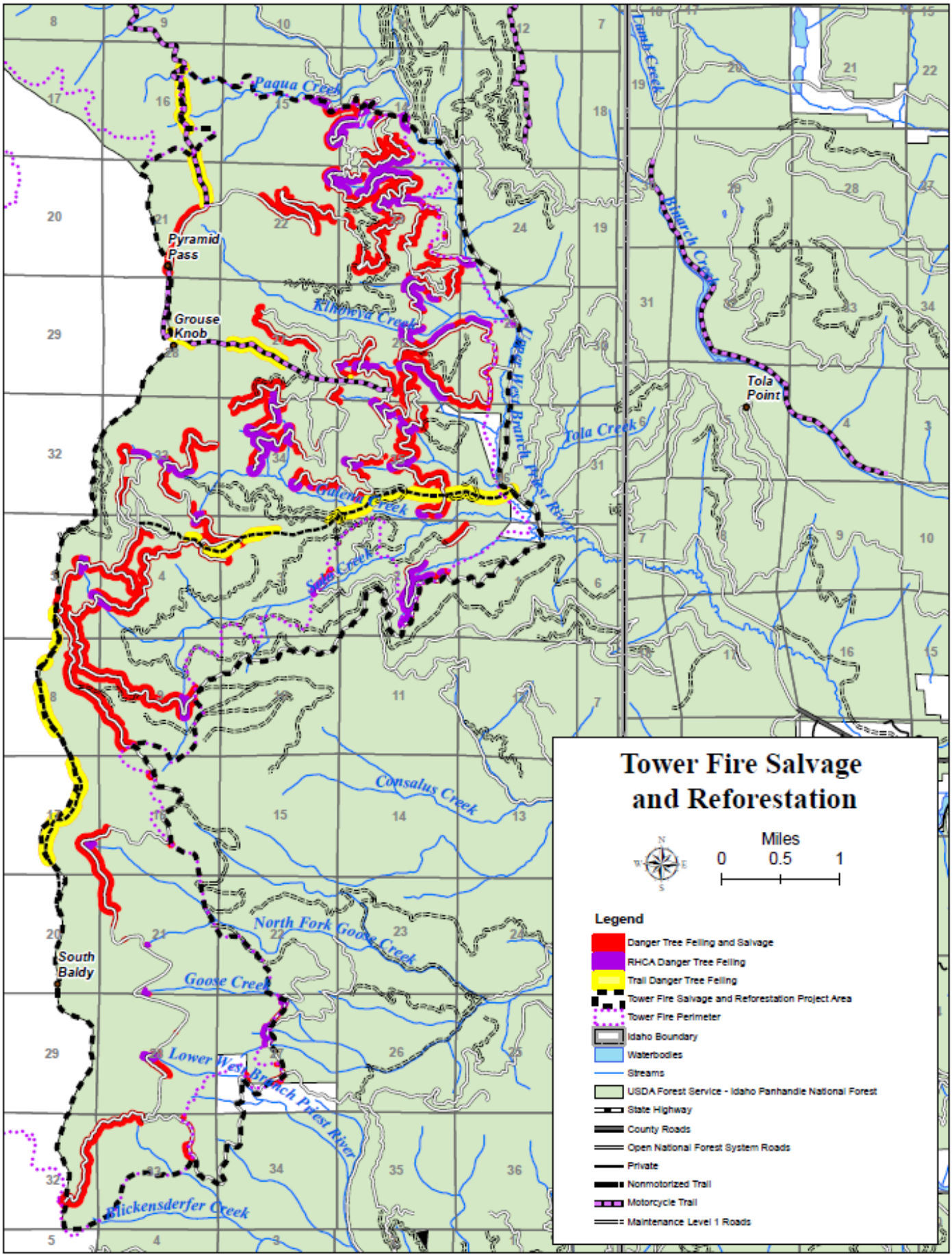
Map 1- Tower Fire Salvage and Reforestation Project - Vicinity

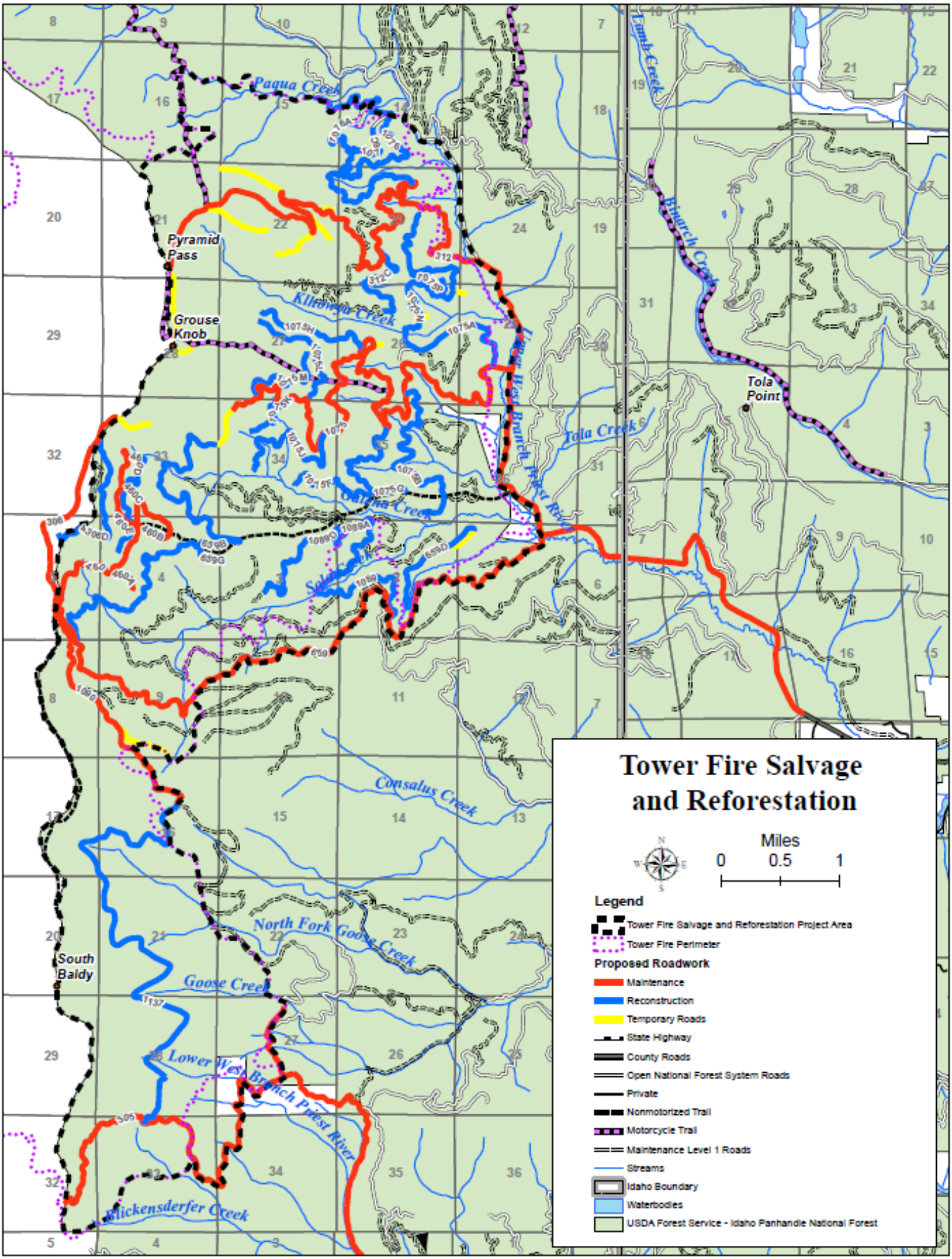
Map 2 – Tower Fire Salvage and Reforestation Project - Salvage Harvest



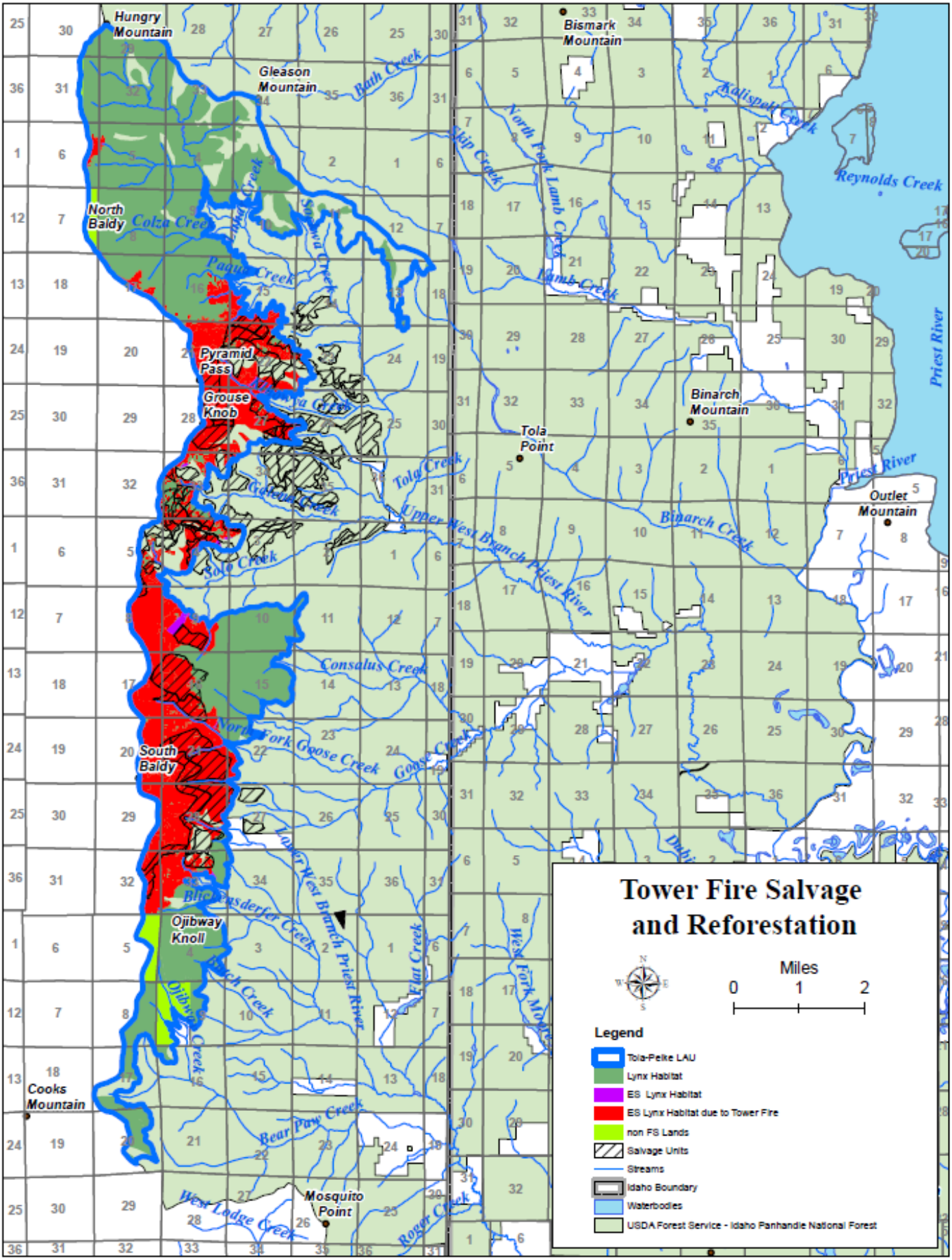
Map 3 – Tower Fire Salvage and Reforestation Project – Danger Tree Felling



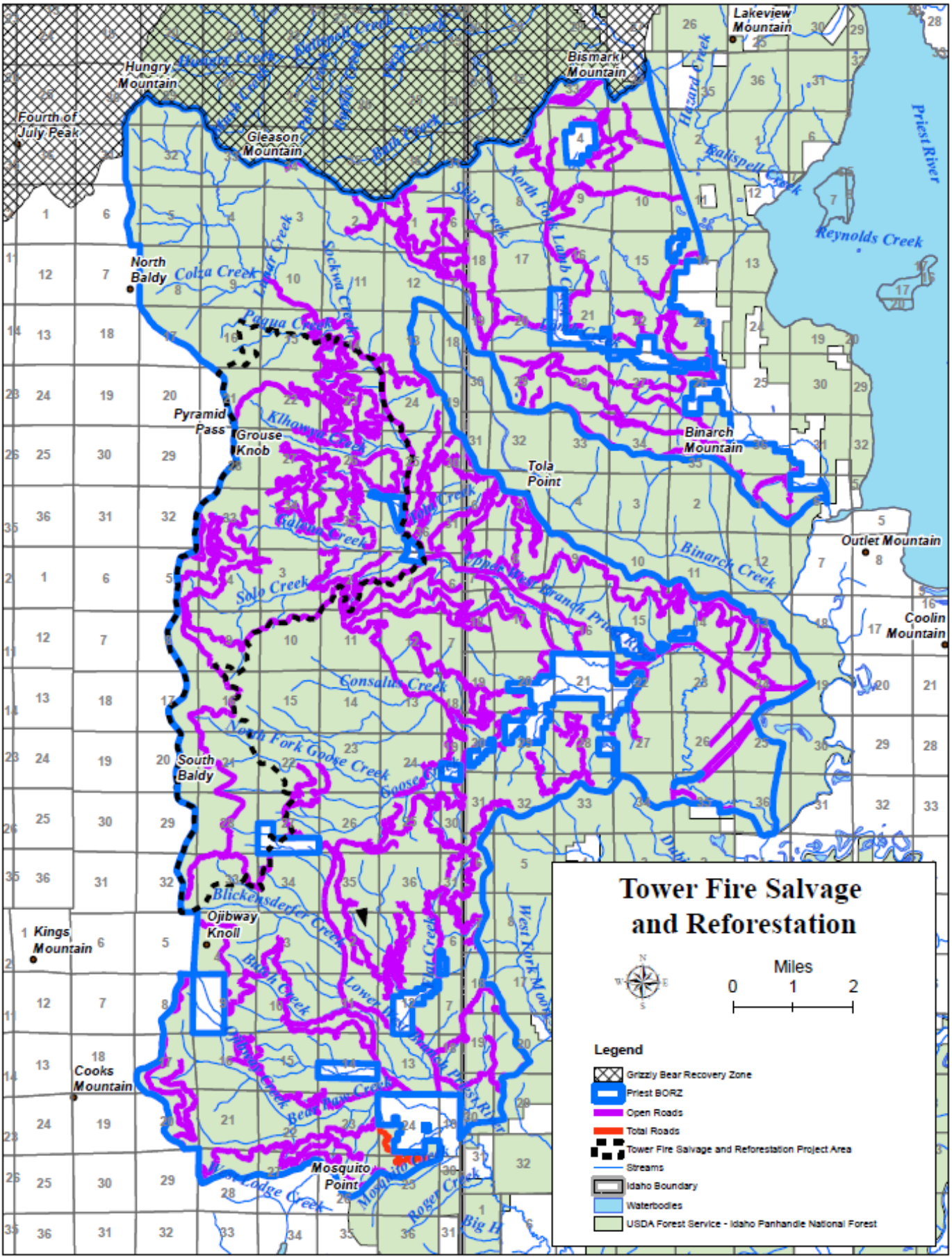
Map 4 – Tower Fire Salvage and Reforestation Project – Temporary Roads, Road Construction, and Road Maintenance



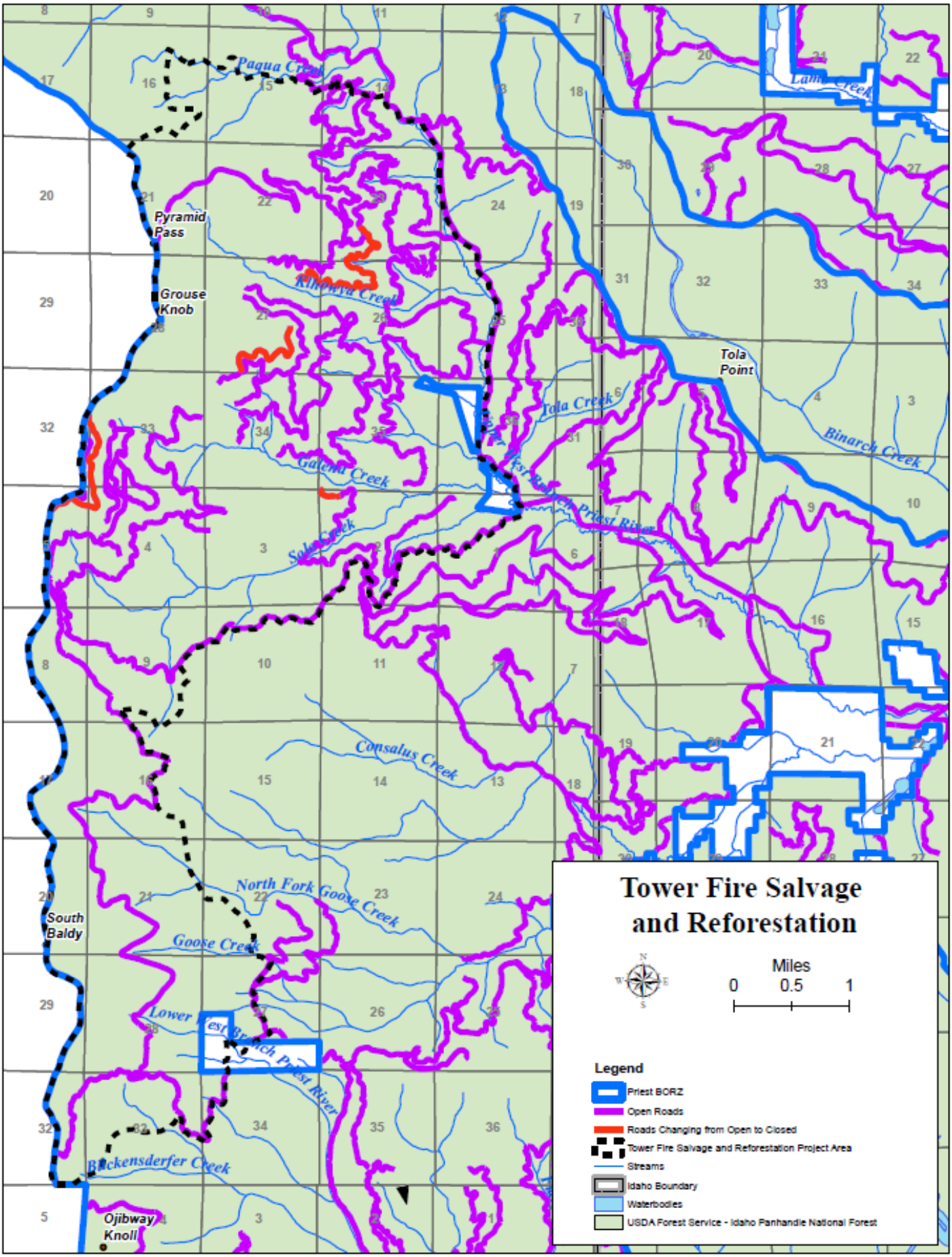
Map 5 – Tower Fire Salvage and Reforestation Project – Lynx Habitat within Tola-Pelke LAU



Map 6 – Tower Fire Salvage and Reforestation Project – Priest "Bears Outside Recovery Zones" (BORZ) Occupancy Areas



Map 7 – Tower Fire Salvage and Reforestation Project – Road Changes in the Priest BORZ



Attachment A - Grizzly Bear Management and Protection Plan

IPNF employees, volunteers, contractors, subcontractors, and other Federal/State agencies will comply with the following requirements in the conduct of any activities conducted in or adjacent to BMUs on National Forest System lands. This protection plan will be made available to all personnel conducting activity within or adjacent to BMUs and will be displayed in a conspicuous location at any contractor/subcontractors place of business and in each camp. This plan will be reviewed during a pre-work meeting with contractors; and with Forest Service employees/volunteers in conjunction with Job Hazard Analysis reviews.

1. All personnel involved in activities within grizzly bear habitat on National Forest land will be given information relating to identification of bear species and human conduct prior to the start of activities. Brochures concerning human use in grizzly country and bear identification are available at Forest Service offices. The contractor is responsible for making employees aware of the following information:
   a. The grizzly bear is classified as threatened under the Endangered Species Act.
   b. The Forest Service is mandated to conduct management activities in a manner that promotes recovery of all threatened and endangered species.
   c. The areas they are working in are within grizzly bear habitat and are essential to the recovery of the bear.
   d. Grizzly bear/human encounters are possible.
   e. In compliance with the IPNF Food Storage Order, the proper techniques of food handling and storage, travel, camping, and other such activities are required to reduce opportunities for conflict.
   f. Penalties for illegal killing of grizzly bears include up to $100,000 fine and one year in jail.
2. All personnel will be given a copy of the IPNF Food Storage Order and will adhere to the requirements contained within it.
3. The contractor will adhere to all restrictions as outlined in current Idaho Panhandle National Forests Motor Vehicle Use Map, unless authorized otherwise.
4. The responsible party shall report the death and location of livestock to a Forest Service official within 24 hours of discovery.
5. The responsible party shall report any human/bear conflicts or grizzly bear observations to the Forest Service.

Additional Camping Provisions

1. Dispose of human waste and gray water in a pit or hole, well away from campsites. Cover with sod or topsoil.
2. Follow “Leave no Trace” techniques.

Human Safety Provisions

1. If you observe a grizzly bear - detour or leave the area. A sow with cubs is particularly dangerous, as is a bear that has been surprised.
2. Use caution in approaching carcasses or gut piles.