

Appendix A

Sx^wuytn-Kaniksu Connections 'Trail' Project
– Proposed Action Maps

Sxʷuytn Kaniksu Connections
Trail Project

Map 2 of 3 (North)

Proposed Action Alternative

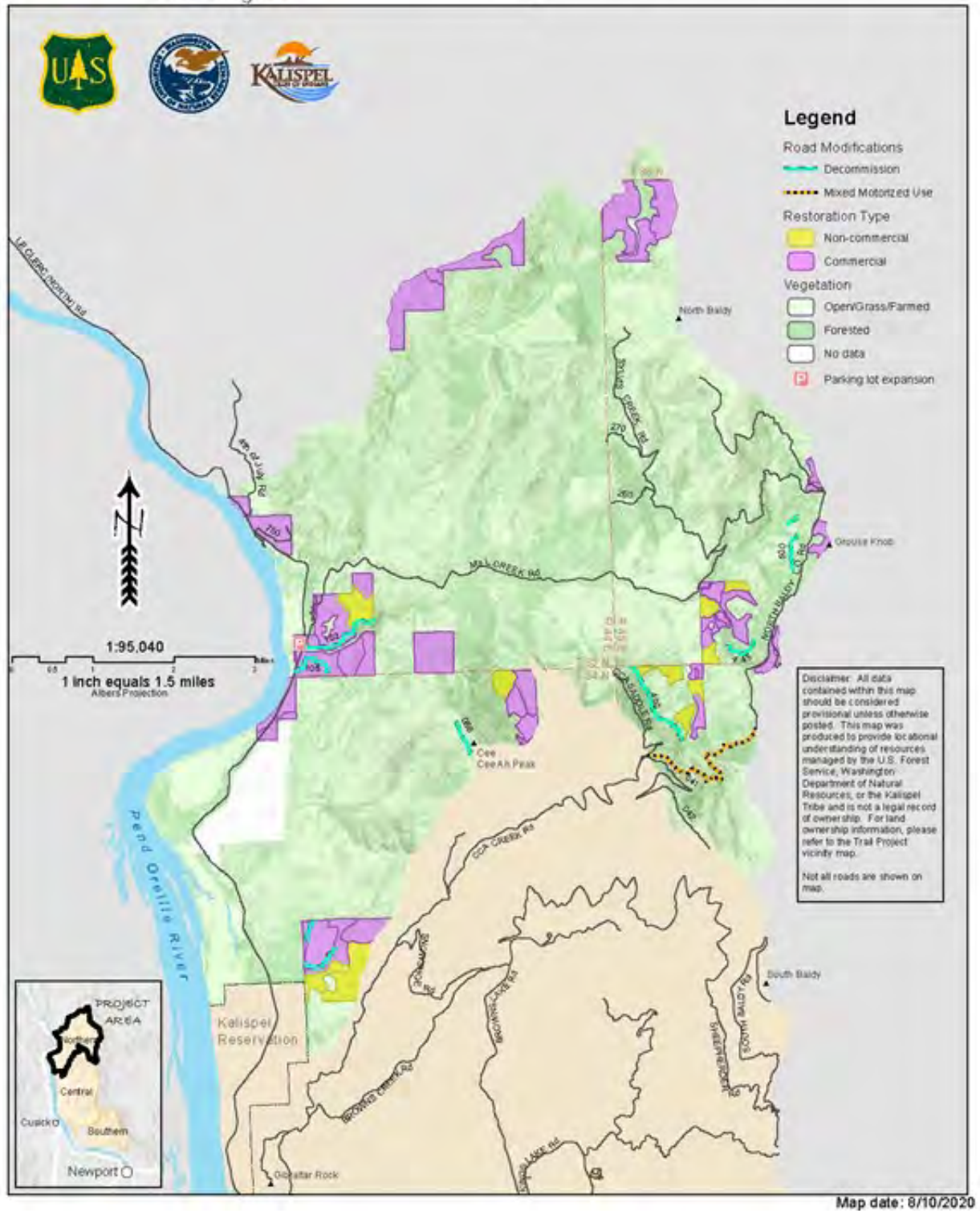
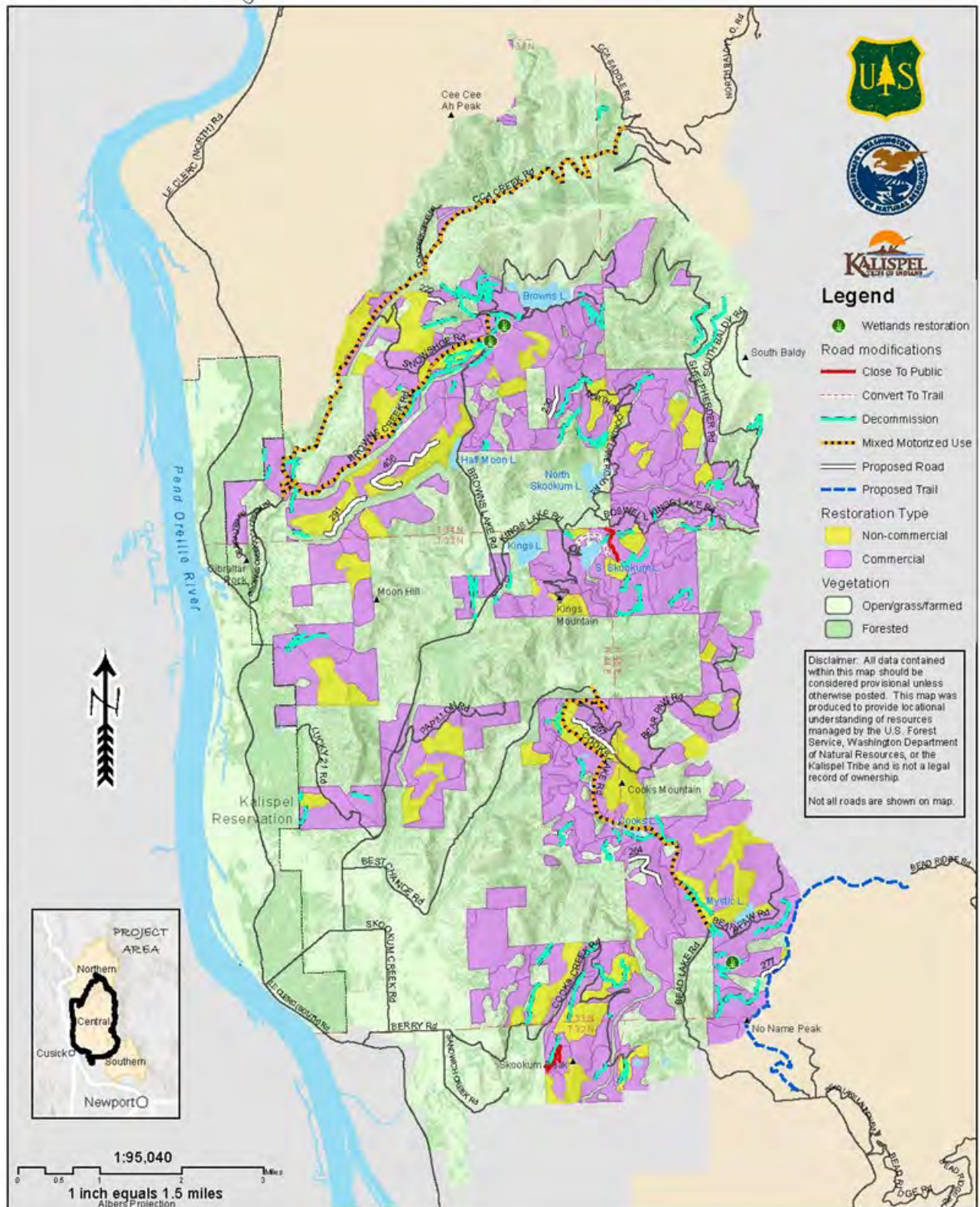


Figure A-1. Northern portion of project area showing proposed activities.

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Trail Project

Map 2 of 3 (Central)

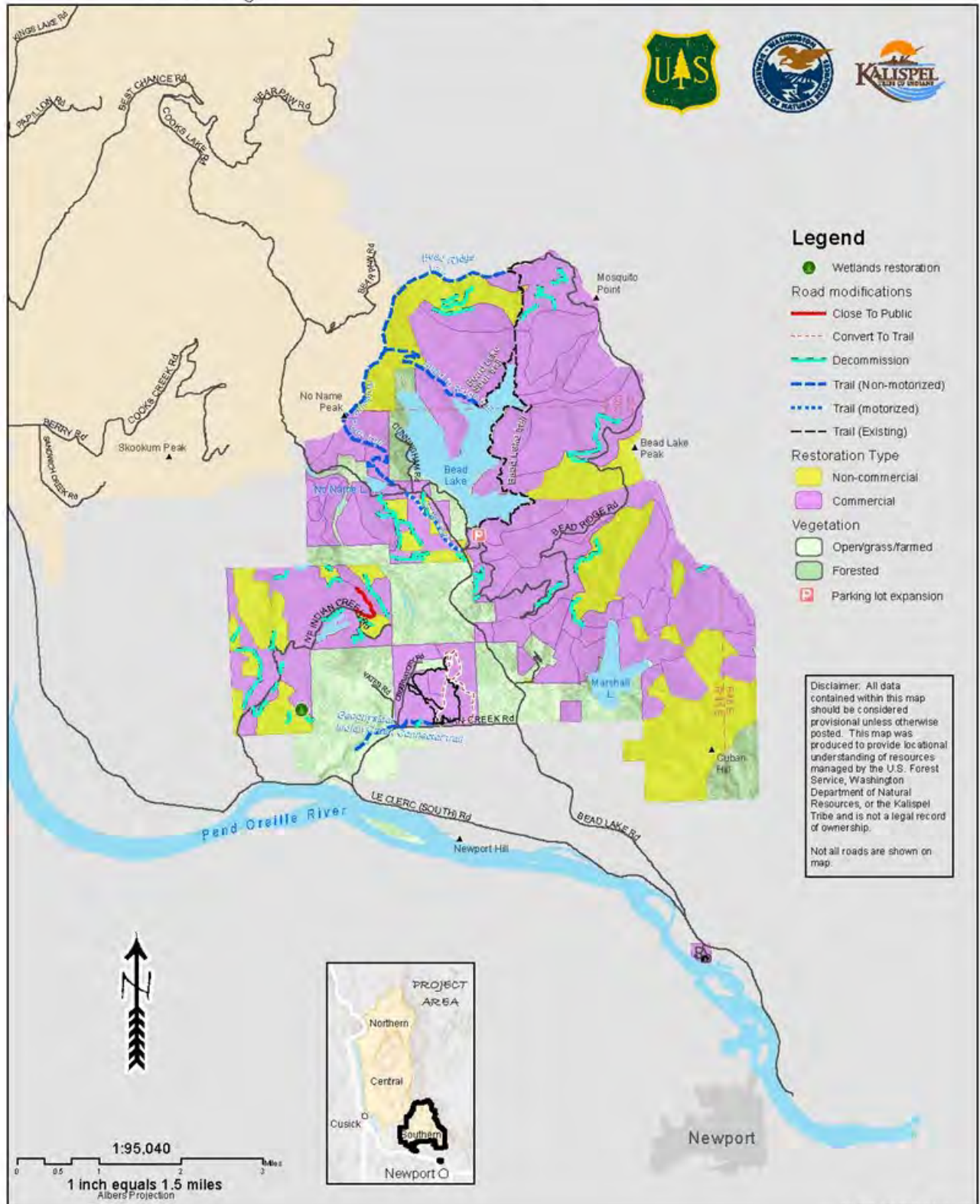
Proposed Action Alternative



Sx'uytn Kaniksu Connections
Trail Project

Map 3 of 3 (South)

Proposed Action Alternative



Map date: 8/19/2020

Appendix B

Sx^wuytn-Kaniksu Connections ‘Trail’ Project Standard Practices

The following practices are considered standard operating procedures and are accepted practices that have proven effective in avoiding, minimizing, reducing, eliminating, or rectifying the effects of management activities (40 CFR 1508.22). The effects analysis in Chapter 3 of the environmental assessment are based on implementation of design elements in Chapter 2, these standard practices and best management practices for water quality per national BMP technical guide. Abbreviations are defined at the end of this appendix.

Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Aq-01	<p>Wildland Fire and Fuels Management</p> <p>Water bars on fire lines would be located and configured to minimize sediment delivery to streams, and to minimize creation of new stream channels and unauthorized roads and trails. See also SP-Soil-55.</p>
SP-Aq-02	<p>Wildland Fire and Fuels Management</p> <p>Except in the case of a wildfire emergency, pumps and gas cans would be refueled outside Riparian Management Areas (RMA). Absorbent booms and pads would be employed to capture any leaks or spills.</p>
SP-Aq-03	<p>Commercial Treatment</p> <p>Harvest in RMAs would protect all hardwood trees and large shrubs except as described in SP-Wild-61. Minimize damage to hardwoods immediately adjacent to conifer trees identified for removal. Favor western hemlock, Engelmann spruce, and western red cedar for retention where present. Limit the removal of dominant and co-dominant conifers in the overstory canopy in the RMA. All RMA units should be reviewed by the hydrologist or fish biologist during presale activities. All landings would be located outside of the RMA unless reviewed by the Aquatics staff and approved by the District Ranger.</p>
SP-Aq-04	<p>Roads</p> <p>Minimize disturbance of stream channels from temporary roads through a variety of methods (e.g., use during seasonally dry conditions, corduroy crossings, or existing structures). Disturbances would be rehabilitated following the intent of the WDFW MOU and national BMPs and may include decompaction, recontouring, covering with slash, seeding with forest approved grass and shrub mix, and removing all placed aggregate brought in for stream crossings.</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Aq-05	<p>Roads</p> <p>System roads designated for closure post-project (maintenance level 1) and not expected to be used for administrative purposes would be hydrologically stabilized¹.</p>
SP-Aq-06	<p>Roads</p> <p>New temporary and system roads would be located a minimum of 300 feet away from stream courses, water bodies, or wetland features, with the following exceptions: a) to cross streams in as short a distance possible, or b) to utilize existing prisms to facilitate obliteration of roads within the RMA, or c) to restore full forest function within the RMA. To support properly functioning condition, less than 10% of system road segments would occur in the RMA. This criterion may be modified following consultation with the Aquatics staff and approval by the District Ranger as needed to protect resources.</p>
SP-Aq-07	<p>Stream Crossings</p> <p>Limit crossing of stream channels with low impact non-culvert crossing structures within all units with stream crossings or harvest within RMA to dry channel conditions (e.g. during seasonally dry conditions). This criterion may be modified following consultation with the district hydrologist and approved by the district ranger.</p>
SP-Aq-08	<p>Stream Crossings</p> <p><i>Temporary roads requiring crossings of streams:</i> A physical structure, such as a temporary bridge, skidder/forwarder crossing structure, or other similar non-culvert structure, is necessary to cross streams within or between unit(s), should be in place for the shortest period of time, and follow Best Management Practices and Washington Department of Fish and Wildlife Memorandum of Understanding guidance. This criterion may be modified following field consultation with the district hydrologist and approved by the district ranger.</p>
SP-Aq-09	<p>Road Closure</p> <p>Hydrologically stabilize closed roads by removing culverts and restoring stream channels to mimic native character and stability, pulling ditches and out sloping road prisms to maintain runoff patterns consistent with native topography, and strategically placing water bars to maintain runoff patterns consistent with stream channel network to the extent possible. Critical areas would be scarified and out sloped, water bars installed where needed (grades greater than 3%), grades greater than 3% scarified.</p> <p>Hydrologic stabilization would reduce risk of road related mass failure and stream crossing wash outs from higher than average runoff episodes during storage period.</p>
SP-Aq-10	<p>Road Closure</p> <p>Existing templates extending from the temporary roads are to be obliterated if the templates are not already hydrologically stabilized.</p>

¹ Hydrologically stabilized roads minimize road erosion and road hydrologic connectivity to the stream system. Practices could include, but are not limited to, removal of culverts and fill material that present an unacceptable risk of failure or flow diversion, and/or suitable measures to ensure the road surface will intercept, collect, and remove water from the road surface in a manner that reduces concentrated flow in ditches, culverts, and/or over fill slopes and road surfaces without frequent maintenance.

Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Aq-11	<p>Temporary roads within RMA Temporary roads would have maximum grades of 10% and less than 3% within the RMA. Less than 10% of the temporary road construction would occur in the RMA where stream crossings are necessary. This criterion may be modified following field review and consultation with both the district hydrologist/soil scientist and approval by the district ranger.</p>
SP-Aq-12	<p>Maintenance Level 1 Roads Maintenance level (ML) 1 roads not hydrologically stabilized would be maintained in a drivable condition with drainage control measures effectively maintained.</p>
SP-Aq-13	<p>Culverts All man-made barriers that are proposed to be removed or replaced would be required to go through a general screening criterion: Priority 1: Native fish species are present either below or above the barrier and no non-native fish are present either below or above the barrier. High ranking for removal or replacement. Priority 2: Native and non-native fish species are both above and below the barrier. Medium ranking for removal or replacement, possible management structure for future suppression or eradication of non-native fish species work. Priority 3: Only native species are present above the barrier and non-native species are present below the barrier. Determine the necessity to remove the barrier for other considerations (e.g. culvert may fail and cause road failure). This is a low priority. Do not remove or replace without consulting the Kalispel Tribe Natural Resource Department, the WDFW, or the NFS aquatics staff.</p>
SP-Fuels-14	<p>Cultural Resource Sites</p> <ol style="list-style-type: none"> a. Within the buffered cultural site boundary - lop and scatter fuel treatment using hand tools would be allowed for trees and brush less than six inches in diameter. b. Vegetation piles created for burning would be placed outside of buffered site boundaries. c. During prescribed fire operations, fire would be kept outside of buffered site boundaries by construction of a standard fire line around the site. d. In sites with flammable features such as cabins or other structures, additional protective measures would be implemented—such as pretreatment of structures with foam or water or by wrapping structures in heat attenuating materials. e. Chemical fire retardants can stain wood and other materials and corrode metal artifacts (Winthrop 2004), therefore their use on cultural resources or artifacts would be prohibited. f. Additional site protection methods may be implemented at the discretion of fire personnel to fit the unique conditions of each site location, provided that the protection prevents damage to cultural resources.

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-IS-15	<p>Roads</p> <p>Weed-free aggregate (gravel) would be required for road restoration, reconstruction, and landing construction.</p>
SP-IS-16	<p>Roads</p> <p>All road construction and logging equipment would be pressure-washed prior to working in the area and when moving from an infested area into a weed-free area or system road, making sure all clumps of soil, dirt, and seeds are removed to avoid the spread of invasive plants.</p>
SP-IS-17	<p>Invasive Species</p> <p>Early detection and rapid response should be integrated with all land management activities to eradicate, control, contain or suppress invasive species including plants; vertebrate and invertebrate animals; and fish, wildlife and vegetation disease pathogens.</p>
SP-Min-18	<p>Minerals</p> <p>Claim improvements such as claim corners or other boundary monuments, structures, and/or equipment would be protected. Monuments may take many forms, e.g., claim documentation inside a jar that is nailed to a tree or stump.</p>
SP-Min-19	<p>Minerals</p> <p>Fuels treatment proposed within the area should be planned and implemented in such a way as to avoid blocking currently open roads that provide access to mining claims.</p>
SP-Rec-20	<p>Holiday Restrictions</p> <p>All mechanical operations (e.g., logging, grapple piling) hauling of timber, or moving equipment would be prohibited during special events and on the following holiday weekends: Memorial Day, Labor Day, and the Fourth of July which includes, at a minimum, July 3rd through July 5th. Exceptions would be coordinated with District Recreation Specialist and approved by District Ranger.</p>
SP-Rec-21	<p>Trailheads</p> <p>Washington State designated snowmobile sno-parks and staging areas within the project boundary should remain open to the public and not be used for landings or equipment staging areas or blocked in any manner. Exceptions would need to be coordinated with the District Recreation Specialist and approved by District Ranger well in advance to allow for notification of the public and coordination with Washington State Parks, groomer operators, and local snowmobile clubs prior to the start of the snowmobiling season.</p>
SP-Rec-22	<p>Dispersed Recreation Sites</p> <p>Requests by a timber sale operator or other contractor to camp or stage equipment at a dispersed recreation site would be coordinated through the District Recreation Specialist and require pre-approval by the District Ranger and the issuance of a long-term/commercial camping permit.</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Rec-23	<p>Dispersed Recreation Sites</p> <p>Post-harvest slash accumulation would be minimized within high-value dispersed campsites identified by the recreation specialist. After harvest and fuel treatments are complete, perform basic cleanup to high-value dispersed campsites located within harvest units. Restore access routes to high-value dispersed campsites to pre-project conditions, restore the integrity of the fire ring and remove slash from the core (fire ring, parking area, tent area) of the campsite. Only those access routes leading to campsites located within 300 feet of a road open to motorized use on the MVUM would need to be cleaned-up. Routes leading to campsites more than 300 feet from a road open to motorized use on the MVUM may be closed in order to be consistent with the direction contained in the MVUM and in 212.51(b) of the 2005 Travel Management Rule.</p>
SP-Rec-24	<p>Dispersed Recreation Sites</p> <p>High-value dispersed campsites identified by the District Recreation Specialist should not be used as a landing. Coordinate the use of minor dispersed campsites proposed to be used as landings in advance with the District Recreation Specialist and receive approval from the District Ranger prior to designating the campsite as a landing.</p>
SP-Rds-25	<p>New Road Construction</p> <p>All new National Forest System roads would be constructed as single-purpose roads with the appropriate level of service, would not be open to the public, and would be effectively closed as soon as project activities are complete. BMPs, project design features, and mitigation measures associated with road design standards would be incorporated. Discuss reliability, feasibility, and effectiveness of these measures. Use research or monitoring to verify effectiveness and reliability of implemented BMPs, project design features, and mitigation measures.</p>
SP-Rds-26	<p>Existing Roads</p> <p>All roads to be used for the project but not opened to public use would be brought up to the appropriate standard during the project and returned to a Maintenance Level 1 per the Road Management Objectives (RMOs) after completion of the project.</p>
SP-Rds-27	<p>Closure Methods</p> <p>All temporary roads would be closed post-project through a variety of methods (e.g., de-compacting the roadbeds, covering with available slash or other natural materials, recontouring disturbed areas to previous or adjacent topography, remove pipes). Effectiveness of road closures may be increased by spreading approved grass and forb seed on any exposed soils and where appropriate, planting native shrubs and trees</p>
SP-Rds-28	<p>Closure Timing</p> <p>Any re-opened, newly created temporary roads, and any unauthorized roads used during operations would be closed as soon as possible after the completion of management actions. Highest priority temporary roads for closing are those accessing sensitive resources (e.g., cultural sites, sensitive species habitat).</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Rds-29	<p>Closure Methods</p> <p>While the project is active, use effective means to prohibit unauthorized vehicle access on all roads that are closed to public motorized use.</p>
SP-Rds-30	<p>Closure Methods</p> <p>Render roads proposed for decommissioning undrivable by recontouring for their entire length. Implement other methods as necessary, including, but not limited to, decompacting, or removing culverts. See SP-Soil-49.</p>
SP-Rds-31	<p>Bridges</p> <p>An overload bridge use application and permit must be submitted in accordance with the load limits specified by State Law per Code of Federal Regulations Title 36, §261.12. Overload permits must be reviewed and approved prior to the overload crossing the bridge. Locations where these would be required would be determined at the project design level.</p>
SP-SPlants-32	<p>Sensitive Plant Surveys</p> <p>Botanical surveys would be completed for all areas of suitable habitat for sensitive species which overlap with project activities, including AOP replacements, prior to implementation. Ground disturbance would be avoided within 150 feet of populations located in subsequent surveys.</p>
SP-SPlants-33	<p>Herbicide Use</p> <p>Notify the NFS botanist prior to implementation of herbicide treatment. When herbicide treatment is planned in the vicinity of a sensitive plant population, consultation with an NFS botanist would be necessary. Typically, a no-herbicide buffer, approximately 100 feet around any sensitive plant population would be required. Within this buffer only hand-pulling of invasive plants would be allowed.</p>
SP-SPlants-34	<p>Road Work Impacts</p> <p>Impacts to sensitive plant populations from road decommissioning would be minimized through implementation of techniques including, but not limited to, “no operation” buffers around sensitive plants; reduction in extent of ripped road prism adjacent to sensitive plant populations; or use of natural materials to create barriers to plant disturbance.</p>
SP-SPlants-35	<p>Aquatic Organism Passage Replacement</p> <p>Notify the Forest botanist of culverts identified for replacement. Botanical surveys need to be completed for sensitive species prior to implementation of Aquatic Organism Passage replacements.</p>
SP-SPlants-36	<p>Project Coordination</p> <p>The NFS botanist would provide maps of known populations within the project area to be reviewed prior to each implementation season. Adjustments to treatments would be made if necessary.</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-SPlants-37	<p>Disturbed Area Treatment</p> <p>Native and weed free seed would be used for revegetation of disturbed areas (skid trails, landings, and deck sites). Locally collected native plant materials are the first choice in revegetation, but non-native, non-invasive plant species may also be used (USDA Forest Service 2008). A recommended seed mix is provided in Appendix B of the Sx^wuytn Botany Report; should availability be an issue, contact the forest botanist and an alternative seed mix can be agreed upon.</p>
SP-SPlants-38	<p>Sensitive Plant Protection</p> <p>Any sensitive plant populations (e.g., crenulate moonwort (<i>Botrychium crenulatum</i>)) found prior to or during implementation would be protected using design elements appropriate for the species. An NFS botanist would be consulted to determine necessary actions to protect population viability and habitat identified during implementation.</p>
SP-Silv-39	<p>Cultural Resource Sites</p> <p>Screening vegetation would be left in place between cultural resource sites and roads in order to obscure site locations.</p>
SP-SpecUses-40	<p>Utility Corridors</p> <p>Landings would not be located within authorized utility corridors.</p>
SP-SpecUses-41	<p>Waterline Corridors</p> <p>Authorized water pipelines would be identified on the ground prior to treatments.</p>
SP-Soil-42	<p>Limit Detrimental Soil Conditions</p> <p>The total acreage of all detrimental soil conditions should not exceed 20% of the total acreage within the activity area including landings and system roads (FW-DC-SOIL-01/02).</p>
SP-Soil-43	<p>Limit Detrimental Soils Conditions</p> <p>Skid trail spacing would be specified in the timber sale/stewardship contract as follows (FW-DC-SOIL-01/02).</p> <ul style="list-style-type: none"> ○ <u>Skid Trail Spacing</u>: 100 feet apart edge to edge, except when converging at landings or avoiding obstacles – feller-bunchers are allowed limited passes off trail. ○ <u>Forwarder Trails</u>: 50 feet apart edge to edge except when converging at landings or avoiding obstacles. Four to eight inches of compacted slash should cover forwarder trails – harvesters are allowed limited passes off trail. ○ <u>Tethered Assisted Steep Slope Machine Cutting/Bunching</u>: 40 to 50 feet apart edge to edge (depending on the capability of the machine), except when converging at landings or avoiding obstacles.
SP-Soil-44	<p>Limit Detrimental Soils Conditions</p> <p>Skidding equipment would travel on designated trails. When feasible re-use old skid trails. Feller-bunchers and harvesters should concentrate use on skid trails/forwarder trails and should travel in an efficient manner with limited passes off trails. (FW-DC-SOIL-01)</p>

Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Soil-45	<p>Limit Detrimental Soils Conditions</p> <p>Detrimental soil conditions would be limited by applying slope limitations for ground-based equipment to preserve soil productivity and reduce erosion potential. (FW-DC-SOIL-01/02 and FW-STD-SOIL-01) as follows</p> <ul style="list-style-type: none"> ○ Rubber tired skidders should be limited to slopes less than 35%. Short slope lengths may be steeper, at the discretion of sale administrators. Adverse skidding with rubber-tired skidders is limited to slopes less than 20%. ○ Feller bunchers, harvester-forwarder systems, and other tracked heavy equipment should be limited to slopes less than 45%. Short slope lengths may be steeper at the discretion of the sale administrator in consultation with soils specialist. ○ Tethered assisted steep slope machines (SSM) should be limited to slopes less than 70%. SSM should be tethered on slopes greater than 45%. Tethered equipment must remain on the SSM equipment and practices should conform to Washington State Department of Labor and Industries Technical Report Number 98-02-2019. <p>Treatment units where SSMs would be used for implementation should be evaluated for geologic instability.</p>
SP-Soil-46	<p>Limit Detrimental Soil Conditions</p> <p>Minimize compaction, rutting, and erosion by avoiding activities during wet conditions. Ground based equipment would operate on relatively dry soils of high soil strength or bearing capacity. Rutting exceeding soil quality standards should be remediated. The Field Guide to Soil Moisture Conditions Relative to Operability of Logging Equipment (Rust, 2005) should be used to determine soil trafficability. (FW-DC-SOIL-01/02)</p>
SP-Soil-47	<p>Limit Detrimental Soil Conditions</p> <p>For ground-based units with 10% detrimental soil conditions or greater, practices would be included for some units to ensure that cumulative detrimental soil conditions would remain at or below 20%.</p> <ul style="list-style-type: none"> – Conduct timber harvest when soil is covered by 8 inches of compacted snow or 8 inches of frozen soil or a combination of two that totals 8 inches. This condition should be present on approximately 90% of the timber harvest unit or – Conduct timber harvest using cut to length logging systems where stand density supports covering forwarder trails with 8 inches of compacted slash or – Reuse any existing skid trails, landings, and road templates.
SP-Soil-48	<p>Limit Detrimental Compaction</p> <p>Required winter conditions would have skid trails buffered by at least 8 inches of compacted snow or frozen ground or a combination of the two that exceeds 8 inches. If cut-to-length equipment is to be used, a combination of compacted slash, compacted snow, and/or frozen ground that exceed 8 inches can be used to buffer forwarder trails. (FW-DC-SOIL-01/02)</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Soil-49	<p>Re-establish Soil Productivity</p> <p>Decompaction of existing soil detrimental soil condition needs to occur post implementation to keep the activity area under detrimental soil conditions as outline in Region 6 Soil Quality Standards and Guidelines and to move towards desired conditions as outlined in Forest Plan.</p>
SP-Soil-50	<p>Re-establish Soil Productivity</p> <p>Decompact landings and temporary roads to restore hydrologic function. Temporary roads should be re-contoured for their entire length. (FW-DC-SOIL-01/02/03 and FW-STD-SOIL-01)</p>
SP-Soil-51	<p>Re-establish Soil Productivity</p> <p>Excavated skid trails would be repaired in a manner that maintains soil hydrologic function and soil productivity. Repair should include decompaction of the running surface of the skid trail and re-establish the contour of the slope. Soil cover would be re-established to at least 50%. Site should be evaluated for seeding and/or planting. (FW-DC-SOIL-01/02 and FW-STD-SOIL-01)</p>
SP-Soil-52	<p>Prevent Detrimental Soil Conditions</p> <p>In units that have had commercial harvest, keep follow-up fuel treatment machinery to designated skid trails except for limited passes off designated skid trails. Fuel reduction machinery (i.e., masticators and piling equipment) should be tracked equipment having a ground pressure rating of 8 psi or less and with an articulating arm capable of reaching at least 20 feet. (FW-DC-SOIL-01/02 and FW-STD-SOIL-01)</p>
SP-Soil-53	<p>Maintain Soil Productivity</p> <p>Native topsoil should be used where practical to meet restoration project objectives. (FW-GDL-SOIL-01)</p>
SP-Soil-54	<p>Reduce Soil Erosion & Promote Soil Productivity</p> <p>Fine and coarse organic matter would be retained on top of the soil following direction found in the Colville NF LMP in FW-STD-SOIL-01. Maintain soil cover amounts to prevent soil erosion. Percentages of ground cover are detailed in Colville National Forest LMP – FW-STD-SOIL-01- Effective Ground Cover Standard.</p> <p>A minimum of 3 tons per acre of coarse woody material (defined for soil resources as woody material greater than 3 inches in diameter) would be retained in treatment units. Specific amounts are defined in FW-DC-VEG-04 and FW-DC-VEG-05.</p>
SP-Soil-55	<p>Maintain Organic Matter</p> <p>Target machine pile size to 15 feet in diameter and 10 feet in height outside of landings. (FW-DC-SOIL-1 and FW-STD-SOIL-01)</p>
SP-Soil-56	<p>Prevent Soil Erosion</p> <p>Adequately drain firelines including machine and hand line. Waterbars would be installed during fire line construction following guidelines in Fireline Waterbar Guidelines for Prescribed Fires (Jimenez, 2013a) and would be described in Elements 5 and Element 9 of the burn plan(s). (FW-DC-SOIL-02)</p>

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SP-Soil-57	<p>Prevent Soil Movement</p> <p>For treatment units with high potential to accelerate underlying soil movement rates (decrease slope stability to the extent where landslides or debris flows are increased beyond natural rates).</p> <ul style="list-style-type: none"> – Maintain basal area of trees to an extent where roots maintain soil stability. – Maintain vegetation to an extent that does not substantially increases soil water content. – Limit traffic of heavy equipment on identified unstable slope/landslide area. – Implementation staff would work with soil staff on a site-specific plan for treatment.
SP-Soil-58	<p>Landings</p> <p>Landings should not be placed in areas designated as prime farmland. Soil scientist should be contacted to confirm the location of prime farmland if needed.</p>
SP-Wild-59	<p>Newly Discovered TES Species and Biological Sites</p> <p>If a threatened, endangered, or sensitive wildlife species is observed in the project area, or if a previously unknown wildlife activity site (e.g., large carnivore den, raptor nest, cave, abandoned mine, etc.) is discovered, the district wildlife biologist would be notified. Mitigation measures necessary to protect the species or site, or to reduce potential impacts to the species may be implemented.</p>
SP-Wild-60	<p>Large Live Trees</p> <p>If live trees 20+ inches in diameter at breast height (DBH) are proposed for harvest, provide clear rationale as to why the removal of smaller trees alone cannot achieve the stated desired conditions.</p>
SP-Wild-61	<p>Hardwoods</p> <p>Hardwood trees would be retained except those that need to be felled within new road or equipment corridors, log landings, or for worker safety.</p>
SP-Wild-62	<p>Snags and Coarse Woody Debris</p> <p>Snags that are 10+ inches DBH would be retained except those that must be felled within new road or equipment corridors, log landings, or for worker safety. When trees must be felled, 14+ inch bole pieces would be retained on site to contribute to down log levels, as feasible.</p> <p>Existing down logs that are 14+ inches at the large end and 33+ foot-long pieces would be retained. Additional logs would be retained as necessary to meet the desired levels of coarse woody debris in the Forest Plan (Table 8, page 37) or as listed in the EA Appendix C (Table C-2, page C-2).</p>

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SP-Wild-63	<p>Biological Legacies</p> <p>Up to 12 live trees per acre (14+ inches DBH) would be retained from the following list:</p> <ul style="list-style-type: none"> - hollow trees (grand fir, western larch western red cedar), - trees with broken tops, dead tops, or heart rot fungi such as Indian paint, - trees with woodpecker cavities or foraging excavations, - trees infected with broom rusts (spruce, subalpine fir, grand fir), <i>Elytroderma</i> brooms (ponderosa pine), or dwarf mistletoes (western larch, Douglas fir), open-grown “wolf trees” with full, spreading crowns.
SP-Wild-64	<p>Snag Creation</p> <p>If post-harvest snag levels in created openings (e.g., shelterwood harvests) do not meet those prescribed in Table 7 of the Forest Plan (page 36), top live green trees to create snags in order to meet Forest Plan desired conditions.</p>
SP-Wild-65	<p>Log Pile Creation</p> <p>Where the risk of bark beetle spread is low, leave up to 10 percent of machine piles unburned, preferably away from roads and in wet / low lying areas. Ideally, retained piles would consist of at least 3-5 layers of larger (9-14 inch) logs crisscrossed, or lain lengthwise in triangular groupings of 3 logs. Cover the top with a few layers (about 2-3 feet) of branches and other small material. The intent would be to create habitat for small mammals.</p>
SP-Wild-66	<p>Seclusion</p> <p>During the project, use gates or other means to prohibit unauthorized vehicle access on existing restricted (gated) roads, new roads, and presently un-drivable roads made drivable for the project.</p> <p>As soon as possible following their use, close new roads, brushed-out roads, and selected open roads with gates or native materials (ex., earthen berms).</p> <p>Monitor all closed roads for 5 years. If a road is receiving unauthorized motorized use, implement actions necessary to improve the effectiveness of the closure.</p>
SP-Wild-67	<p>Roadside Hiding Cover</p> <p>Hiding cover is vegetation or topography that is capable of hiding 90 percent of an elk at a distance of 200 feet.</p> <p>Where the opportunity exists, retain strips or patches of shrubs and trees to provide hiding cover along open roads adjacent to created openings (e.g., shelterwood harvest units). To the extent feasible, maintain this cover during post-harvest activities.</p>

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Resource	Standard Practices - Sx ^w uytn-Kaniksu Connections
SP-Wild-68	<p>Riparian Management Areas (RMAs)</p> <p>Timber harvest and other vegetation treatments within RMAs would be completed <i>only</i> as necessary to attain desired conditions for aquatic and riparian resources. If treatments are proposed within RMAs, ensure that more than 60 percent overhead canopy closure is maintained in the moist vegetation types. Residual canopy would be averaged over that portion of a harvest unit within an RMA, unless otherwise agreed to by the wildlife biologist.</p> <p>Extent of RMA widths are provided on pages 119-120 of the Forest Plan.</p>
SP-Wild-69	<p>Helicopter Operations</p> <p>Complete aerial operations between June 15 and November 15 in order to avoid disturbance to grizzly bears during the denning and post-denning period.</p>

Abbreviations

SP = standard practice

Aq = aquatics

IS = invasive plant species

Min = minerals

Rec = recreation

Rds = roads

SPlants = sensitive plants

Silv = silviculture

SpecUses = special uses

Wild = wildlife

AOP = aquatic organism passage

BMP = best management practice

DBH = diameter at breast height

EA = environmental analysis

FW-DC = forestwide desired condition

FW-GDL = forestwide guideline

FW-STD = forestwide standard

LMP = land management plan

ML = maintenance level

MOU = memorandum of understanding

MVUM = motor vehicle use map

NF = National Forest

NFS = National Forest System

OHV = off-highway vehicle

RMA = riparian management area

RMO = road management objective

SQS = soil quality standards

SSM = steep slope machine

USDA = United States Department of Agriculture

WDFW = Washington Department of Fish and Wildlife

Three Zone Strategy for Stand Treatments within the RMA

The Fisheries Biologist, Hydrologist, and Soil Scientist developed a “Three Zone Aquatic Strategy”¹ to be considered on a project-by-project basis. The Strategy provides information to other team members about areas within the Riparian Management Area (RMA) (per INFISH guidelines) that could be treated and to what degree. The following Design Criteria are described by their location in the RMA. These apply to all commercial and noncommercial treatment units.

Desired outcome is to protect stream channels and associated ecology within the RMA through the enhancement of large woody debris recruitment and reduce potential for increases in water temperature. Benefits of stand treatments which support the aquatic ecology within the RMA will be realized by promotion of stand health and encouraging stand resiliency.

Conditions Applicable to all Three Zones

Site specific deviations may occur with consultation with aquatics staff on a site-by-site basis.

Using old road templates is desired when feasible to do so without negative long-term resource effects and negative short-term effects are limited towards minimal to none. The intent is for these legacy road templates to be fully obliterated after the unit project work is completed for long term beneficial effects on aquatics and soils resources, where possible.

Zone 1– *Immediately around a stream, wetland, or other water body (seeps, ponds, elk wallows, etc.). No Cut- 25 feet from streambanks and 50 feet from wetland riparian vegetation (see wildlife section) where designated wetlands are present (per project GIS data and NHD wetland GIS layer).*

Zone 2- *Around Zone 1, when applicable, the extent of the riparian vegetation or wet soils, whichever is greater. No commercial harvest of vegetation would occur.*

- Fuels reduction may include hand treatment of vegetation, but no pile burning of vegetation would occur.
- Treatments allowed for instream, floodplain, and stand restoration e.g. large wood enhancement, riparian health and resiliency.
- Any trees felled would remain in the riparian area unless deemed to be a fuels hazard.
- If a Forest Service system road is present in this zone, no commercial harvest activity would occur outside of the road prism and the road would be decommissioned post project where feasible to do so.
- Prisms (non-system templates e.g. legacy roads, skid trails, etc.) when used for treatment activities would be restored to native forest productivity by full obliteration.
- If tree removal is deemed necessary per consultation with aquatics/soil staff, no mechanical machinery would be used to complete the operation. Acceptable operations

¹ CNF USFS Newport R.S., “Project Design Features-Three Zone Strategy for Treatments in the RMA”, Lawler, R., 2020

to remove trees from zone 2, where deemed necessary, would be accomplished by helicopter or other full suspension operation to protect the riparian vegetation or wet soils present.

Zone 3- The remainder of the RMA containing upland vegetation. Mechanical Treatment can occur with the following conditions:

Upslope of open Roads: Allow unit treatment as prescribed unless some other issue takes precedent (sensitive soils, shade issues, headwaters, TMDL¹, sensitive plants etc.) that resulted in a unit specific design element. i.e. extend unit boundary to edge of road.

Downslope of open Road and Remainder of the RMA containing upland vegetation where no roads occur within Zone 3: Follow unit specific design criteria below:

- No commercial harvest would occur, when the slope is greater than 20 percent in any direction,
- Harvest would maintain shading component necessary to maintain stream temperatures and/or maintain healthy stand conditions. May be considered as wood source for restoration treatments.
- Machinery would need to **stay back 50 feet from the slope break or inner gorge.**
 - limit passes of harvest machinery to as few as possible
 - To prevent creating a fuel problem, if possible, log with tops attached (whole tree yarding/skidding) unless other criteria recommend leaving tops and slash in unit to address other concerns that would impact the RMA. Grapple piling would be allowed with consultation with the fisheries biologist, hydrologist, or soil scientist.
 - Harvest would protect or enhance hardwoods.
 - Limit the removal of dominant/co-dominant conifers in the overstory canopy within the RMA.

Appendix C

Sx^wuytn-Kaniksu Connections ‘Trail’ Project – Summary of Effects to Terrestrial Sensitive, Surrogate and Landbird Species.

The following is a summary of information found within the Sx^wuytn Wildlife Report (Borysewicz 2020).

Dead Wood Habitats

Tables C-1 and C-2 display the snags and woody debris per acre that would be incorporated into vegetation management activities. This information provides the basis for project standard practices and design elements.

Snags and down logs occur in sizes, amounts, and distributions to provide important wildlife habitats and contribute to ecosystem services (*FW-DC-VEG-04. Snags and Coarse Woody Debris*, page 36). This desired condition applies to all forested habitats except those in Administrative and Recreation Sites Management Areas. The desired conditions for snags and down wood is measured on National Forest System lands at the watershed scale.

Table C- 1. Desired amounts and spatial arrangement of snags by forest vegetation types

Forest Vegetation Type	Small ^a Snags per acre by Density Class ^c	Large Snags ^b per acre by Density Class ^d
Dry Douglas fir		
Low Density Class	< 4	< 2
Moderate Density Class	4-8	2-4
High Density Class	> 8	> 4
Northern Rocky Mountains Mixed Conifer		
Low Density Class	< 6	< 4
Moderate Density Class	6-10	5-9
High Density Class	> 10	> 9
Western hemlock - Western redcedar		
Low Density Class	< 8	< 3
Moderate Density Class	8-15	3-6
High Density Class	> 15	> 6
Subalpine fir - Lodgepole		
Low Density Class	< 8	< 3
Moderate Density Class	8-14	3-6
High Density Class	> 14	> 6

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Forest Vegetation Type	Small ^a Snags per acre by Density Class ^c	Large Snags ^b per acre by Density Class ^d
Spruce - Subalpine fir		
Low Density Class	< 9	< 3
Moderate Density Class	9-16	3-6
High Density Class	> 16	> 6

a/ Small snags = 10-20 inches DBH for all vegetation types except Subalpine fir - Lodgepole, where they are 8-15 inches DBH.

b/ Large snags = > 20 inches DBH for all vegetation types except Subalpine fir - Lodgepole, where they are > 15 inches DBH.

c/ The desired proportions of the snag density classes for small snags measured at the watershed scale are:

Low Density Class = < 50% of the area, Moderate Density Class = 25-45% of the area, High Density Class = 5-25% of the area.

d/ The desired proportions of the snag density classes for large snags measured at the watershed scale are:

Low Density Class = < 50% of the area, Moderate Density Class = 35-45% of the area, High Density Class = 5-15% of the area.

Direction found in Forest Plan Forestwide Standards (*FW-STD-WL-12. Large Snag Habitat*, page 64) directs management activities to retain snags larger than 20 inches DBH unless they pose a safety hazard. This standard does not apply within developed recreation sites (i.e., campgrounds), administrative sites, around recreation residences, and within 200 feet of open roads designated for firewood harvest.

Table C-2 . Desired amounts of coarse woody debris (CWD) by forest vegetation types

Forest Vegetation Type	Coarse Woody Debris (Minimum Levels)	Coarse Woody Debris (High Levels)
Dry Douglas fir		
Tons / acre	3	7
Small logs / acre ^a	29 DF or 34 PP	68 DF or 78 PP
Large logs / acre ^b	6 DF or 7 PP	14 DF or 16 PP
Northern Rocky Mountains Mixed Conifer		
Tons / acre	5	10
Small logs / acre	43 WL or 49 DF or 61 GF	86 WL or 98 DF or 122 GF
Large logs / acre	9 WL or 10 DF or 12 GF	18 WL or 20 DF or 24 GF
Western hemlock - Western redcedar		
Tons / acre	25	40
Small logs / acre	159 WH or 224 WRC	254 WH or 390 WRC
Large logs / acre	32 WH or 44 WRC	51 WH or 70 WRC
Subalpine fir - Lodgepole		
Tons / acre	16	40
Small logs / acre	167 SAF or 175 LP	418 SAF or 438 LP
Large logs / acre	33 SAF or 35 LP	83 SAF or 88 LP
Spruce - Subalpine fir		
Tons / acre	5	12
Small logs / acre	64 ES or 70 SAF	154 ES or 168 SAF
Large logs / acre	13 ES or 14 SAF	31 ES or 34 SAF

a/ Approximate numbers of small logs / acre required to meet the desired range. Small logs are 10 inches in diameter on large end and over 16 feet long.

b/ Approximate numbers of large logs / acre required to meet the desired range. Large logs are 16 inches in diameter on large end and over 33 feet long.

Terrestrial Sensitive Species

Table C-3 provides a brief summary of the effects of the project alternatives to sensitive species listed for the Colville National Forest. The expected duration of effects would be as follows: short-term = 0-10 years; mid-term = 10-30 years; long term = 30+ years.

Table C- 3. Summary of effects to sensitive species, by project alternative

Sensitive Mammals	Alternative Determination	Rationale for Determination
gray wolf	<p><i>No Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of species viability</p>	<p>Green forage and upland shrubs utilized by big game (prey species) likely reduced by forest succession over the short to mid-term across all forest vegetation types. Green forage availability in meadows, pastures, fields, wetlands and marshes is unlikely to change appreciably over this time period.</p> <p>Continued fire suppression policies would contribute to increasing forest stand densities, surface fuels and fuel ladders. This would incrementally elevate the risk of high-intensity fires occurring in the area. Such fires could remove concealing cover for wolves and their prey species. Future fires could create open foraging areas for prey species. However, the interiors of any large, intensively burned areas could lack concealing cover for many years and would likely be under-utilized by big game (Thomas et al. 1979).</p>
gray wolf	<p><i>Proposed Action</i></p> <p>may beneficially impact individuals or habitat</p>	<p>Disturbance - Any discovered wolf den or rendezvous site would be protected from disturbance, if necessary. Proposed road closures would reduce the risk of human-caused wolf mortality and increase habitat effectiveness for deer and elk, consistent with Forest Plan Desired Condition <i>FW-DC-WL-14. Deer and Elk Habitat – Human Activities</i> (page 60).</p> <p>Prey Habitat – Timber harvest and fuels treatments would reduce tree stocking, surface fuels, and fuel ladders in forest stands on NFS lands. This should reduce the potential for uncharacteristic, high-intensity fires occurring in the area. Vegetation management (particularly prescribed burning) proposed with the project would increase the productivity and palatability of big game forage plants over the short to mid-term, consistent with Forest Plan Guideline <i>FW-GDL-WL-14. Mule Deer, White-tailed Deer and Elk Forage</i> (page 66). The project would move the landscape closer to its historic range of variability for stand structural stages per Forest Plan Desired Condition <i>FW-DC-WL-13. Deer and Elk Habitat – Summer and Winter Range Cover and Forage</i> (page 60). In general, a mosaic of open foraging sites and forested cover would be promoted, more akin to historic conditions.</p> <p>Cumulative Effects – No other timber sales would be concurrently active or are planned on NFS lands in the Trail Project Area. A large percentage of the non-NFS lands in the area presently support stands in early and mid-open structural stages and are unlikely to be harvested again for some time. Disturbances from Trail project activities could be cumulative to other concurrent uses / activities characterized in the Sx^wuytn Wildlife Report. However, we expect any cumulative effects would be localized, and outweighed</p>

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Sensitive Mammals	Alternative Determination	Rationale for Determination
		by improvements in seclusion and prey foraging habitats that would be a direct result of implementing this alternative.
little brown bat	<i>No Action</i> may impact individuals or habitat but would not likely cause a trend to federal listing or loss of species viability	Increasing fuel loads would continue to elevate the risk of stand-replacing fires burning over large tracts of forest habitats. Existing bat roost habitats in abandoned mines should continue to be available over the long term. In the event of a future high-intensity fire, existing snags and defective live trees that are providing roost sites could be lost. A pulse of new snags would be created within the burn perimeter. After a few years, bats might find new roost sites under the peeling bark of the larger snags, or in trees hollowed out by the fire. After 2-3 decades, most of the fire-killed trees would have fallen to the ground. There would then be a decades-long period of low snag availability as the burn scar slowly becomes reforested. If future fires burn with low to mixed severity, impacts to forest cover and existing roost sites would be less severe. Wildfires could promote diverse and robust stand understories important to many insect prey species.
little brown bat	<i>Proposed Action</i> May beneficially impact individuals or habitat	Timber harvest and fuels reduction work would reduce the risk of widespread forest habitat loss to stand-replacing fires. Disturbance - Project activities near mines would be scheduled to avoid periods when the sites might be occupied, consistent with Forest Plan Guideline <i>FW-GDL-WL-16. Bat Habitat Protection</i> (page 66). Roost Trees - The project would remove some dead or defective live trees that could provide roost habitat. However, larger snags would be retained in harvest units per Forest Plan Standard <i>FW-STD-WL-12. Large Snag Habitat</i> (page 64). About 7 miles of open roads would be closed, locally reducing the potential for standing dead trees to be cut down for firewood. Also see the section “Effects to Dead Wood Habitats,” later in this report. Foraging Habitat - Commercial thinning would reduce forest “clutter” and increase within-stand flight space (Humes et al. 1999). Understory vegetation in harvested stands should become denser and more robust, potentially benefitting insect prey species. Forest edge habitats that bats frequently use for foraging would be promoted with shelterwood and group selection harvest. Riparian vegetation around wetlands and stream courses would be conserved. A high degree of tree canopy closure would be maintained within Riparian Management Areas. Cumulative Effects – It is likely that most large snags have already been removed from state and private ownerships in the project area. No other timber sales would be concurrently active or planned on NFS lands in the Trail Project Area. Effects to large snag habitat from the project could be cumulative to firewood cutting in the area. However, given the standard practices related to snags, we expect the long-term benefits of this alternative would outweigh these potential adverse effects.
red-tailed chipmunk	<i>No Action</i>	Existing large trees and late structural stage stands likely maintained in the project area over at least the short term.

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Sensitive Mammals	Alternative Determination	Rationale for Determination
	<p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of species viability</p>	<p>Increasing fuel loads would continue to elevate the risk of stand-replacing fires occurring in the area. Such fires could remove mature, cone-bearing trees and reduce the availability of seeds, berry crops and other forage. These effects could last over many years in the most intensively burned areas. If future wildfires burn with lower severity, understory cover should re-establish more quickly. The growth of sun-loving forage plants could be enhanced within the fire perimeters.</p>
<p>red-tailed chipmunk</p>	<p><i>Proposed Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of species viability</p>	<p>Individual animals could be killed by heavy equipment operation and prescribed fires. Animals could be more susceptible to predation in treated areas, owing to a reduction in low cover.</p> <p>Large Trees - Timber harvest and fuels reduction treatments would reduce forest fuels and fuel connectivity, decreasing the risk of fire spread into mature overstory tree crowns. Most large, full-crowned trees which produce the biggest cone crops would be retained in harvest units consistent with Forest Plan Guideline <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41). The Proposed Action would be designed to conserve most existing late closed forest stands and promote additional stands per Forest Plan Desired Condition <i>FW-DC-VEG-03. Forest Structure</i> (page 34). Landres et al. (1999) maintained that restoring habitats, both the amount and connectivity, to more closely match the historical range of variability provided considerable improvements in the viability outcomes for native wildlife species.</p> <p>Forage Resources - Proposed vegetation treatments would reduce shading on the forest floor and stimulate the growth of understory grasses, forbs and shrubs. Forest openings and edge habitat would be created through shelterwood and group selection harvest. Thus, the project should enhance forage resources for this species over the short to mid-term.</p> <p>Cumulative Effects – No other known vegetation management projects would be concurrently active or are planned on NFS lands in the project area. Summer recreation and other forest uses (see Sx^wuytn Wildlife Report) could cumulatively impact food plants and low cover in local areas. However, given the standard practices and project design elements described above, we expect the long-term benefits of this alternative would outweigh these potential adverse effects.</p>
<p>pygmy shrew</p>	<p><i>No Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal</p>	<p>Forest openings and edge habitats would continue to be lost in the project area to natural forest succession.</p> <p>Increasing fuel loads would continue to elevate the risk of large-scale, intense fires that could kill individual animals, decrease the availability of food resources, and remove low cover. If future fires burn with lower intensity and do not completely remove soil nutrients, they could promote robust stand understories over the short to mid-term. The growth of sun-loving forage plants could be enhanced within burned area perimeters.</p>

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Sensitive Mammals	Alternative Determination	Rationale for Determination
	listing or loss of species viability	
pygmy shrew	<p><i>Proposed Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of species viability</p>	<p>Individual animals could be killed by heavy equipment operation and prescribed fires. Animals could be more susceptible to predation in treated areas, owing to a reduction in low cover.</p> <p>Understory Conditions - Wherever vegetation management occurs, understory plant biomass would be reduced, impacting available forage and hiding cover for this species. However, within one to a few growing seasons the understory layer should resemble pre-treatment conditions. Over time, plant density and vigor should be enhanced in treated areas relative to present conditions, due to an increase in available sunlight, water, and soil nutrients. This would be especially true in areas that are under-burned. Prescribed fires would remove old, decadent understory growth and a release a “pulse” of nutrients into the soil that would nourish the intact plant root systems.</p> <p>Down logs that are 14+ inches at the large end would be retained in harvest units. Additional, smaller diameter logs would be retained as needed to meet levels of this habitat prescribed in Forest Plan Desired Condition <i>FW-DC-VEG-04. Snags and Coarse Woody Debris</i> (page 36). Hardwood trees that supply leaf litter would not be marked for harvest. Hardwood trees would be indirectly promoted in areas of timber harvest due to a reduction in conifer cover. Prescribed fires would likely remove the above-ground portions of hardwood trees but would promote vigorous basal or root sprouting.</p> <p>Riparian Habitats - The project would conserve or improve riparian habitats consistent with Forest Plan Desired Condition <i>FW-DC-WR-03. Self-Sustaining Native and Aquatic and Riparian Dependent Species</i> (page 51). Specifically, the project would:</p> <ul style="list-style-type: none"> - conserve riparian vegetation, - maintain at least 60 percent tree canopy closure in RMAs, - permanently remove selected roads from RMAs, - complete aquatic restoration projects to restore stream connectivity, improve in-stream habitat complexity, and raise water tables. <p>Cumulative Effects - No other known vegetation management projects would be concurrently active or are planned on the NFS lands in the project area. Summer recreation and other forest uses (see Sx^wuytn Wildlife Report) could cumulatively impact food plants and low cover in local areas. However, given the standard practices and project design elements described above, we expect the long-term benefits of this alternative would outweigh these potential adverse effects.</p>

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Sensitive Birds	Alternative Determination	Rationale for Determination
bald eagle	<p><i>No Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability</p>	<p>Large cottonwoods and ponderosa pines provide high quality nesting, foraging, and perching habitat along the Pend Oreille River on the west edge of the project area. Existing, healthy large trees are likely to be maintained across the project area over at least the short term.</p> <p>Increasing stand densities and fuel ladders would continue to elevate the risk of high-intensity crown fires occurring in the project area. Such fires could remove large tree habitats. Occupied nest territories along the river are likely to be protected from fires starting in the project area, owing to the presence of residential areas and other infrastructure, and existing fuel breaks such as fields, pastures, and the LeClerc Road (County Road 1900).</p>
bald eagle	<p><i>Proposed Action</i></p> <p>may beneficially impact individuals or habitat</p>	<p>Disturbance – Project activities would not occur during the nesting period within 0.25 mile of the Mill Creek bald eagle territory. Other active nests on the Pend Oreille River are too far removed to be disturbed by proposed activities. If a new nest is discovered in the project area, it would be protected from human disturbance consistent with Forest Plan Desired Condition <i>FW-GDL-WL-11. Human Activities in Bald Eagle Nesting Areas</i> (page 60).</p> <p>Large Tree Habitats - Timber harvest and fuels reduction work would reduce the potential for large tree loss to stand-replacing fires. Large trees would be retained in harvest units consistent with Forest Plan Guideline <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41). Large trees would be promoted over the long term through commercial thinning of mid-structural stage stands. Timber harvest would not occur within 300 feet of the Mill Creek bald eagle nest, west of the LeClerc Road. Any newly discovered eagle nests or winter roost sites would be managed for their continued suitability per Forest Plan Desired Condition <i>FW-DC-WL-12. Bald Eagle Habitat in Riparian Management Areas</i> (page 60). Large snags that could be used as perch trees would be retained in harvest units consistent with Forest Plan Standard <i>FW-STD-WL-12. Large Snag Habitat</i> (page 64).</p> <p>Cumulative Effects – At the county-wide scale, other vegetation management projects on NFS lands would incorporate similar standard practices and design elements to those described above and should have similar beneficial impacts to bald eagle habitats. In addition to the large trees that would be maintained on NFS lands, trees growing on Kalispel Indian Reservation lands, on wildlife management areas owned by the local utilities, and on other conservation lands, would be maintained over the long term. It is likely that most large trees and snags have already been removed from state and private timber lands in the county.</p>
common loon	<p><i>No Action</i></p> <p>no impact</p>	<p>Loons are occasionally observed on the Pend Oreille River and on larger lakes in the project area, particularly during migrations. Nesting by this species has not been confirmed in the area. This may be due to: the insufficient size of some area lakes (< 40 acres), the steepness of some lakeshores (ex., Bead Lake), the relatively high level of human disturbance in some areas (ex. Pend Oreille River), and the lack</p>

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Sensitive Birds	Alternative Determination	Rationale for Determination
		of a sufficient food supply to raise young on some lakes. These conditions are unlikely to change over the long term.
common loon	<i>Proposed Action</i> no impact	Riparian vegetation growing on the shorelines of the Pend Oreille River and area lakes would not be affected by any project activities. Concealing cover for a potential nest should not be affected. The noise associated with project activities occurring within Riparian Management Areas (RMAs) on the river and area lakes could disturb loons resting or foraging on these water bodies. However, birds should be able to easily displace to more secluded waters to avoid these activities. If an active nest was discovered on a water body within the project area, it would be protected per Forest Plan Guideline <i>FW-GDL-WL-17. Nesting Habitat for Common Loon</i> , (page 66).
great gray owl	<i>No Action</i> may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability	Potential reproductive and foraging habitat conditions likely maintained over at least the short term. Increasing fuel loads would continue to elevate the risk of large-scale, high-intensity fires occurring in the area. Such fires could impact potential nest structures / stands, and low cover and food resources for prey animals. If future fires burn with low to mixed severity, forest mosaics that include openings, edge habitat, and robust understory vegetation could be created. These habitats are preferred by many prey species including voles and other rodents.
great gray owl	<i>Proposed Action</i> may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability	<p>Disturbance - Nesting by great gray owls has not been documented on the forest. If an active nest was discovered in the project area, it would be protected from disturbance consistent with Forest Plan Guideline <i>FW-GDL-WL-18. Nest Sites</i>, (page 67).</p> <p>Nesting Habitat - Timber harvest and fuels treatments would reduce surface fuels, stand understories, and continuous fuel ladders. This should reduce the potential for high-intensity fire behavior and fire spread into potential nest stands. The Proposed Action would be generally designed to conserve most existing late closed forest structure and promote additional acres of these stands per Forest Plan Desired Condition <i>FW-DC-VEG-03. Forest Structure</i> (page 34).</p> <p>Larger snags would be retained to the extent feasible in harvest units per Forest Plan Standard <i>FW-STD-WL-12. Large Snag Habitat</i> (page 64). Up to 12 potential nest trees / per acre would be retained in harvest units including trees with broken tops, trees with old raptor nests, and trees infected with rusts, <i>Elytroderma</i> disease, or mistletoes. These structures could provide suitable nest sites for this raptor. This standard practice is consistent with Forest Plan Desired Condition <i>FW-DC-VEG-05. Biological Legacies</i> (page 37).</p> <p>Foraging Habitats - Forest openings would be created in areas of shelterwood and group selection harvest. Existing understory plants in these openings would quickly respond to the increased light levels</p>

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Sensitive Birds	Alternative Determination	Rationale for Determination
		<p>and reduced competition for site resources. The understory should become denser and robust over the short term, providing the low cover and foraging conditions favored by many small mammal prey species. Prescribed burning proposed with this project would also tend to promote robust stand understories. Riparian and wetland habitats would be buffered to protect riparian vegetation and hydrologic function. At least 60 percent overhead canopy closure would be maintained within Riparian Management Areas. These mesic habitats are important to red-backed voles and other prey animals.</p> <p>Cumulative Effects – It is likely that most potential nest trees and late structural stage stands have already been removed from state and private timber lands across the forest. Other forest management projects on NFS lands across the forest would have similar and cumulative effects to the essential habitats of this species. At the forest-wide scale, the Proposed Action would not create gaps in source habitats that would tend to isolate populations of this raptor. This alternative would incorporate all of the conservation strategies identified in Gaines et al. (2017) to improve viability outcomes for this species across the forest. Based on these considerations, the Proposed Action would not affect the continued viability of great gray owl populations on the forest. We would not expect any cumulative effects from other forest management projects, activities, or uses to affect this outcome.</p>
Lewis’ & white-headed woodpeckers	<p><i>No action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability</p>	<p>Existing large ponderosa pines and cottonwood trees likely maintained in the project area over at least the short term. Increasing fuel loads would continue to elevate the risk of large-scale forest cover loss to high intensity fires. Such fires could remove the large trees and dry forest stands utilized by these species. If future fires burn with lower severity, stand densities could be reduced, potentially improving habitat conditions. Areas of fire-killed trees could be exploited by Lewis’ woodpeckers.</p>
Lewis’ & white-headed woodpeckers	<p><i>Proposed Action</i></p> <p>may beneficially impact individuals or habitat</p>	<p>Dry Forest – Proposed vegetation management on NFS lands would reduce surface fuels and fuel ladders. This should reduce the potential for high intensity fire behavior, and for fire to spread into source habitats for these two woodpeckers. Commercial thinning and under-burning in the Dry Douglas fir vegetation type would convert approximately 1,142 acres of late closed stands to a late <i>open</i> condition. This structural stage is below historic levels in the watersheds and is preferred habitat for these two species. Commercial thinning in mid-closed, dry site stands would set the stage for the accelerated development of open, park-like stands over time, consistent with Forest Plan Desired Condition: <i>FW-DC-VEG-03. Forest Structure</i> (page 34).</p> <p>Large live trees (20+ inches) would be retained in harvest units per Forest Plan Guideline: <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41). Healthy ponderosa pine trees would be a high priority species for retention in areas of commercial timber harvest and pre-commercial thinning. It would be planted</p>

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Sensitive Birds	Alternative Determination	Rationale for Determination
		<p>on suitable sites where reforestation is prescribed. Hardwood trees would be retained in harvest units to the extent feasible. Cottonwood stands along the Pend Oreille River would not be affected by the project. No project activities would occur within 0.5 mile of the small, nesting Lewis' woodpecker population on the Kalispel Indian Reservation.</p> <p>Dead Wood - Large (20+ inch) snags would be retained in harvest units per Forest Plan Standard <i>FW-STD-WL-12. Large Snag Habitat</i> (page 64). Based on our monitoring, prescribed burning should result in a small net gain of snags. Proposed road closures would locally reduce the loss of standing dead trees to firewood cutting. Also see the section "Effects to Dead Wood Habitats," later in this report.</p> <p>Cumulative Effects - At the forest-wide scale, the Trail project and other vegetation management projects on NFS lands would cumulatively promote the recruitment / restoration of late open stands, as this structural stage is commonly below the historic range of variability across the forest. Large tree and dead wood habitats would be maintained according to Forest Plan desired conditions. Over time, source habitats for Lewis' and white-headed woodpeckers should be increased in extent on NFS lands across the forest. It is likely that most large trees and late open structural stage stands have already been removed from state and private timber lands. In the Trail Project Area, some of the best habitats for these species exist on the Kalispel Indian Reservation. These habitats are likely to be maintained / promoted over the long-term.</p>
northern goshawk	<p><i>No Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability</p>	<p>Existing and potential reproductive habitats for goshawks likely maintained over at least the short-term. Additional large trees and late closed stands would be slowly recruited in the area. Goshawks would continue to have limited access / mobility within dense, mid-closed structural stage stands. These stands would continue to have limited habitat value for most goshawk prey species. Forest succession would convert created openings to the mid-closed structural stage over the short to mid-term, potentially reducing foraging opportunities along forest edges.</p> <p>Increasing fuel loads would continue to elevate the risk of stand-replacing fires which could remove mid-closed and late closed source habitats, large live trees, and other structures used by the species. If future fires burn with low or mixed severity, they could create more vegetative diversity and edge habitats, potentially benefitting prey species.</p>
northern goshawk	<p><i>Proposed Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal</p>	<p>Proposed forest management would reduce tree stocking, ground fuels, and continuous fuel ladders in many stands. This would trend the landscape towards an increased resilience to drought and insect / disease outbreaks, and a reduced potential for stand-replacing fires.</p> <p>Active Nest Stands - All three mapped, 30-acre nest stands would be reserved from harvest. All mapped alternate nest stands would be reserved from harvest. Thus, the alternative would be consistent with Forest Plan Guideline <i>GDL-WL-19. Northern Goshawk Nesting Sites</i> (page 67). Active nests would be</p>

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Sensitive Birds	Alternative Determination	Rationale for Determination
	listing or loss of viability	<p>protected from disturbance with required project timing restrictions, per Forest Plan Standard <i>FW-STD-WL-01. Nest Sites</i>, (page 62).</p> <p>Within-Stand Structures – Most large (20+ inch) trees would be retained in harvest units consistent with Forest Plan Guideline <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41). Forest thinning and fuels reduction work would be intended to perpetuate existing large trees and accelerate the development of additional trees (Bailey and Tappeiner 1998, Dodson et al. 2012).</p> <p>Other structures used by goshawks and prey species include snags, down logs, hardwood trees, and “biological legacy” trees. These structures would be retained in harvest units consistent with Forest Plan direction: <i>FW-STD-WL-12. Large Snag Habitat</i> (page 64), <i>FW-DC-VEG-04. Snags and Coarse Woody Debris</i> (page 41), <i>FW-GDL-WL-03. Unique Habitats</i> (page 64), and <i>FW-DC-VEG-05. Biological Legacies</i> (page 37). Direction for the retention of these within-stand structures is described in the Standard Practices section of this report.</p> <p>Potential Nesting Habitat – All 6,762 acres of mapped primary habitat (mid - late closed stands in the mesic vegetation types) would be maintained (not managed). Secondary habitat (mid- late closed stands in the Douglas fir -Dry Vegetation Type) could be thinned so long as habitat values for goshawks are retained, including > 50% canopy closure. In those watersheds that are within or above the HRV, the surplus acres of secondary habitat acres could be available for treatment to accomplish other resource objectives. The project would move the landscape closer to HRV for goshawk habitat over the long term per Forest Plan Desired Condition <i>FW-DC-WL-03. Habitat Conditions for all Surrogate Species</i> (page 59).</p> <p>Cumulative Effects - Other vegetation management projects on NFS lands across the forest would have very similar effects to goshawk habitats as those described for the Trail project. Active nest stands and alternate nest stands would be managed as described above. Projects would incorporate all the conservation strategies identified in Gaines et al. (2017) to improve viability outcomes for this species across the forest. Over time, forest management on NFS lands would accelerate the development of additional late structural stage stands, and facilitate goshawk foraging by creating a “juxtaposition of seral stages” with an emphasis on creating or maintaining structural vegetation diversity (Hargis et al. 1994, in Brewer et al. 2009). Most private and state timber lands would continue to have low potential to be utilized for nesting by goshawks.</p>
sandhill crane	<i>All Alternatives</i> no impact	There is one known incidental observation of this species from the Trail Project Area. Nesting by this species has not been documented on the forest. Extensive wetlands interspersed with dry meadows do not occur on NFS lands in the project area. Potential nesting habitat for sandhill cranes might be found on the Kalispel Indian Reservation on the western edge of the project area. No project activities would occur within the vicinity of these habitats.

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Sensitive Invertebrates	Alternative Determination	Rationale for Determination
butterflies, dragonflies, damselflies, bees, mollusks	<p><i>No Action</i></p> <p>may impact individuals or habitat but would not likely cause a trend to federal listing or loss of viability</p>	<p>Over the short to mid-term, the availability of forest openings and edge habitats would decrease on NFS lands in the project area through natural forest succession.</p> <p>Increasing fuel loads would continue to elevate the risk of large-scale, intense fires that could kill individual sensitive invertebrates, and remove food resources and low cover. If future wildfires do not completely remove soil nutrients, they could promote diverse and robust stand understories over the short to mid-term. The growth of sun-loving forage plants could be enhanced in new burn scars. Flower production would likely increase on these sites.</p>
butterflies, dragonflies, damselflies, bees, mollusks	<p><i>Proposed Action</i></p> <p>same as above</p>	<p>Less mobile animals could be directly killed by heavy equipment operation and prescribed fires. Some species could be more susceptible to predation in areas where concealing cover has been reduced. Vegetation reduction / removal could dry out mesic, forest floor habitats. Food plants could be crushed by heavy equipment operation and removed by prescribed fire or herbicide application.</p> <p>Understory Plants - Shelterwood and group selection harvest would create forest openings and associated edge habitats that are exploited by many sensitive invertebrate species. Although timber harvest and prescribed burning would reduce understory plant biomass, within a few growing seasons the understory layer should resemble pre-treatment conditions. Understory plant density and vigor should be enhanced over time due to the increased availability of sunlight, water, and soil nutrients in the treated areas. Flowering plants required by bees and other invertebrates should increase.</p> <p>Herbicide applications would be targeted / limited in extent and intended to replace noxious weeds with desirable native plants per Forest Plan Desired Condition <i>FW-DC-IS-01. Integrated Management for Invasive Species</i> (page 68).</p> <p>Special Habitats - Special habitats important to some species would be conserved consistent with Forest Plan Guideline <i>FW-GDL-WL-03. Unique Habitats</i> (page 64). Project activities would avoid meadows and rock talus habitats. Down logs would be retained in harvest units consistent with Forest Plan Desired Condition <i>FW-DC-VEG-04. Snags and Coarse Woody Debris</i> (page 36).</p> <p>Riparian Habitats - The project would conserve or improve riparian habitats consistent with Forest Plan Desired Condition <i>FW-DC-WR-03. Self-Sustaining Native and Aquatic and Riparian Dependent Species</i> (page 51). Specifically, the project would:</p> <ul style="list-style-type: none"> - conserve riparian vegetation, - maintain more than 60 percent tree canopy closure in Riparian Management Areas (RMAs), - permanently remove selected roads from RMAs, - complete aquatic restoration projects to restore stream connectivity, improve in-stream habitat complexity, and raise water tables.

Sensitive Invertebrates	Alternative Determination	Rationale for Determination
		<p>Cumulative Effects - No other vegetation management projects would be concurrently active or are planned on NFS lands in the Trail Project Area. Summer recreation and other forest uses in the project area (see Sx^wuytn Wildlife Report) could cumulatively impact food plants and low cover in local areas. However, given the standard practices and project design elements described above, we expect the long-term benefits of this alternative would outweigh these potential adverse effects.</p>

Terrestrial Surrogate and Landbird Species

The Forest Plan (Appendix C) selected a group of “surrogate” wildlife species to represent specific habitats and risk factors across the forest. The viability of surrogate species should be enhanced by providing the appropriate mix of stand structural stages by vegetation type and reducing risk factors. Descriptions of the potential “viability outcomes” for surrogate species on the forest (Gaines et al. 2017) are provided in Appendix B of the Sx^wuytn Wildlife Report.

The Forest Service is charged with the conservation and protection of migratory birds under the Migratory Bird Treaty Act of 1918, Executive Order (EO) 13186 (66 Fed. Reg. 3853, January 17, 2001), and the Memorandum of Understanding (MOU) developed between the agency and the U. S. Fish and Wildlife Service. Several surrogate species listed for the forest are coincidentally identified as “landbird focal species for conservation” in the Northern Rocky Mountains of Oregon and Washington (Altman and Bresson 2017).

Table C-2 provides a brief summary of the effects of the project alternatives to essential habitats for surrogate species listed for the Colville National Forest (USDA 2019), and to landbird focal species listed for the Northern Rocky Mountains of Oregon and Washington (Altman and Bresson 2017).

The expected duration of effects would be as follows: short-term = 0-10 years; mid-term = 10-30 years; long term = 30+ years.

Table C- 4. Summary of effects to essential habitats of surrogate and landbird focal species, by project alternative

Habitat Family & associated species	Alternative Determination	Rationale for Determination
<p>Alpine boreal calliope hummingbird,</p>	<p><i>No Action</i> Alternative may impact individuals</p>	<p>Baseline habitat conditions in high-elevation meadows, shrublands, and timber stands are unlikely to change appreciably over at least the short term. The Tower Fire burn scar would provide seed caching sites for Clark’s nutcrackers over the short to mid-term.</p>

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Habitat Family & associated species	Alternative Determination	Rationale for Determination
Clark's nutcracker, hermit thrush, Lincoln's sparrow	or habitat but should not contribute to a negative trend in species viability across the forest.	Increasing fuel loads would continue to elevate the potential for subalpine forest cover loss to high severity fires. Any future fires would tend to promote dense herbaceous and shrub cover, important habitat components for calliope hummingbird, hermit thrush and Lincoln's sparrow.
Alpine boreal	<i>Proposed Action</i> Alternative could contribute to a slight positive trend in species viability across the forest.	<p>Montane meadows - There would be no effects to these habitats.</p> <p>Boreal forest group - Vegetation management proposed with this alternative would result in a reduced risk of high-intensity fires occurring in alpine forest habitats. Timber harvest (commercial thin) would convert approximately 40 acres of high elevation, late closed structural stage stands to the late open stage. Approximately 287 acres of high elevation stands in the mid-closed structural stage would be converted to the mid-open stage. The intent of these harvests would be to remove diseased / senescent subalpine fir, Engelmann spruce, and lodgepole pine trees, and perpetuate or promote vigorous, large trees of these species. In the harvested units, a robust herb and shrub layer should develop over the short term that could be exploited by the landbird species associated with this habitat. Prescribed fire would not be applied in these habitats.</p> <p>Cumulative effects - At the forest-wide scale, the potential effects of the Trail project would be similar and cumulative to those resulting from other vegetation management projects on NFS lands. Late structural stage stands would likely be promoted in this vegetation type with all projects, as the percent coverage of this structural stage is often below historic conditions. Dense, vigorous herb and shrub layers would be promoted with any active or planned timber harvest. Montane meadows would be protected by avoidance and could be maintained / protected where appropriate by removing encroaching conifers, blocking user-created OHV trails, or other means. Habitat improvement projects intended to maintain whitebark pine trees have recently been completed or are proposed in many locations across the forest. These projects include thinning out neighboring conifer trees to reduce resource competition and planting blister rust-resistant trees in recent burn scars.</p>
Medium and large trees American marten, Cassin's finch, flammulated owl, pileated	<i>No Action</i> Alternative may impact individuals or habitat but should not contribute to a	Existing reproductive habitats for the species associated with medium / large trees would likely be maintained over at least the short-term. Additional large trees and late closed stands would be slowly recruited in the project area dependent on stand density, disturbance, and other factors such as climate.

Habitat Family & associated species	Alternative Determination	Rationale for Determination
woodpecker, Williamson’s sapsucker	negative trend in species viability across the forest.	Increasing fuel loads would continue to elevate the risk of stand-replacing fires occurring in the area. Such fires could remove medium-large live trees and other structures used by the associated species. Habitat connectivity for furbearers such as martens could be negatively affected.
Medium and large trees American marten, Cassin’s finch, flammulated owl, pileated woodpecker, Williamson’s sapsucker	<i>Proposed Action</i> Alternative may impact individuals or habitat but should not contribute to a negative trend in species viability across the forest.	<p>All habitat groups - This alternative would be designed to move the watersheds closer to their historic mix of stand structural stages, consistent with Forest Plan Desired Condition <i>FW-DC-VEG-03. Forest Structure</i> (page 34). Most late closed stands would be conserved. Commercial thinning in approximately 1,142 acres of late closed, Douglas fir - Dry vegetation types would move these stands to a late <i>open</i> condition; a structural stage which is well below HRV in the watersheds. Landres et al. (1999) and Wisdom et al. (2000) maintained that restoring habitats, both the amount and connectivity, to more closely match the historical range of variability provided considerable improvements in the viability outcomes for native wildlife species. Also see the previous section on project effects to goshawk habitat.</p> <p>Large trees (20+ inches DBH) would be retained in harvest units consistent with Forest Plan Guideline <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41). Forest thinning would reduce inter-tree competition for site resources and focus growth on the most vigorous appearing trees. This would tend to lower the risk of medium-large tree loss to drought and insect and disease attack. The development of additional medium-large trees and late structural stage stands should be accelerated in the treated stands. Up to 12 “biological legacy trees” per acre that are 14+ inches in diameter would be retained in harvest units, consistent with Forest Plan Desired Condition <i>FW-DC-VEG-05. Biological Legacies</i> (page 37).</p> <p>Prescribed fire would be used within harvest units to reduce logging slash where needed. Burns would also be conducted outside of harvest units to reduce forest fuels and improve forage for big game species. These burns would be completed under fuel moisture and weather conditions intended to ensure low intensity fire behavior. Areas of fire-intolerant vegetation types (ex., Western redcedar / Western hemlock) would be avoided. Prescribed fires could kill thin-barked trees such as lodgepole pines. We expect there would be very few large trees killed in burned areas, and insignificant or discountable impacts to overhead canopy at the stand level.</p> <p>Dead wood - To the extent feasible, all 10+ inch snags, all 14+ inch down logs, and additional smaller logs would be retained in harvest units to meet Forest Plan Desired Condition <i>FW-DC-VEG-04. Snags and Coarse Woody Debris</i> (page 36). Proposed road closures would locally reduce the loss of standing dead trees to firewood cutting. See the “Dead Wood Habitats” section of this report for a detailed discussion of this habitat component.</p> <p>Habitat Connectivity – Approximately 7 miles of presently open roads would be closed to public use. Selected roads within Riparian Management Areas (RMAs) would be permanently removed from</p>

Habitat Family & associated species	Alternative Determination	Rationale for Determination
		<p>the forest’s transportation system and revegetated over time. These actions would be consistent with Forest Plan Desired Condition <i>FW-DC-WL-10. Risk Factors for all Surrogate Species</i> (page 60). The negative impacts of roads on landscape permeability for martens and other wildlife should be reduced as a result.</p> <p>Riparian Management Areas (RMAs) are natural travel routes for furbearers such as martens. Forest management would occur within RMAs <i>only</i> as necessary to confer benefits to riparian-dependent plant and animal species and contribute to connectivity of the watersheds for both riparian and upland species. Existing riparian vegetation would be conserved. At least 60 percent tree canopy would be maintained within RMAs. Thus, the project would be consistent with Forest Plan Guideline <i>FW-GDL-WL-03. Unique Habitats</i> (page 64), and Standard <i>MA-STD-RMA-03. Timber Harvest and Thinning</i> (page 121).</p> <p>Cumulative effects - At the forest-wide scale, the Trail project and other vegetation management projects on NFS lands would cumulatively trend watersheds towards historic conditions in relation to stand structural stages (and by inference, medium – large trees). Most late closed stands, including all stands meeting the North Idaho Zone old growth definition, would be maintained. Project design elements specific to the retention of large trees, biological legacy trees, and other habitats at the stand scale would be similar to the elements described above. Vegetation management projects on NFS lands should cumulatively reduce the incidence and spread of high-intensity fires on the forest. Also see the cumulative effects discussion in the section “Dead Wood Habitats”, later in this report.</p>
<p>Open forest black-backed woodpecker, fox sparrow, fringed myotis, calliope hummingbird, olive-sided flycatcher, western wood pewee</p>	<p><i>No Action</i></p> <p>Alternative may impact individuals or habitat but should not contribute to a negative trend in species viability across the forest.</p>	<p>With continued fire suppression, the percentage of open forest stands on NFS lands would likely further decrease below HRV over the short to mid-term. Stand understories would become denser. Shade tolerant tree species would continue to colonize sites they historically did not inhabit. Young plantations would grow into middle structural stages. These processes would tend to reduce habitat values for fox sparrows and calliope hummingbirds.</p> <p>Increasing fuel loads would continue to elevate the risk of stand-replacing fires. Such fires can produce high densities of fire-killed trees; habitat conditions preferred by black-backed woodpeckers. Within 1-3 decades, most of these trees would have fallen to the ground. There would then be a decades-long gap in the availability of snag habitat in the burned areas.</p> <p>Where future fires burn with low to moderate intensity, there would be a reduction in overhead canopy, stand density, and fuel ladders. Such fires would promote patches of fire-killed trees, open shrub / sapling habitat, and open, park-like timber stands. Each of these habitats is utilized by one or more of the associated surrogate species and landbirds.</p>

Habitat Family & associated species	Alternative Determination	Rationale for Determination
Open forest	<p><i>Proposed Action</i></p> <p>Alternative should contribute to a positive trend in species viability across the forest.</p>	<p>All forest group - Commercial thinning would convert approximately 1,142 acres of late closed stands in the Douglas fir - Dry vegetation type to late <i>open</i> condition. This structural stage is below its historic range of variability in the watersheds. Commercial thinning in dry site, mid-closed stands would set the stage for the accelerated development of additional open, park-like stands over time, consistent with Forest Plan Desired Condition <i>FW-DC-WL-03. Habitat Conditions for all Surrogate Species</i> (page 59). Large live trees (20+ inches) would be retained in harvest units per Forest Plan Guideline <i>FW-GDL-VEG-03. Large Tree Management</i> (page 41).</p> <p>Early successional group - Shelterwood harvest would create openings in the forest canopy on approximately 6,832 acres. Additional small openings would be created in areas of group selection harvest. Robust shrub understories would be promoted in these forest clearings, particularly where they are under-burned to treat logging slash. The dense shrub stage conditions favored by fox sparrows and calliope hummingbirds should develop on many of these sites over the short term. Riparian and wetland habitats would be buffered to protect vegetation and hydrologic function.</p> <p>Dead wood - Snags and down logs would be retained in harvest units to meet levels prescribed with Forest Plan Desired Condition <i>FW-DC-VEG-04. Snags and Coarse Woody Debris</i> (page 36). Based on our monitoring, there should be a slight net increase in snags following prescribed burning. Proposed road closures would locally reduce the loss of standing dead trees to firewood cutting. See the section on “Dead Wood Habitats” in this report for a detailed discussion of this habitat component.</p> <p>Cumulative effects - At the forest-wide scale, the potential beneficial effects of the Trail project described above would be consistent with, and potentially cumulative to, those resulting from other vegetation management projects completed on NFS lands. Over time, the acreage of open forest stands should increase on the forest as we attempt to approximate historic levels of this structural stage. Prescribed burning projects completed for fuels reduction or for wildlife forage enhancement, should cumulatively maintain or restore open shrub habitats and dense stand understories.</p>
Woodland-grass-shrub golden eagle, northern harrier, pallid bat, savannah sparrow, warbling vireo	<p><i>No Action</i></p> <p>Alternative may impact individuals or habitat but should not contribute to a negative trend in</p>	<p>Habitats in the Grassland group (wet or dry open grasslands, alkali wetlands, pastures, croplands, fallow fields, old fields) occur on the Kalispel Indian Reservation and private lands in the Pend Oreille River corridor. These cover types are unlikely to change appreciably in the foreseeable future.</p> <p>Shrublands and open forest stands sometimes occur on the exposed aspects of upland hillsides in the project area. Shrub habitats are particularly common in the Exposure Creek drainage. Under the existing fire suppression regime, young conifers would continue to have the ability to infill</p>

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Habitat Family & associated species	Alternative Determination	Rationale for Determination
	species viability across the forest.	shrublands and open forest stands in the project area. Fire intolerant tree species would continue to become established on these sites. These processes would tend to increase the tree canopy closure, and reduce the grass, forb, and shrub components that provide essential habitats for the wildlife species associated with this habitat family. Tree densities, surface fuels, and fuel ladders would increase incrementally in woodland forest habitats, increasing the potential for woodland cover loss to high-intensity fires.
Woodland-grass-shrub	<i>Proposed Action</i> Alternative should contribute to a positive trend in species viability across the forest.	<p>Grassland group - The Trail project would have no effect on these habitats.</p> <p>Grass-shrub group - Grass meadows and forb fields are uncommon on NFS lands in the project area and should not be affected by project activities. Prescribed burning would occur on hundreds of acres of open shrublands / parklands in order to reduce fuel loading and improve forage habitats for big game. These fires would remove encroaching young conifers, rejuvenate upland shrubs, and maintain open conditions. Golden eagles might be able to exploit these openings as foraging sites for small mammals.</p> <p>Woodlands - See the discussion on Open Forest habitats, earlier in this table.</p> <p>Dead wood – Large snags would not be marked for harvest, consistent with Forest Plan Standard FW-STD-WL-12. Large Snag Habitat (page 42). Also see the “Dead Wood Habitats” section of this report.</p> <p>Rock Features - The Trail project would have no effect on cliffs, talus or other rock features used by golden eagles and pallid bats for nesting or roosting.</p> <p>Cumulative effects – At the forest-wide scale, the potential beneficial effects of the Trail project described above would be consistent with, and potentially cumulative to, those resulting from other vegetation management projects on NFS lands.</p>
Riparian Columbia spotted frog, calliope hummingbird, willow flycatcher, red-eyed vireo, red-naped sapsucker, wood duck	<i>No Action</i> Alternative may impact individuals or habitat but should not contribute to a negative trend in species viability on the forest.	<p>Existing riparian habitat conditions likely maintained for the foreseeable future. Certain stream reaches would continue to lack in-stream habitat complexity due to a lack of large woody debris inputs. Increasing fuel loads would continue to elevate the risk of riparian forest / shrub habitat loss to high intensity fires.</p> <p>Under-sized culverts would continue to impair the passage of aquatic organisms under roads. Roads which were built directly adjacent to streams could contribute sediments to the water column. Riparian tree and shrub habitats would be precluded from development in these “riparian road” prisms. Where these roads are presently open to public use, they would continue to facilitate unauthorized fuelwood cutting along streams.</p>

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Habitat Family & associated species	Alternative Determination	Rationale for Determination
<p>Wetlands MacGillivray's warbler, Wilson's snipe, bobolink, eared grebe, marsh wren</p>		
<p>Riparian Columbia spotted frog, calliope hummingbird, willow flycatcher, red-eyed vireo, red-naped sapsucker, wood duck</p> <p>Wetlands MacGillivray's warbler, Wilson's snipe, bobolink, eared grebe, marsh wren</p>	<p><i>Proposed Action</i></p> <p>Alternative should contribute to a positive trend in species viability across the forest.</p>	<p>Riparian: Shrubby deciduous group – Maximum widths for Riparian Management Areas (RMAs) are provided on page 119-120 of the Forest Plan. Forest management would occur within RMAs only as necessary to confer benefits to riparian-dependent plant and animal species, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, and contribute to connectivity of the watershed for both riparian and upland species. Thus, the project would be consistent with Forest Plan Guideline FW-GDL-WL-03. Unique Habitats (page 64), and Standard MA-STD-RMA-03. Timber Harvest and Thinning (page 121). Specifically, the Trail project would:</p> <ul style="list-style-type: none"> - maintain riparian vegetation, - maintain 60+ percent tree canopy closure within the mesic vegetation types in RMAs, - permanently remove selected roads from stream corridors, - upgrade road culverts to restore aquatic organism passage in streams, - improve stream habitat complexity and raise water tables by placing large woody debris in the stream channel. <p>Timber harvest and fuels treatments in upland areas should reduce future fire intensity and the potential for fire spread into RMAs. Prescribed burns would be started outside of RMAs and would be completed under fuel moisture and weather conditions intended to ensure low intensity fire behavior. Prescribed fires may back into RMAs at times, but we expect any impacts to riparian vegetation would be quite local, short-term, and insignificant or discountable at the stand scale.</p> <p>Riparian: Large tree or snag / open water group – This alternative would not remove large live cottonwoods and standing snags from within RMAs. Personal fuelwood cutting is prohibited within RMAs per Forest Plan Standard MA-STD-RMA-02. Personal Fuelwood Cutting (page 121). The removal of open road segments from RMAs would reduce the potential for snag loss to unauthorized wood cutting.</p>

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Habitat Family & associated species	Alternative Determination	Rationale for Determination
		<p>Wetland: Marsh / wet meadow group – Marsh habitats are low-lying areas which are typically water-logged. Marsh-like habitats occur on non-NFS lands in the project area, particularly on lands owned by the Kalispel Tribe of Indians. The Trail project would have no effect on these habitats.</p> <p>Wetlands, lakes and ponds in the project area would receive the same protections as stream RMAs described above. Direct and indirect effects would be analogous.</p> <p>Cumulative effects – At the forest-wide scale the Trail project and other vegetation management projects on NFS lands would have similar, and cumulative beneficial effects to riparian and wetland habitats as stated above.</p> <p>The Forest Service, Kalispel Tribe, WA State, and private landowners would continue to complete habitat improvements intended to restore / enhance riparian habitats across the forest. These include but are not limited to: culvert upgrades, the creation of debris jams in stream segments where coarse woody debris is lacking, the removal of “riparian roads” from RMAs, thinning to increase average tree diameters, the removal of “log crib” dams associated with historic logging, and riparian plantings.</p>

Appendix D

Sx^wuytn-Kaniksu Connections ‘Trail’ Project - Road Management

Table D- 1. Proposed Action – Road Management (summary)¹

Action	Approx. Miles	% of Road Mgmt. Proposal	% of NFS Roads in Project Area*
Mixed Motorized Use	19	30%	8%
Convert to Non-Motorized Trail	3	4%	1%
Close to non-administrative use	2	3%	<1%
Decommission			
Currently closed road	46	57%	16%
Currently open road	5	6%	2%
Totals	80	100%	27%

* There are approx. 292 miles of National Forest System roads within the project area.

Proposed Action – Road Management (detailed)

The following tables list individual roads by type of proposed management action.

Table D- 2. Routes proposed for Mixed Motorized Use (road lengths range from <1 to 10 miles)

Action	Road #	Approx. Mileage
Mixed Motorized Use	1920000	10.3
Mixed Motorized Use	1921000	3.7
Mixed Motorized Use	5015000	4.9
Mixed Motorized Use	5030000	0.3
Total miles		19.2

¹ Numbers and totals may not exactly match other documents and tables due to rounding.

Table D- 3. Routes proposed to be converted to non-motorized trail

Action	Road #	Approx. Mileage	Comments
Convert to non-motorized trail	1914310, 1914320, 1914330	2.7	Part of Geophysical Trail; currently closed roads
Convert to non-motorized trail	5000454, 5000455, 5000460	0.6	Part of S. Skookum Trail 138; currently closed roads
Total miles		3.3	

Table D- 4. Currently open routes proposed to be closed to non-administrative use

Action	Road #	Approx. Mileage
Close to non-administrative use	1900031	0.6
Close to non-administrative use	1914205	0.7
Close to non-administrative use	5000465	0.6
Total Miles		1.9

Table D- 5. Routes proposed for decommissioning that include segments that are both open and closed to public use

Action	Road #	Approx. Mileage	Comments
Decommission	5000548	0.4	Approx. 0.1 miles currently closed
Decommission	1921035	0.4	Approx. 0.2 mi currently closed
Decommission	1921055	1.8	Approx. 0.6 mi. currently closed
Decommission	5080100	1.3	Existing open segment of this road is approx. 0.3 mi; rest of road is currently closed
Total miles		3.9	~1.9 miles currently closed; total road lengths 0.4 – 1.8 miles

Table D- 6. Routes proposed for decommissioning that are currently closed for public use (road lengths range from <0.1 - 1.4 miles)

Action	Road #	Approx. Mileage
Decommission	1200103	1.1
Decommission	1200400	1.2
Decommission	1200500	0.5
Decommission	1200510	0.2
Decommission	1900010	0.3
Decommission	1900011	0.3
Decommission	1900015	0.2
Decommission	1900018	0.7
Decommission	1900022	0.9
Decommission	1900024	< 0.1
Decommission	1900033	0.4
Decommission	1900037	0.8
Decommission	1900040	0.3
Decommission	1900043	0.5
Decommission	1900048	0.3
Decommission	1900095	0.2
Decommission	1900097	0.5
Decommission	1900108	0.7
Decommission	1914114	0.6
Decommission	1914119	0.2
Decommission	1914200	0.1
Decommission	1914201	0.2
Decommission	1914202	0.1
Decommission	1914204	0.3
Decommission	1914206	0.3
Decommission	1914207	0.2
Decommission	1914208	0.2
Decommission	1914210	0.1
Decommission	1914250	1
Decommission	1914258	0.2
Decommission	1914259	0.2
Decommission	1914260	0.4

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Action	Road #	Approx. Mileage
Decommission	1914263	0.1
Decommission	1920025	0.4
Decommission	1920039	0.1
Decommission	1920052	0.3
Decommission	1920055	0.3
Decommission	1920056	0.4
Decommission	1920060	0.2
Decommission	1920067	0.2
Decommission	1920069	0.3
Decommission	1920445	0.5
Decommission	1921036	0.3
Decommission	1921160	0.2
Decommission	3200018	0.8
Decommission	3200019	0.5
Decommission	3200020	0.2
Decommission	3200021	0.5
Decommission	3200133	0.5
Decommission	3200134	0.2
Decommission	3200145	0.8
Decommission	3200147	0.5
Decommission	3200148	0.3
Decommission	3200150	0.3
Decommission	3200172	0.8
Decommission	3200174	0.2
Decommission	3200175	0.3
Decommission	3200176	0.4
Decommission	3200177	0.4
Decommission	3200179	0.4
Decommission	3215010	1.4
Decommission	3215016	0.4
Decommission	3215024	0.5
Decommission	3215026	0.3
Decommission	3215050	0.5
Decommission	3215063	0.1

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Action	Road #	Approx. Mileage
Decommission	3215072	0.5
Decommission	3215074	0.7
Decommission	3215075	0.5
Decommission	3215347	0.1
Decommission	5000012	0.3
Decommission	5000100	0.3
Decommission	5000107	0.4
Decommission	5000108	0.2
Decommission	5000122	0.7
Decommission	5000124	0.1
Decommission	5000125	0.3
Decommission	5000132	0.9
Decommission	5000140	0.5
Decommission	5000450	0.1
Decommission	5000461	0.6
Decommission	5000462	0.3
Decommission	5000464	0.3
Decommission	5000465	0.5
Decommission	5000486	0.8
Decommission	5000526	0.5
Decommission	5000720	0.1
Decommission	5000901	0.1
Decommission	5000902	0.3
Decommission	5015013	0.2
Decommission	5015017	0.4
Decommission	5015018	0.4
Decommission	5015021	0.4
Decommission	5015035	< 0.1
Decommission	5015100	0.5
Decommission	5015156	0.1
Decommission	5015172	0.6
Decommission	5015301	0.3
Decommission	5030000	1.0
Decommission	5030056	0.2

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Action	Road #	Approx. Mileage
Decommission	5030065	0.4
Decommission	5030140	0.2
Decommission	5030151	0.2
Decommission	5030394	0.1
Decommission	5030398	0.1
Decommission	5080101	1.2
Decommission	5080310	0.5
Decommission	5080316	1
Decommission	5080321	0.7
Decommission	5015005-00.3R	0.1
Total miles		44.5

Table D- 7. Routes proposed for decommissioning that are currently open for public use (road lengths range from <0.1 to 0.4 miles)

Action	Road #	Approx. Mileage
Decommission	1900006	0.1
Decommission	1900009	0.2
Decommission	1900014	< 0.1
Decommission	1900020	0.3
Decommission	1900039	0.3
Decommission	1914205	0.3
Decommission	1914305	0.1
Decommission	3200165	0.1
Decommission	3200167	0.2
Decommission	5000543	0.1
Decommission	5015005	0.3
Decommission	5030153	0.4
Decommission	5030166	0.3
Decommission	5030167	0.3
Decommission	3200145A	0.1
Total miles		3.1