Prince of Wales Landscape Level Analysis Project Draft Record of Decision

Appendix 1

Activity Cards

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Appendix 1

Activity Cards

Introduction

The activity cards for the Prince of Wales (POW) Landscape Level Analysis (LLA) Project describe all activities potentially considered within the project area. Information about each activity includes what it usually accomplishes, how it is typically implemented, what constraints and resource-specific guidelines apply, and when it would be implemented. Resource concerns are often mitigated by design criteria, as well as adherence to 2016 Tongass Land and Resource Management Plan (Forest Plan) direction and best management practices (BMP). All Forest Plan direction and best management practices will be implemented. All other applicable laws and regulations will be followed.

The activity cards are part of the design components for the Selected Alternative. Each card represents an activity that was included in the environmental analysis. These activities may be necessary or desired to manage the project area over the next 15 years based on what is known from existing data or conditions. This broad list of activities includes those that have been suggested in public comments, as well as additional ones necessary to meet Forest Plan objectives or that are otherwise desirable. They are meant to be integrated with one another, to coordinate management opportunities across the landscape.

Road cards are required for construction or reconstruction of NFS roads on the Tongass National Forest and will be developed as site-specific locations are determined. Unit cards would be developed for any timber sales when site-specific locations are determined. The final road and activity cards, in combination with the Record of Decision and Implementation Plan, would be used throughout the implementation process to ensure that all aspects of the project are implemented within the scope of effects analyzed in the POW LLA Project Final Environmental Impact Statement (FEIS) and approved in the Record of Decision for this project. Resource specialists would review and/or survey field locations before any activity would be implemented.

The following text describes the information provided on the activity cards. The resource-specific information below provides definitions, explanations, and specific direction that occur across multiple or possibly all activities. Rather than repeat this information on each individual activity card, the direction is provided here.

Activity Card Sections

Each card has a section with information about the activity, the guidelines that constrain the activity, resource-specific guidelines that would apply, and when the activity would be implemented. These sections contain the following information:

Description: This is the description of what the ground-disturbing activity entails.

Objectives: This identifies the objective(s) that are typically accomplished with the activity.

Related Actions: These are possible interdependent parts of an activity which depend on that activity to occur. Some of these related actions may have their own applicable activity card, as referenced. Other actions do not have their own activity cards and are discussed within the card.

Methods: This is the way the activity is implemented to accomplish objectives.

Equipment Used: Types of machinery, tools, or other equipment that may be used to implement the activity are listed.

General guidelines constraining this activity: This includes Forest Plan direction that limits the activity within the landscape, such as land use designations (LUD), and other regulations that the project may be tiered to.

Resource-specific guidelines: These guidelines are organized by resource and, as listed in the card, pertain to that specific activity. For resource-specific information that pertains to more than one activity, see resource sections (starting with "Silviculture") on the pages below. Best management practices for protecting water quality are cited as applicable. National Core BMPs (USFS 2012) are identified as Activity-Number (*e.g.*, "Veg-3"). Alaska Region BMPs (FSH 2509.22) are identified as BMP-Number (*e.g.*, "BMP 12.6")

When would we implement: The need to implement is expressed in terms of existing conditions versus desired conditions, and what may trigger a need for change. There may not be specific indicators but rather, it is the conditions that would lead to implementation. Furthermore, if conducting the activity is contingent on other factors like funding, that information is noted as well.

Integration Opportunities: This section describes the potential for combining an activity with others. Meaning, if one activity is typically contingent on another occurring, or if another activity occurring provides the most opportune time for the listed one to occur, whether based on costs, environmental effects, or other factors, then those associations are discussed for consideration.

Silviculture

Silvicultural Systems and Project Objectives

Silvicultural systems are used to manage, harvest, and re-establish stands of forest trees for the purpose of meeting identified objectives. No single silvicultural system can be used to achieve all the desired objectives across the landscape. Instead, a variety of treatments applied over a project area results in a mosaic of stands for different uses. Through the harvest of timber or other treatments, such as thinning or pruning, existing stands are altered to meet desired conditions over time.

The Forest Plan Forest-wide Standards and Guidelines (Chapter 4) and Forest Service Manual (FSM) 2400 (Timber Management) provide detailed information about the silvicultural systems used on the Tongass National Forest.

Silvicultural prescriptions will be prepared by a certified Silviculturist according to Forest Service Handbook (FSH) 2409.29d–Silvicultural Examination and Prescription Handbook, to meet the objectives identified in the Forest Plan and by the interdisciplinary planning team according to the Selected Alternative. A site-specific interdisciplinary review will be conducted for each proposed activity where the activity cards indicate a prescription is necessary or a review is required.

Silvicultural Prescriptions

Silvicultural treatments are either commercial or precommercial. Commercial stand treatments are those designed around meeting specific silvicultural objectives where the value of the trees harvested exceeds the cost of removal. Harvest and removal is accomplished by way of a timber sale or stewardship contract. Precommercial treatments occur in stands where the purpose is for stand improvement and not for financial return and the cost of removing harvested trees exceeds the value. Silvicultural treatments in these stands are designed recognizing that the cut material is not usually

removed from the site. Precommercial treatments are typically accomplished by way of stand-alone service contracts or as the service portion of a stewardship contract.

Even-aged Management – Clearcut (Activity Cards 01 and 13)

Even-aged management is most often implemented using the clearcutting regeneration method. This is a commercial treatment designed to primarily produce timber products for sale. It is the most economical and feasible method to harvest timber in the project area.

Culmination of Mean Annual Increment (CMAI)

The age in the growth cycle of a stand at which the mean annual increment for height, diameter, basal area, or volume is at a maximum is defined as CMAI. It varies based on stand productivity and past management of the stand, and is the legal requirement under the National Forest Management Act (NFMA) for determining the youngest age a stand may be considered for even-aged harvest. This translates to a range of rotation ages from about 100 to 110 years old for most stands considered for treatment using even-aged management in the POW LLA Project area. Old-growth stands in nearly all instances have already exceeded CMAI.

For young-growth stands, Forest Plan Standard S-YG-01 (Forest Plan, p. 5-3) allows for harvesting young-growth stands prior to CMAI under the authority granted by Public Law (P.L.) 113–291, Sec. 3002, subsection (e)(4)(A) with the following limitations under subsection (e)(4)(B).

(e)(4)(B) LIMITATION.—Any sale of trees pursuant to the authority granted under subparagraph (e)(4)(A) shall not:

(i) exceed 15,000 acres during the 10-year period beginning on the date of enactment of this Act, with an annual maximum of 3,000 acres sold;

(ii) exceed a total of 50,000 acres, with an annual maximum of 5,000 acres sold after the first 10-year period;

(iii) be advertised if the indicated rate is deficit (defined as the value of the timber is not sufficient to cover all logging and stumpage costs and provide a normal profit and risk allowance under the appraisal process of the Forest Service) when appraised using a residual value appraisal; or

(iv) apply to land withdrawn under subsection (c)(2).

Areas where Trees are Retained for Other Resource Needs

These areas would generally be external to final cutting unit boundaries or along stream buffers that protrude into the cutting unit. These retention areas typically do not meet distribution requirements for uneven- or two-aged management.

Reasonable Assurance of Windfirmness (RAW) Buffers

Reasonable assurance of windfirmness buffers would be applied to unit edges and stream and karst buffers that have high exposure to southeast storm winds and are determined to be at risk from wind damage.

Legacy Standard and Guideline for Old Growth Stands

Value comparison units (VCUs) where 33 percent or more of the productive old growth (POG) has been harvested are subject to the Legacy Standard and Guideline (Forest Plan page 4-86). In legacy VCUs, old growth harvest units that are larger than 20 acres are required to leave 30 percent of the

original unit opening size in legacy forest structure. Structure left inside of the unit boundary for other resource concerns, excluding TTRA buffers, can be counted towards the 30 percent retention requirement. Legacy placement would occur during implementation to meet multiple objectives.

Justification for Clearcutting

Clearcutting must be determined to be the optimum treatment to meet project objectives and per Forest Plan requirements, page 4-68.

Size of Even-aged Openings

Regulations in the National Forest Management Act (NFMA) require that even-aged openings in the western hemlock–Sitka spruce forest type of Southeast Alaska should not exceed 100 acres unless exempted under specific conditions, defined on page 4-69 of the Forest Plan. Even-aged harvest areas proposed in this project would generally be prescribed to be 100 acres or less.

Two-aged Management (Activity Card 02)

This is a commercial treatment designed to produce timber products for sale in a way that mitigates the effects of the harvest on the landscape. Two-aged management would be implemented using the patch clearcut regeneration method.

Two-aged management results in stands with two distinct cohorts separated in age by more than 20 percent of the stand rotation age. This stand structure results naturally from stands completely regenerated after two distinct disturbance events. Two-aged harvest requires at least 15 percent of the original standing green tree basal area to remain after harvest. These trees can be grouped for operational and environmental concerns or be evenly distributed across the stand. If trees are grouped, the groups must be distributed somewhat evenly across the stand.

The objective of this prescription is to maintain or create two-aged stand structure for other resources while maintaining as much of the operational and economic feasibility of even-aged management as possible. The retention level prescribed is often area based, and harvest openings would be located to balance other resource needs while creating an economical sale opportunity. Openings must also be planned so that opportunities for the next harvest entry are not forfeited and are large enough to promote natural regeneration of all species. Planting to enhance the occurrence of some species may be prescribed for certain stands.

When harvesting young-growth stands prior to reaching CMAI, Forest Plan Standard S-YG-01 (Forest Plan, p. 5-3) applies to two-aged management since this regeneration method is a form of even-aged management (FSM 2470, p. 19).

Uneven-aged Management – Single-Tree Selection (Activity Cards 03 and 14)

Uneven-aged management is a commercial treatment designed to create (young growth) or maintain (old growth) multi-aged or multi-layered stand structure. Most young-growth stands in the project area are currently even-aged resulting from previous clearcut harvest. Applying uneven-aged management to these stands is intended to create multi-aged stand structure. Old-growth stands tend to already exhibit uneven-aged structure to varying degrees.

The objective of uneven-aged management is to maintain or create structural and understory vegetation diversity while retaining timber for viable and sustainable future entries. In young-growth

stands, this prescription generally creates multiple age classes, and trees will be removed across all age groups either individually or in small groups or strips up to 2 acres in size.

There is no final rotation age as in even-aged or two-aged systems, but instead regular, periodic entries are designed to maintain three or more distinct age classes in a reasonably well dispersed manner across the stand. The next harvest entry under uneven-aged management would likely be in 50 to 100 years.

Consideration of CMAI prior to harvest does not apply to stands that will be managed as uneven-aged.

The first harvest entry must be designed so that future entries are not physically or economically isolated and so that tree regeneration is not excessively damaged. Harvest openings must also be of sufficient size to allow regeneration of all species. This system requires more frequent entries than even-aged or two-aged management.

Old growth: Healthy, young trees in the intermediate crown class would be a priority for retention to promote economic future entries. Older trees with lower timber but high wildlife value would also be a priority for retention. The canopy gaps and disturbance created by harvest would promote new tree regeneration to facilitate future harvest entries as well as promote the growth of understory plants important for wildlife. A retention level of 75 percent would be used in units identified as having particular windthrow, visual, or wildlife concerns. A retention level of 50 percent or more would be used in units with wildlife or visual concerns, but not requiring the higher level of retention. Future entries would continue the process of developing additional age classes. The next entry would likely occur in 50 years for units with 75 percent retention, and 100 years for units with 50 percent retention. This would allow the intermediate age class to develop into mature trees and provide for another economical harvest. The silvicultural prescription would maximize the flexibility of helicopter yarding to allow for the removal of a higher percentage of more economically valuable trees, while retaining a higher percentage of trees that have more value for wildlife, or smaller diameter trees that would be more economically valuable in the future.

Young growth: In young growth, trees selected for harvest would generally be in groups up to 2 acres in size. The first harvest entry would typically remove no more than 33 percent of the stand area in these groups. Subsequent harvest entries would be conducted similarly, over time developing three or more distinct age classes. The timing of harvest entries would be contingent on the land management objectives for the stand.

Windthrow risk to the residual stand would be assessed and used to determine the amount of basal area retained or removed.

Stand Establishment

Cone Collection (Activity Card 12)

When possible seed cone collections are normally performed in association with timber sales as part of a Sale Area Improvement (SAI) Plan to support reforestation efforts on harvest areas within the timber sale. Collecting seed cones from trees felled during timber sale operations is not always possible. Timing of falling operations on a timber sale may not coincide with cone crop maturity and availability. At times a need to collect additional seed cones from areas outside of active timber sales may be identified. Ongoing planting efforts, recent poor germination testing on existing seed caches, and intermittent cone crops for some tree species have resulted in a need for additional collections. A

series of poor cone crops for Alaska yellow-cedar (yellow-cedar) and germination test failures of existing western redcedar seed caches has made these two species a primary target for additional seed cone collections. Seed caches of other tree species are aging and may also need to be replaced.

Seed cone collections would be implemented at such places and times where a good cone crop occurs and is accessible to hand crews. Collections normally occur in late August or September when cones have ripened. Sites would be accessed from existing roads and are generally in or within a few hundred feet of the road. Trees cut for cone collections are generally small, scattered and few. Material is normally left on site and may be made available to the public as firewood. It is possible that cone collection activities may result in commercial size material as a by-product. In such an occurrence, small salvage sales may be considered but the likelihood of sufficient quality, quantity, and concentration of salvage material being made available to support a commercial salvage sale is low.

Planting and Interplanting (Activity Card 11)

The need for planting is evaluated after every harvest. Site conditions are usually determined to be favorable with sufficient seed source present for natural regeneration. Therefore, artificial reforestation is generally not considered necessary at this time nor treated as an essential activity. Seedlings may be planted to improve survival success in stands where deer browse may be an issue. Non-lethal deterrents to discourage deer browse may also be utilized. Planting or interplanting may occur if a need is identified to restore or enhance vegetation as well as improve wildlife or riparian habitat. These activities could occur on or adjacent to recreation sites, old roads or trails as well as within forested stands.

Due to concern over regeneration and maintenance of yellow-cedar, non-essential planting for species diversity may be conducted on selected sites to enhance species composition. Inter-planting of yellow-cedar will be considered when establishing even-aged and two-aged stands. Yellow-cedar may be planted in harvested stands if inter-planting would help maintain or increase the Alaska yellow-cedar component in an area. Potential planting sites will be evaluated to avoid maladapted sites (low elevation, low productivity, south facing) and favor sites where, although there may be no yellow-cedar currently present, it is expected to do well (higher elevations, north slopes, and well drained sites).

Stand Improvement

Intermediate Treatments

Intermediate treatments are stand improvement activities intended to enhance growth, quality, vigor or composition of a stand between the time the stand has fully regenerated and prior to final harvest. Intermediate treatments include precommercial thinning and commercial thinning, and can be implemented to meet an assortment of objectives.

Precommercial Thinning – (Activity Card 05)

Precommercial thinning is the selective cutting of young-growth trees in regenerated stands prior to trees reaching merchantable size to meet a variety of management objectives by reducing tree densities in overstocked stands to increase the growth of the remaining trees. Precommercial thinning activities ideally occur before the stand reaches the stem exclusion stage, approximately 15 to 25 years after stand initiation, depending on site productivity.

Following timber harvest, natural regeneration often results in more trees per acre than there is available growing space. As competition increases, this leads to lower diameter growth and loss of disease resistance. The increased density of trees also leads to the shading out of understory vegetation that is valuable to some wildlife species. Thinning improves future tree diameter growth and allows more sunlight into the stand, increasing understory shrub and forb growth.

By thinning young-growth stands before the stem exclusion stage begins, understory vegetation persists and the trees respond quickly. Precommercial thinning prescriptions would be developed on a site-specific basis utilizing variable spacing techniques, desirable tree characteristics, and species preferences. A combination of treatments would be used to achieve site-specific objectives. These may include, but are not limited to: slash treatments, wildlife travel corridors, wildlife gaps, pruning, and girdling. Individual stand objectives may include timber, riparian, and/or wildlife emphases.

Riparian Young Growth Thinning (Activity Card 06)

Riparian areas are important because they contribute large woody debris to channels, shade stream banks for temperature control, regulate nutrient exchange, influence surface and groundwater hydrology, and maintain aquatic biodiversity. Riparian thinning treatments will accelerate growth and development of young-growth riparian areas toward a more mature forest structure mirroring the conditions of undisturbed riparian stands, following guidance from Exhibit 2 of the Tongass Young Growth Management Strategy (2014). In general, the pre-harvest condition of many riparian stands were fewer, larger, more widely spaced trees with a more diverse understory. Treatments that would increase growth and stand diversity could also open up the canopy to allow for understory redevelopment, which could benefit wildlife as well as improve nutrient cycling along stream corridors. Thinning activities could occur in stands that are approximately 15 to 50 years old depending on stand location, site productivity, need for restoration, and management objectives. Most riparian prescriptions would include wider spacing of leave trees. In addition, the leave tree species of choice will be Sitka spruce, followed by western hemlock. Red alder and both cedars are usually ignored for spacing and left as a component of the stand.

Wildlife Thinning and Gaps (Activity Card 07)

Young-growth stands can be dense with 3,000 or more trees per acre; whereas old-growth stands average around 200 trees per acre. Many young-growth stands have reached the stem exclusion stage. Wildlife habitat enhancement treatments move these existing young-growth stands towards mature forest conditions more quickly than if no treatments are done. Activities include treatments that increase structural diversity and understory forage. Treatment methods will be site-specific to achieve these objectives. These may include fixed or variable space thinning, pruning, slash treatments, and gaps designed to improve deer winter range, develop and enhance understory and shrub plant communities, and maintain travel corridors.

Gaps may be created in stands that have reached the stem exclusion stage to increase the abundance of understory forage for wildlife. The size and number of gaps would be determined from site condition and stand characteristics.

Strips of untreated young growth (minimum of 100 feet wide) may be left to allow wildlife to move more easily through the treated stand. Strips should avoid areas where they would cross cliffs, log landings, rock pits, or lakes. Strips crossing roads or streams should be continuous. Trees required to be felled adjacent to these corridors should be felled away from and not into the corridor.

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Commercial Thinning – (Activity Card 04)

Commercial thinning is a general term used to describe any intermittent stand treatment under which the commercial products removed cover some portion of the costs of the treatment. Integrated resource or stewardship projects provide opportunities for achieving multiple resource objectives, including the provision of merchantable timber. Thinning methods will vary, sometimes within a single stand, depending upon the dominant objective of the treatment.

Mechanical thinning is the removal of trees in rows, strips, or by an established spacing interval, regardless of crown position (where the tree is growing relative to the crowns of other trees; dominant, codominant, intermediate, or suppressed). Crown thinning removes some dominant and codominant trees in order to favor the best trees of those same crown positions that are retained. Free thinning uses a combination of criteria to favor crop trees and control stand density, regardless of crown position. Variable retention thinning is similar to free thinning in that it uses a combination of criteria to select cut trees, however it is usually used to achieve a desired structural condition within the stand rather than reallocating growing space to crop trees. Under variable retention thinning, openings, usually less than ½ acre, may be created and trees of high defect may be retained to achieve desired conditions. Thinning from below, which removes lower crown classes to favor dominant and the best codominant crop trees, may also be considered a commercial activity if a market exists for products other than saw logs.

Supplemental Treatments

During the implementation of precommercial, riparian, or wildlife thinning, a combination of these methods may be prescribed to meet specific management objectives.

Girdling (Activity Card 08)

Girdling may be utilized when treating stands with larger diameter trees to meet resource objectives. Girdling can be used to address the impacts of thinning slash to wildlife by staggering the time frame in which trees selected for removal contribute to the amount of existing slash. In general, trees between 7 inches and 14 inches in diameter at breast height (4.5 feet above the ground; dbh) would be girdled to achieve the desired spacing and reduce the amount of slash left on the ground. This technique may also be used to recruit future snags in stands that have little to no remnant snags.

Pruning (Activity Card 09)

Pruning may be used after precommercial thinning to improve the abundance of understory vegetation favored by deer and other wildlife by allowing more sunlight to reach the forest floor than would be achieved by thinning alone. Pruning can also improve wood quality and increase wood growth. Trees to be pruned should be the tallest with the largest crowns, and straightest stems that are free of physical or mechanical damage or damage from insects or disease.

Slash Treatment (Activity Card 10)

Slash treatments may be used in stands where thinning treatments would create excessive slash, where a large amount of existing slash present or in areas where slash treatments would benefit wildlife. A variety of treatment methods (bucking to various lengths, delimbing, lop and scatter, piling, etc.) may be used to remove or redistribute slash to facilitate wildlife movement or to meet other objectives. Slash is not commonly treated in timber emphasis areas except where needed to address wildlife habitat concerns. Slash treatment specifications would be written into the stand prescription when required to meet stand objectives. Streams and karst features located within units would be buffered and any slash removed.

Prescription Components Common to All Precommercial Thinning

Maintenance of Yellow-Cedar

The maintenance of yellow-cedar in young growth is important due to its decline across Southeast Alaska. Naturally regenerated yellow-cedar has difficulty competing against faster growing species like Sitka spruce and western hemlock. Yellow-cedar seedling survival can be negatively impacted by deer browsing. In stands were seedling mortality may be high due to excessive deer browsing, non-lethal deterrents may be needed to enhance survival. To promote stand variability and structural diversity, precommercial thinning prescriptions may favor yellow-cedar trees over other species. The objective is to create 'clumps' of yellow-cedar to better approximate old-growth structure characteristics.

Streams and Riparian Areas

See Activity Cards for precommercial thinning guidelines common to streams and riparian areas.

Commercial Timber

Areas where timber is suitable for commercial harvest are defined in the Forest Plan, Appendix A and other Forest Plan direction. Log yarding practices would adhere to National and Regional best management practices (BMP) and Forest Plan direction for slope stability, soil disturbance, channel type, and stream class (Veg-4, Veg-5, BMP 13.9). Additional measures are taken to protect riparian management areas (RMA) from possible disturbance associated with tree felling and yarding. Harvest activities near Class III streams require that trees be felled away from the stream buffer and that trees yarded across Class III stream courses, where applicable, be fully suspended to minimize the exposure of mineral soil (Veg-3, BMP 12.6, 13.16). Trees near Class IV streams are felled away from the stream whenever feasible, and logging debris introduced into Class IV streams is removed. Class IV streams are treated as part of the hillside, under slope stability in the Forest Plan Forest-wide Standards and Guidelines (Chapter 4) and BMP 13.5. Suspension requirements are used to minimize soil erosion, mass movement, and formation of new channels (BMP 13.9).

Some young-growth units may have a portion of the harvest area isolated from the existing road by a RMA, which will be field verified for logging feasibility at the time of implementation (BMP 12.6).

Transportation

The need for roads on Prince of Wales Island has primarily been for access to timber resources. The maintenance and reconstruction requirements of the existing system depend mainly on the volume of timber hauled and on recreational use and other public uses. With the exception of a few administrative sites and campgrounds, most National Forest System (NFS) roads are single lane, constructed with blasted quarry rock, and designed for off-highway loads. Typical roads are 14 feet wide with a rough gravel surface. Mainline roads are normally 16 feet wide and may have a smooth gravel surface.

NFS roads are constructed to provide access to NFS lands and are included in the Forest Development Transportation Plan (see Transportation Standards and Guidelines in Chapter 4 of the Forest Plan). Temporary roads are authorized by contract, permit, lease, or emergency operation, are not intended to be part of the Forest transportation system, and are not necessary for long-term resource management.

The objectives of managing the Forest transportation system and motor vehicle use on NFS roads, on NFS trails, and in areas on NFS lands are:

1. To provide access in a fiscally responsible manner to NFS lands for administration, protection, use, and enjoyment of NFS lands and resources consistent with the Forest Plan.

2. To manage the Forest transportation system, including motor vehicle use and Over Snow Vehicles (OSV) use on NFS roads and NFS trails and in areas on NFS lands, within the environmental capabilities of the land.

3. To provide a range of recreation opportunities on NFS lands and to minimize conflicts among uses of NFS lands.

4. To manage the Forest transportation system to address user safety and convenience and efficiency of operations in an environmentally responsible manner and, where needed, to restore ecosystems along NFS roads and NFS trails designated for motor vehicle use or OSV use under 36 CFR Part 212, Subpart B or C, within the limits of current and anticipated funding levels.

5. To coordinate travel planning and analysis on NFS lands with Federal, State, county, and other local governmental entities and tribal governments and to allow the public to participate in the designation of NFS roads, NFS trails, and areas on NFS lands for motor vehicle use or OSV use.

6. To designate those NFS roads, NFS trails, and areas on NFS lands that are open to motor vehicle use or OSV use.

7. To make appropriate use of transit and intermodal transportation systems when they best meet the need for transportation to NFS destinations in a sustainable and environmentally acceptable manner.

Road construction, reconstruction, and reconditioning are administered through construction drawings and specifications. Applicable BMPs are used during layout and construction work.

Wildlife

Below is a summary of Forest Plan direction and components for wildlife that apply to POW LLA Project activity cards.

Goshawks

The Forest Plan requires a 100-acre buffer on all known or discovered active goshawk nests. Surveys for goshawk nests would be conducted according to Tongass National Forest protocol.

Sitka Black-tailed Deer

Consider Sitka black-tailed deer habitat needs and ensure wildlife biologist involvement during project implementation.

Bald Eagles

The Bald Eagle Protection Act provides for special management for bald eagles. National Bald Eagle Management Guidelines (USFWS 2007) will be used for all activities. The following is direction taken directly from the National Bald Eagle Guidelines.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area. This recommendation applies to the use of fireworks classified by the Federal Department of Transportation as Class B explosives, which includes the larger fireworks that are intended for licensed public display.

Except for biologists trained in survey techniques, avoid operating aircraft within 1,000 feet of the nest during the breeding season, except where eagles have demonstrated tolerance for such activity.

First, determine which category your activity falls into (between categories A – H). If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity represented. If your activity is under A or B, USFWS recommendations for buffers are in the table below.

Category A:

- Building construction, 1 or 2 story, with project footprint of ½ acre or less.
- Construction of roads, trails, canals, power lines, and other linear utilities.
- Agriculture and aquaculture – new or expanded operations.
- Alteration of shorelines or wetlands.
- Installation of docks or moorings.
- Water impoundment.

Category B:

- Building construction, 3 or more stories.
- Building construction, 1 or 2 story, with project footprint of more than ½ acre.
- Installation or expansion of marinas with a capacity of 6 or more boats.
- Mining and associated activities.
- Oil and natural gas drilling and refining and associated activities.

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	If there is no similar activity within 1 mile of the nest	If there is similar activity closer than 1 mile from the nest
If the activity will be visible from the nest	660 feet. Landscape buffers are recommended.	660 feet, or as close as existing tolerated activity of similar scope. Landscape buffers are recommended.
If the activity will not be visible from the nest	Category A: 330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season. Category B: 660 feet.	330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction and landscaping within 660 feet should be done outside breeding season.

Category C. Timber Operations and Forestry Practices

Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time.

Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.

Selective thinning and other silviculture management practices designed to conserve or enhance habitat, should be undertaken outside the breeding season.

Avoid construction of log transfer facilities and in-water log storage areas within 330 feet of the nest.

Category D. Off-road vehicle use (including snowmobiles).

No buffer is necessary around nest sites outside the breeding season. During the breeding season, do not operate off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, this distance will be extended to 660 feet.

Category E. Motorized Watercraft use (including jet skis/personal watercraft).

No buffer is necessary around nest sites outside the breeding season. During the breeding season, within 330 feet of the nest, (1) do not operate jet skis (personal watercraft), and (2) avoid concentrations of noisy vessels (*e.g.*, commercial fishing boats and tour boats), except where eagles have demonstrated tolerance for such activity. Other motorized boat traffic passing within 330 feet of the nest should attempt to minimize trips and avoid stopping in the area where feasible, particularly where eagles are unaccustomed to boat traffic. Buffers for airboats will be larger than 330 feet due to the increased noise they generate, combined with their speed, maneuverability, and visibility.

Category F. Non-motorized recreation and human entry (*e.g.*, hiking, camping, fishing, hunting, birdwatching, kayaking, canoeing).

No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity.

Marine Mammals

Provide for the protection and maintenance of marine mammals and critical sea lion habitat. Ensure that Forest Service authorized or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), and National Marine Fisheries Service (NMFS) guidelines for approaching seals and sea lions. Consult with the appropriate agency for identification of critical timing events and recommended distances to avoid disturbances.

Wolves

Provide, where possible, sufficient deer habitat capability, first to maintain sustainable wolf populations and then to consider meeting estimated human deer harvest demands.

Where road access and associated human-caused mortality has been determined to contribute to wolf mortality in GMU 2, a total road density of 0.7 to 1.0 mile per square mile or less may be necessary.

No road construction within 600 feet of a den.

Seabird Colonies

Provide for the protection and maintenance of seabird colonies. Locate facilities and concentrated human activities requiring Forest Service approval as far from known seabird colonies as feasible consistent with the Migratory Bird Treaty Act. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance: a) For aircraft flights on Forest Service authorized or approved activities, when weather ceilings permit avoid flying over seabird colonies, maintain a constant flight direction and airspeed and a minimum flight elevation of 1,500 feet (458 meters) for helicopters and fixed-winged aircraft; and b) Regulate human use to maintain a 250-meter (820 feet) no-disturbance distance from seabird colonies on upland habitats.

Waterfowl and Shorebird Habitats

Maintain or enhance wetland habitats that receive significant use by waterfowl and shorebirds. “Significant” is relative, but generally relates to use of a specific area by tens or hundreds of individuals of one or more species. Locate facilities and concentrated human activities requiring Forest Service approval as far from known waterfowl or shorebird concentration and nesting areas as feasible. Minimize disturbance of waterfowl by restricting, when feasible, development activities to periods when waterfowl are absent from the area. Minimize human disturbance of habitats during important periods of the year (nesting and brood-rearing, molting, and winter) by managing human use (such as trails and off-highway vehicle use) in significant wetland areas. To reduce human disturbance, provide a minimum distance of 330 feet (100 meters) between human activities on the ground and significant areas being used by other waterfowl.

Heron and Raptor Nest Protection

Provide for the protection of raptor (hawks and owls) nesting habitat and great blue heron rookeries.

Conduct project-level inventories to identify heron rookeries and raptor nesting habitat using the most recent inventory protocols. Protect active rookeries and raptor nests. Active nests will be protected with a forested 600-foot windfirm buffer, where available. Road construction through the buffer is discouraged. Prevent disturbance during the active nesting season (generally March 1 to July 31). Protection measures for the site may be removed if the nest is inactive after 2 consecutive years of monitoring. The Queen Charlotte goshawk is covered under a separate section.

Marbled Murrelet

If nests are found during project implementation, maintain a 600-foot, generally circular, radius of undisturbed forest habitat surrounding identified murrelet nests, where available. Minimize disturbance activities within this buffer during the nesting season (May 1 to August 15). Maintain the buffer zone and monitor the site for nesting activity for not less than two nesting seasons after nest discovery. Maintain the buffer if the nest site is active during the monitoring period. Buffer protection may be removed if the site remains inactive for two consecutive nesting seasons.

Endemic Terrestrial Mammals

The objective is to maintain habitat to support viable populations and improve knowledge of habitat relationships of rare or endemic terrestrial mammals that may represent unique populations with restricted ranges. Where distinct taxa are located, design projects to provide for their long-term persistence on the island. Consider habitat needs of endemic mammals in design of thinning treatments.

Reserve Tree and Cavity-Nesting Habitat

Provide habitat for cavity-nesting wildlife species. The legacy forest structure standard and guideline considers snags and replacement snag needs for those VCUs at risk for not providing sufficient snags within the watershed. Other VCUs will have snags retained within the development LUDs because habitat will be maintained in riparian buffers, the beach fringe, old-growth habitat reserves, and other Non-development LUDs within the VCU.

Landscape Connectivity

The Forest Plan says to design projects to maintain landscape connectivity. The objective is to maintain corridors of old-growth forest between large and medium old growth reserves (Forest Plan Appendix K) and other forested Non-development LUDs at the landscape scale. Designed corridors should be of sufficient width to minimize edge effect and provide interior forest conditions (generally 660 feet). Consider elevation, natural movement corridors, length of corridor, tree heights, adjacent landscapes, and windthrow susceptibility in corridor design. Between large and medium OGRs, only one connection is needed, the beach fringe counts as a connector, and the connection does not have to be the shortest distance between reserves. Where these features do not provide sufficient productive old-growth forest connectivity, provide stands, where they exist, of productive old-growth forest or other forest that provides adequate wildlife habitat values (*i.e.*, older young growth that provides adequate snow intercept for deer).

Wildlife travel corridors, or travelways, should be designated and designed as needed on a stand-by-stand basis by an interdisciplinary team. Wildlife travel corridors are areas that could be left untreated. Within non-development LUDs, such as OGRs, or in areas functioning as wildlife travelways, the wildlife biologist may recommend or require that untreated areas be up to 660 feet wide. Within development LUDs the travelways should be at least 100 feet wide. The wildlife biologist may require slash treatments and/or trees felled away from and not into the corridor.

Forest-wide, within the beach fringe, riparian buffers, and other lands not suitable for timber production, consider designing young-growth treatments to accelerate old-growth characteristics in order to increase connectivity for wildlife.

Legacy Standard: The legacy standard and guideline will be implemented for even-aged old-growth harvest in units over 20 acres in size within Value Comparison Units (VCU) that have over 33 percent past harvest or those expected to exceed the 33 percent with implementation of planned activities. In

legacy VCUs, 30 percent of the acreage from the original project level Logging Systems and Transportation Analysis (LSTA) stand that meets the Legacy characteristics and structure must remain indefinitely after harvest if the harvest unit prescription is even-aged management and is over 20 acres (Forest Plan p. 4-86 and 87).

Wildlife Trees

Selective harvest prescriptions of old-growth forests can target defective trees with existing stem decay for retention to serve as wildlife habitat in managed forests.

Wildlife trees may be created using methods such as blasting, girdling, and fungal inoculation in young-growth stands. Strategies to speed the reintroduction of stem decays in young-growth trees in non-development LUDs include unintentional and intentional tree injuries (lower and upper bole wounds, and top breakage). Targeted artificial inoculation of trees with decay fungi could be used as well.

Aquatics (Fisheries and Hydrology)

Fisheries and Hydrology resources are discussed separately in the Activity Cards, but are grouped as Aquatics in this Introduction because both resources reference common water quality concerns, Forest Plan Forest-wide Standards and Guidelines (Chapter 4), regulations, and Best Management Practices (BMP). The combination of several activities within a watershed can result in adverse cumulative watershed effects, leading to adverse changes to peak flow rate, water yield, or sediment delivery to streams. These water quality concerns are minimized through the protection and improvement of Riparian Management Areas (RMA), through the implementation of stream category protections and mitigations, through the use of BMPs, and by following all applicable regulations and Forest Plan direction. Additional guidance related to road presence, past timber harvest and precipitation zones (based on scientific literature) will be provided by the hydrologist to further minimize cumulative watershed effects.

Riparian Management Areas

Riparian Management Areas encompass the zone of interaction between aquatic and terrestrial environments associated with streamsides, lakeshores, and floodplains. RMAs are often used to define the no-harvest stream buffer boundaries (see Forest Plan Appendix D, and Stream Category Protections and Mitigations below), and are areas of special concern to fish, other aquatic resources, and wildlife. RMAs are identified and delineated for project areas where resources are to be extracted or ground disturbing activities will occur.

RMAs vary in width according to process group; stream value class; the extent of the flood plain, riparian vegetation or soils, and riparian associated wetland fens; and the location of side-slope breaks. RMAs are depicted by a forest-wide GIS model that factors in these criteria from stream, lake, and soils data, which get refined from field verification.

Additionally the Tongass Timber Reform Act (TTRA) requires, as a minimum, that no commercial timber harvest be allowed within 100 feet horizontal distance on either side of Class I streams and Class II streams that flow directly into Class I streams. TTRA buffers are incorporated in RMAs.

Chapter 5 of the Forest Plan allows single entry young-growth timber harvest within RMAs within the first 15 years of Forest Plan approval (excluding TTRA 100ft no-harvest buffers). The intent is that harvest treatment prescriptions facilitate a more rapid recovery of the late successional forest characteristics while also producing a commercial timber byproduct. Exhibit 2 of the Tongass Young

Growth Management Strategy (2014) provides guidance on field verification of RMA. Modifications to no-harvest buffers, such as young-growth harvest, need to follow Forest Plan Appendix D (Riparian Management Area Standards and Guidelines) and Appendix C (Watershed Analysis).

Process Groups and Channel Types

There are nine basic fluvial process groups on the Tongass National Forest, as well as one additional group for lakes and ponds. Each process group includes a number of channel types that more precisely characterize a channel and help predict the probable responses to natural and human influences. The desired conditions, objectives, and management direction for each process group and channel type are described in Appendix D of the Forest Plan.

Stream Value Classes

The stream value class designations for Tongass National Forest are based primarily on presence or absence of anadromous and resident fish, and secondarily on stream morphology. The Forest Plan recognizes four stream classes based on the following criteria:

- Class I: Streams and lakes with anadromous (migrating from the ocean) or adfluvial (migrating from lakes) fish or fish habitat, or high quality resident fish waters, or habitat above fish migration barriers known to provide reasonable enhancement opportunities for anadromous fish.
- Class II: Streams and lakes with resident fish or fish habitat – generally steep channels 6 to 25 percent or higher gradient – where no anadromous fish occur, and otherwise not meeting Class I criteria.
- Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow, or transport sufficient sediment and debris, to have an immediate influence on downstream water quality or fish habitat capability. For streams less than 30 percent gradient, special care is needed to determine if resident fish are present.
- Class IV: Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capacity to directly influence downstream water quality or fish habitat capability. Class IV streams do not meet the criteria used to define Class I, II, or III streams. Class IV streams must have bankfull width of at least 0.3 meter (1 foot) over the majority of the stream segment. For perennial streams, with average channel gradients less than 30 percent, special care is needed to determine if resident fish are present (resident fish presence dictates a Class II designation).

Stream Category Protections and Mitigations

Prior to timber harvest, one of three protection categories is assigned to any stream that could be affected by harvest activities. The protection category assignment is usually aligned with the RMA delineation (which considers stream value class, process group, and channel type; see RMA section above) but site-specific concerns could push a stream into a more protective category. Streams are flagged on the ground according to their protection category, and timber sale contracts will specify the protection categories for each stream in a sale area. Specific protections and mitigations for each category are listed below and can be found in R10-C(T)6.51 (6/13). Stream buffers are implemented by designation of harvest unit boundaries or leave tree marking associated with Category A and B streams as required in the Forest Plan.

Category A

Category A requires at least a 100-foot no-harvest stream buffer and approval of a Stream Course Protection Plan prior to any operations within the buffer (BMP 12.6, 13.16 and National Core BMPs AqEco-2, Road-5, and Veg-3). Class I and Class II streams are typically assigned Category A protection.

Category B

Category B protections are typically assigned to Class III streams, although some Class IV streams can receive this protection category if site-specific water quality concerns warrant the additional protection. These stream reaches are flagged with orange and white (O/W) candy striped flagging and shall be protected in the following manner:

- Trees shall be felled so that the direction of fall is away from the streamcourse
- Felled trees that inadvertently enter or cross stream courses shall not be bucked or limbed until clear of stream courses, unless limbing or bucking would reduce damage to the riparian vegetation or stream banks
- Trees or products shall not be hauled or yarded across the stream course unless fully suspended
- Debris in stream courses resulting from falling or yarding shall be removed immediately to a stable location above high water mark
- Existing natural stable debris shall be left undisturbed

Category C

Category C protection is typically assigned to Class IV streams. These stream reaches are flagged with green and white (G/W) candy striped flagging and shall be protected in the following manner:

- Where practicable, trees will be felled and yarded away from the streamcourse
- The trees that cannot be felled away from stream courses shall be felled to bridge the stream providing these trees will be yarded during the same operating season
- Trees felled to bridge stream courses shall be bucked, limbed, and topped clear of the streamcourse and its banks

Debris which restrict natural water flow, adversely affect water quality, or have potential for debris flow shall be removed to a stable location above high water mark before the yarder leaves the unit or upon completion of seasonal logging activities in the unit, whichever comes first.

Best Management Practices

National Core and R10 BMPs are applied to address nonpoint sources of pollution, such as sediment movement generated by resource extraction or construction activities. Although specific BMPs are called for in the resource specific guidelines section of the Activity Cards, all relevant BMPs apply.

Soils/Wetlands

Applicable federal, state and municipal laws, regulations, policies which govern the management of soils include: The National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), the USDA Nonpoint Source Water Quality Policy (December 5, 1986), the National Forest Management Act, the Multiple Use Sustained Yield Act of 1976, the

Forest Service Manual 2554, Forest Service Soil and Water Conservation Handbook, and the Forest Plan.

POW LLA Project designs are heavily influenced by the island's soil resources. For instance, efforts to avoid slopes greater than 72 percent (as outlined in the Forest Plan) often determine the location of unit boundaries, temporary roads, and landings. All activities (trails, timber harvest, roads, etc.) planned for this project would be located and designed to meet 33 CFR 323 guidelines and State-approved BMPs, National Core BMPs, and Region 10 BMPs. Applicable soils direction is included in the Forest Plan.

Applicable federal, state, and municipal laws, regulations, and policies which govern the management of wetlands include: The Forest Plan; Executive Order 11990: Protection of Wetlands; 40 CFR 230 Section 404; 33 CFR 323.3b; the Clean Water Act Section 404b; and US Corps of Engineers Wetlands Delineation Manual (1987).

The Forest Service is required by Executive Order 11990 and Section 404 of the Clean Water Act to preserve and enhance the natural and beneficial values of wetlands wherever practicable when carrying out its land management responsibilities. Executive Order 11990 and subsequent regulations also require federal agencies to avoid new road construction on wetlands whenever there is a practicable alternative.

Due to the extensive nature of wetlands in the POW LLA Project area, it would be impossible to avoid all wetlands during road planning and construction. Where a wetland cannot be avoided, the impacts would be minimized. R10 Best Management Practices (BMP) 12.5 provides guidance for wetland identification, evaluation and protection. If an activity proposed is not included in the 404 Silvicultural Exemption and fill is planned in wetlands, a wetland delineation would be conducted and a 404 permit would be obtained from the U.S. Army Corps of Engineers prior to implementation.

Botany

Unless otherwise noted, ground-disturbing activities require a site-specific review by a botanist/ecologist. The activities and their proposed locations will be evaluated to determine if field surveys are necessary. Based on the review, a botanical survey may be required during the growing season to identify individuals or supporting habitat. Design features and mitigation measures will be recommended by the botanist/ecologist to avoid impacting any rare and sensitive plants found within the activity area. When sensitive plant populations are found, protection measures may include, but are not limited to: avoidance, directional falling and yarding of trees away from sensitive plants, and partial retention of forest structure.

If the Regional Sensitive Species list is updated or transitioned to the Species of Conservation Concern list, then botany surveys and protection considerations will focus on the species identified in the most current list.

The list of rare plants is dynamic; plants may be dropped when they are found to be more abundant than previously thought, or plants may be added if they are newly discovered in the state or Forest. Plants may also be added or dropped as their taxonomic status changes. Generally, the Regional rare plant list is based on the ANHP rare plant tracking list. The most recent list will be obtained and used during implementation of any activity.

Invasive Plants

Project activities with ground-disturbing components require an invasive plant risk assessment. The risk assessment reviews the site and project details to determine: the presence/absence of invasive plant species, nature of disturbance, and potential vectors of invasive plant establishment or spread. Based on the risk assessment, additional site-specific design features to reduce the risk of invasive plant introduction or spread are recommended. Invasive plants are a broad category that are variously defined as including non-natives, noxious weeds, and undesirable vegetation.

The *Guidance for Invasive Plant Management Program Tongass National Forest* (Krosse 2017) includes applicable BMPs to mitigate the introduction and spread of invasive species by project activities.

Weed Best Management Practices (WBMPs) that apply to all activities include the following management actions below. The specific WBMPs to follow by activity type are found on pages 5-11 in Krosse 2017:

- BMP 1. Determine the risk of invasive plant introduction or spread as part of the project planning and analysis process for proposed actions, especially for ground disturbing and site altering activities, and public use activities.
- BMP 2. Use contract and permit clauses to require that the activities of contractors and permittees are conducted to prevent and control the introduction, establishment and spread of invasive plant species.
- BMP 3. Make every effort to prevent the accidental spread of invasive plants carried by contaminated vehicles, equipment, personnel, or materials (including plants, wood, plant/wood products, water, soil, rock, sand, gravel, mulch, seeds, grain, hay, straw or other materials).
- BMP 4. Provide opportunities in invasive plant training for management, identification, and reporting to Forest Service staff.
- BMP 5. Revegetate bare soil resulting from project activities (roads, timber harvest, mining etc.) to minimize spread of invasive plants and if prompt natural regeneration is not expected.
- BMP 6. Monitor management activities, including maintenance and revegetation projects, for potential spread or establishment of invasive species in aquatic and terrestrial areas of the Forest.

The associated Invasive Plant Treatment activity cards will be used to guide invasive plant treatments. A site-specific treatment plan will be developed for the districts detailing the species, population locations and treatment methods proposed. Review by resource specialists will further refine the types and locations of treatments that will be applied to invasive plant species on National Forest System lands of Prince of Wales Island.

Geology/Karst

The major focus and intent of the Tongass National Forest karst management strategy is to identify and protect karst systems and the caves and associated resources contained within, as per the requirements of the Federal Cave Resources Protection Act of 1988 (FCRPA). The FCRPA is the primary U.S. law affecting caves. It requires protection of significant caves on federal lands. A cave must possess one or more of the criteria outlined in 36 CFR Part 290.3 to be determined "significant". Though "non-significant" caves may exist on the Forest, most meet the criteria for "significant". The intent of this Act is to protect cave resources not karst resources. However, it is important to recognize that caves and associated features and resources are an integral part of the karst landscape.

Karst must be managed as an ecological unit to ensure protection of the associated cave resources. In practice, the Forest gives equal protection to important karst features, sinking or losing streams, springs, and caves. A Forest-wide treatment of karst and cave resources may be found in Chapter 4 of the Forest Plan, Karst and Cave Resources, Forest-wide Standards and Guidelines, pages 4-23 to 4-25 and Appendix H, pages H-1 to H-10.

Appropriate protection measures for minor features should be designed on a case-by-case basis as field assessed by a karst management specialist. If additional significant features are identified during unit layout, the Forest Geologist will be contacted to determine the appropriate mitigation measures.

Heritage

All federal undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (*i.e.*, Section 106 procedures). As individual activities (Projects) are developed, the Forest Service, in consultation with the Alaska State Historic Preservation Officer (SHPO), may decide to operate under a Programmatic Agreement (PA; USFS 2017) instead of standard Section 106 procedures. The PA uses an alternative approach to the standard Section 106 procedures. It is authorized for use in undertakings with findings of "no historic properties affected" or "no adverse effects." Standard Section 106 procedures apply to undertakings with findings of "adverse effects." It will be indicated in the NEPA decision document that Section 106 procedures are not concluded with the signing of the Record of Decision (ROD). After the ROD is signed, individual projects will be subject to Section 106 evaluation to determine if historic properties exist in the project area and to consider the effects to those historic properties by the undertaking.

Cultural resources are defined broadly in NEPA and may include Sacred Sites, traditional use areas, and any cultural resources that are not eligible for the National Register of Historic Places (NRHP). Historic Properties are cultural resources which have been determined eligible for the NRHP. Under the terms of the PA (USFS 2017), Forest Plan (Chapter 4, pages 16-21), Forest Service Manual 2360/2361, and Forest Service Handbook 2309.12, any cultural resources not yet formally determined to be eligible historic properties may be treated as eligible for the purposes of making management decisions. The Heritage Professional will be consulted during implementation phases of a project to identify and evaluate cultural resources. If adequate field surveys have not been completed in specific areas, the Heritage Professional may be required to resurvey the Area of Potential Effect. The Tongass National Forest follows a regionally specific inventory strategy based on the Tongass National Forest Predictive Model (USFS 2017). Heritage Professionals will intensively review proposed activities occurring in 1) areas with concentrations of natural resources (current and paleo shorelines, streams, lakes, anadromous fish runs, karst zones, and raw material sources); 2) areas of known resource extraction activities including former lode and placer mining activity, fish processing, fur industry, forest products industry, and recreation; 3) areas associated with traditional practices/beliefs of a living community and/or identified through historic/ethnographic/oral history; and 4) land from mean lower low water in the intertidal area to 120 feet above mean high water or higher based on the Heritage Professional's assessment.

Existing structures and infrastructure associated with the forest product industry (roads, trails, bridges, MAFs, logging equipment/camps, etc.), the fur and fish processing industry (camps, canneries, fur farms, traps, etc.), and the forest recreation (trails, campsites, cabins, shelters, boardwalks, etc.) that may be 50 years or older, will require an evaluation by the Heritage Professional. It is the Forest Service's policy to avoid disturbing NRHP-eligible sites (which can include those being treated as eligible under the terms of the PA). The Heritage Professional will be

called to mitigate affects to historic properties on a case-by-case basis in consultation with the SHPO and potentially the Advisory Council on Historic Preservation (ACHP). In the event that human remains are encountered the Forest Service shall comply with the most current State protocols which are available at: http://dnr.alaska.gov/parks/oha/ahrs/remains.htm.

Recreation

Activity cards for recreation address ground-disturbing actions associated with the development of recreation assets and do not address specific projects. Development of site-specific projects will reference LUD-specific and Forest-wide Standards and Guidelines as defined in Chapters 3 and 4 of the Forest Plan. These standards and guidelines provide general outlines on allowable recreation and trail activities on NFS lands. Site-specific project analysis will also consider the Recreation Opportunity Spectrum (ROS) setting of the project area and would develop a plan that recognizes ROS Standards and Guidelines, which are defined in Appendix I of the Forest Plan. Non-recreation activities may result in a change of ROS classification, which will be reflected in the Forest-wide ROS inventory.

The Recreation Opportunity Spectrum inventory is a tool to help identify, quantify, and describe the types of recreation settings provided on NFS lands. The ROS system portrays the combination of activities, settings, and experience expectations along a continuum that ranges from highly modified to primitive environments. Seven classifications are identified along this continuum: Urban (U), Rural (R), Roaded Natural (RN), Roaded Modified (RM), Semi-Primitive Motorized (SPM), Semi-Primitive Non-Motorized (SPNM), and Primitive (P). The ROS inventory may be used as an assessment tool to identify the potential effects of forest resource activities on recreation settings. An example would include, but is not limited to, how a timber harvest and its ancillary activities (*e.g.*, roads) near a trail or structure may impact the solitude of the recreational experience.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding integrated resource planning.

In addition to assessing how other resource activities may impact recreation resources, site-specific recreation projects will consider impacts to immediate and adjacent forest resources. Recreation planners will work with forest resource specialists to comply with their best management practices and would manage project development to minimize impacts from recreation project activities on local resources.

Scenery

Scenic Integrity Objectives (SIO) are developed for all locations on the forest, are specified in the Forest Plan, and should be identified for every activity. Most activities will have SIOs specific to the LUDs the activity occurs in. Young-growth projects have SIOs that are not tied specifically to LUDs. Scenery specialists should be consulted for projects to ensure the activity will meet the SIOs for the area.

The following SIOs from the Forest Plan provide direction for management based on the landscape's scenic concern as identified by visibility from Visual Priority Travel Routes and Use Areas (Forest Plan Appendix F) and land use designation objectives.

- High SIO: “Design activities to not be visually evident to the casual observer” (Forest Plan, pg. 4-57). Activities may only repeat form, line, color, and texture that are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc. should not be evident.
- Moderate SIO: Management and design activities will be subordinate to the landscape character of the area. Changes in the landscape may be evident to the casual observer but appear as natural occurrences when contrasted with the appearance of the surrounding landscape.
- Low SIO: Management activities may visually dominate the characteristic landscape. Activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that visual characteristics are those of natural occurrences within the surrounding area or character type.
- Very Low SIO: Management activities may dominate the characteristic landscape, yet when viewed as background, should appear to be a natural occurrence.

Best Management Practices

Best management practices (BMPs) would be applied to protect water quality in the project area as specified in the Forest Plan and in the National Core BMP Technical Guide (2012). Many of the most relevant BMPs are cited on the Activity Cards or elsewhere in the above resource sections of this introduction, as appropriate.

Card 01
Activity: Rotational Harvest of Young Growth Using Even-aged Management

Description: This activity is the rotational harvest of young timber stands (generally less than 150 years old) where growth may or may not have reached culmination of mean annual increment (CMAI). The harvest results in a stand of trees composed of a single age class in which the range of tree ages is less than 20 percent of the rotation age in openings up to 100 acres.

Objectives: This activity is used to provide young-growth timber for sale to meet timber industry needs. The activity is generally recognized as the most efficient method of harvesting young growth to achieve an economic timber sale. The activity minimizes the risk of post-harvest windthrow within the stand, promotes natural regeneration of desirable species, and minimizes defect and disease that will be present in the future stand to the maximum extent possible.

Related Actions: Landings, Tree Planting (Activity Card 11), Precommercial Thinning (Activity Card 5), NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17)

Methods: Clearcutting

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems**.** Hand equipment may be used such as in the case of microsales of products.

What are the general guidelines constraining this activity?

This activity may only occur within the suitable land base based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction such as: meeting the objectives of the Land Use Designations (LUDs, Chapter 3) and within potential harvest units as shown in the logging system and transportation analysis (LSTA) prepared for this project. Forest-wide Standards and Guidelines outlined in the Forest Plan (Chapter 4) for each LUD will be followed.

What are the resource-specific guidelines?

Silviculture

Harvest of young growth is allowed under the Forest Plan in all three phases of the Tongass timber sale program adaptive management strategy outside of the Inventoried Roadless Areas. The Forest Plan (pages 4-68 to 4-69) requires a number of considerations/determinations before this activity can be applied. Clearcutting must be planned in a way that isolated stands of timber will not be created and existing stands of regeneration from previous harvests will not be destroyed. A finding from a certified Silviculturist that clearcutting is the best method to meet objectives and requirements is necessary. That finding must conform to direction in FSM 2470 Supplement No.: R-10 2400-2005-1 which defines requirements on the use of clearcutting; generally limiting the activity to places where it is necessary to address concerns for insect and disease, windthrow, logging damage, or other factors affecting forest health. For the purpose of this assessment, this means a stand proposed for clearcutting must have a moderate or high windthrow risk, insect or disease rating, or a combination of the three. The Forest Plan and NFMA limit the size of even-aged openings to 100 acres with certain exceptions. In order to be considered a separate opening from an adjacent timber stand for the purpose of determining the acreage, the adjacent stand must be well stocked with trees at least 5 feet tall. If adjacent stands do not meet this requirement, a stand of timber must be left to separate the two stands. An appropriate sized stand of timber may not be a narrow strip but must be large enough to be managed as a distinct timber stand. This is typically defined as a stand approximately 10 acres or larger. Exceptions to the size of even-aged openings are discussed on page 4-69 of the Forest Plan and R10 Supplement FSM 2400-2002-1. Harvest openings larger than 100 acres should not to be considered without additional site-specific NEPA analysis and Forest Supervisor approval.

This activity is limited to the young-growth suitable land base, excluding: the beach and estuary fringe, RMAs outside of TTRA buffers, and the Old-growth Habitat LUD. In those areas, suitable timber can be managed under the two-aged or uneven-aged management systems (see Activity Cards 02 and 03).

Appendix 1

Timber

Landings will generally be constructed and utilized to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally will be about 0.05 acres in size. Continuous roadside landings are also utilized.

Temporary barge beach access points may be used to facilitate equipment mobilization and log loading.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective logging method available for each setting (generally in order of shovel, then cable, and finally helicopter).

All applicable permits will be obtained prior to implementation for harvest that requires equipment access and/or removal of material across areas below mean high tide.

Transportation

Roaded access is required to effectively manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long-term access needs to determine the appropriate road classification: temporary or system.

The construction of temporary roads will be considered when: that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, the temporary road construction is viable within the standards and guidelines of the Forest Plan in Chapter 4, and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4

Wildlife

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. The Wildlife Biologist may recommend opening size and placement and slash treatment.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

See Forest Plan Direction p. 5-5 and p. 5-8 for young growth harvest direction.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active eagle nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

When considering young growth harvest within the 1,000-foot beach fringe, consult a Fish Biologist prior to development of log landings, access trails, and barge beach access points to ensure streams and tidal or subtidal beds of aquatic vegetation are identified and protected. Avoid beaches with high amounts of vegetation. Avoid placement of log landings within the 200-foot no

commercial harvest beach fringe and minimize access trail width within the 200-foot beach fringe. Locate barge access points more than 300 feet from the mouths of intertidal channels of fish streams, or tidal or subtidal beds of aquatic vegetation to avoid significant impairment. Design and operate barge access points to minimize the risk to near-shore marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. Minimize the amount of time a barge access a beach to minimize environmental impacts to beach and near-shore habitat. Consider use of matting or other protective measures to minimize damage to soils and wetlands. Prohibit equipment storage, maintenance, and re-fueling within the beach zone, 200-foot beach fringe and riparian management areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Avoid access trails through riparian management areas.

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7).

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures.

R10 BMPs: R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.3, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.19, 14.25, 14.26, 14.27,12.6, 12.6a, 13.9, 13.14, and 13.16

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified (*e.g.*, sedimentation, windfirmness). Minimize the impacts of logging activities on watershed health by following BMPs. Use existing roads and/or road bases unless existing road locations do not meet current BMPs. Minimize off-road travel. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist would need to evaluate existing detrimental soil conditions in each stand per R10 Soil Quality Standards. An on-site slope stability analysis may be required. To minimize additional wetland or soil disturbance, try to utilize existing temp roads, heavy machinery trails, landings, and yarding corridors. Ground-based yarding should follow all BMPs. Ground-based yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. Leaving dense puncheon slash, creating ruts greater than 12 inches, and operating in non-forested areas should be avoided. In some instances, the puncheon trail should be scattered upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a soil scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. A minimum of partial suspension is required for yarding operations. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6

Botany

Prior to implementation a qualified botanist/ecologist must conduct a site-specific pre-field review to determine if potential habitat for R10 Sensitive Plants or Tongass National Forest Rare Plants are present. Any surveys required shall be conducted at the appropriate time of the year and at an appropriate intensity level (Forest Plan PLA3 p. 4-40). If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a

resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMPs or Invasive Plant Management BMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects including associated road reconstruction. Silvicultural prescriptions and logging plans will include weed prevention measures (WBMPBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (WBMP 17.2). See Roads WBPMs on pages 7-9 if roads are part of the project.

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management BMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (WBMP 18.1 page 9 of Krosse 2017).

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

Karst resources will be evaluated according to their vulnerability.

Even-aged management is allowed on lands identified as low vulnerability karst lands (see Forest Plan Appendix H).

On lands identified as moderate vulnerability karst (see Forest Plan Appendix H), the maximum size of any created opening for commercial timber harvest must not exceed 10 acres with a maximum removal of 35 percent of the acres of the original harvested stand.

Commercial timber harvest is not allowed on lands identified as high vulnerability karst lands (see Forest Plan Appendix H).

Existing roads and quarries should be used whenever possible.

Opportunities to restore original flow paths of surface waters to karst features should be sought.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic logging equipment and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with

proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2). Consult Scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.
The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Explore opportunities for rotational timber harvest to meet timber production goals when young stands approach a condition where at least 50 percent of the total volume would come from trees with at least two full 34 foot logs.

Integration Opportunities: Old-growth harvest activities offer an opportunity to construct/repair roads that may access young-growth stands. Consider this option when designing and timing old-growth timber harvest plans. Young-growth even-aged management areas may provide material for stream restoration including trees with root wad attached or could use equipment mobilized for the logging operation. Time nearby stream restoration activities that require such material to coincide with this activity.

Card 02
Activity: Rotational Harvest of Young Growth Using Two-aged Management

Description: Harvest resulting in a stand with trees of two distinct age classes separated in age by more than 20 percent of the rotation length planned for the stand.

Objectives: The objective of this prescription is to maintain and manage for two-aged stand structure primarily for increased wildlife benefit over even-aged management while maintaining as much of the operational and economic feasibility of even-aged management as possible. This activity is used to provide young-growth timber for sale to meet timber production targets while maintaining areas within the stand to continue growing toward culmination of mean annual increment and provide a more diverse stand structure and product stream across the landscape in the future. The activity may be used to increase the diversity in acreage of young-growth age classes across certain landscapes to address age class imbalances.

Related Actions: Landings, Tree Planting (Activity Card 11), Precommercial Thinning (Activity Card 5), Commercial Thinning (Activity Card 4), Second entry harvest, NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17)

Methods: Patch clearcutting, clearcutting with reserves.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems**.** Hand equipment may be used such as in the case of microsales of products.

What are the general guidelines constraining this activity?

This activity may only occur within the suitable land based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction such as: meeting the objectives of the Land Use Designations (LUDs; Chapter 3), and are within potential harvest units as shown in the logging system and transportation analysis (LSTA) prepared for this project. The Forest Plan direction for each LUD will be followed.

What are the resource-specific guidelines?

Silviculture

Harvest of young growth is allowed under the Forest Plan in all three phases of the Tongass timber sale program adaptive management strategy. The Forest Plan (pages 4-69 to 4-70) requires a number of considerations/determinations before this activity can be applied. A finding from a Certified Silviculturist that patch clearcutting or clearcutting with reserves is the best method to meet objectives and requirements is necessary. That finding must conform to direction in FSM 2470 Supplement No.: R-10 2400-2005-1 which defines requirements on the use of clearcutting, generally limiting the activity to places where it is necessary to address concerns for insect and disease, windthrow, logging damage, or other factors affecting forest health. For the purpose of this assessment, this means a stand proposed for patch clearcutting and clearcutting with reserves must have a moderate or high windthrow risk, insect or disease rating, or a combination of the three.

To meet two-aged requirements, at least 15 percent of the original standing green tree basal area of the stand must remain after harvest. These trees can be grouped for operational and environmental concerns or be evenly distributed across the stand. If trees are grouped, the groups must be distributed somewhat evenly across the stand. The activity must be planned in a way that isolated stands of timber will not be created and existing stands of regeneration from previous harvests will not be destroyed during future entries. Use the prescription development process to determine if wildlife, windthrow or age-class imbalance issues should be addressed.

Portions of the beach and estuary fringe, RMAs outside of TTRA buffers, and the Old-growth Habitat LUD are also classified as suitable (Forest Plan, Appendix A). The Forest Plan limits this activity in these areas to a single entry during the first 15 years after the approval of the Amendment unless best available scientific information shows that a second harvest entry during this time is warranted and meets the LUD objectives. In these areas, two-aged harvest is limited to a maximum opening of 10 acres or no more than 35 percent of the former stand acreage excluding stream buffers and other areas withdrawn from

harvest to meet other Forest Plan direction. Harvest in the beach and estuary buffer requires a 200-foot no-cut shoreline buffer.

Interdisciplinary review of harvest prescriptions prepared for areas in the beach and estuary fringe, RMAs outside of TTRA buffers, and the Old-growth Habitat LUD is required to assure objectives are met.

Timber

Landings will generally be constructed and utilized to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are about 0.05 acres in size. Continuous roadside landings are also used.

Temporary barge beach access points may be used to facilitate equipment mobilization and log loading.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective harvest method available for each setting (generally in the order of shovel, then cable, and finally helicopter.

All applicable permits will be obtained prior to implementation for harvest that requires equipment access and/or removal of material across areas below mean high tide.

Transportation

Roaded access is required to effectively manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long term access needs to determine the appropriate road classification, temporary or system.

The construction of temporary roads will be considered when that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, the temporary road construction is viable within the Standards and Guidelines of the Forest Plan (Chapter 4), and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4

Wildlife

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. Wildlife biologist may recommend opening size and placement, and slash treatment.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

See Forest Plan direction p. 5-5 and p. 5-8 for young growth harvest direction.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active eagle nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7). When considering young-growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

When considering young growth harvest within the 1,000-foot beach fringe, consult a Fish Biologist prior to development of log landings, access trails, and barge beach access points to ensure streams and tidal or subtidal beds of aquatic vegetation are identified and protected. Avoid beaches with high amounts of vegetation. Avoid placement of log landings within the 200-foot no commercial harvest beach fringe and minimize access trail width within the 200-foot beach fringe. Locate barge access points more than 300 feet from the mouths of intertidal channels of fish streams, or tidal or subtidal beds of aquatic vegetation to avoid significant impairment. Design and operate barge access points to minimize the risk to near-shore marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. Minimize the amount of time a barge access a beach to minimize environmental impacts to beach and near-shore habitat. Consider use of matting or other protective measures to minimize damage to soils and wetlands. Prohibit equipment storage, maintenance, and re-fueling within the beach zone, 200-foot beach fringe and riparian management areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Avoid access trails through riparian management areas.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.3, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.19, 14.25, 14.26, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Minimize the impacts of logging activities on watershed health by following BMPs. Use existing roads and/or road bases unless existing road locations do not meet current BMPs. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist would need to evaluate existing detrimental soil conditions in each stand per R10 Soil Quality Standards. An on-site slope stability analysis may be required. To minimize additional wetland or soil disturbance, try to use existing temp roads, heavy machinery trails, landings, and yarding corridors. Ground-based yarding should follow all BMPs. Ground-based yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. Avoid leaving dense puncheon slash, creating ruts greater than 12 inches, and operating in small non-forested areas. In some instances, the puncheon trail should be scattered upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Consult a soil scientist for any ground-based equipment operations proposed on slopes greater than 35 percent gradient. Use care when approving ground-based yarding on slopes over 25 percent gradient. A minimum of partial suspension is required for yarding operations. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

See Introduction for additional WBMPs that apply to all activities 1-6. Also see Forest Management WBMPs 17-18 on page 9, and Roads WBMPs 7-13 on pages 7-9 if roads are involved in Krosse 2017.

Geology/Karst

Karst resources will be evaluated according to their vulnerability.

Even-aged management is allowed on lands identified as low vulnerability karst lands (see Forest Plan Appendix H).

On lands identified as moderate vulnerability karst (see Forest Plan Appendix H), the maximum size of any created opening for commercial timber harvest must not exceed 10 acres with a maximum removal of 35 percent of the acres of the original harvested stand.

Commercial timber harvest is not allowed on lands identified as high vulnerability karst lands (see Forest Plan Appendix H).

Existing roads and quarries should be used whenever possible.

Opportunities to restore original flow paths of surface waters to karst features should be sought.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and

work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic logging equipment and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2). Consult Scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.
The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Explore opportunities for rotational timber harvest to meet production goals when young stands approach a condition where at least 50 percent of the total volume would come from trees with at least two full 34 foot logs. In non-timber development areas evaluate needs with the District Wildlife Biologist, Fish Biologist, or Hydrologist to determine appropriate treatment areas and timing.

Integration Opportunities: Old-growth harvest activities offer an opportunity to construct/repair roads that may access young-growth stands. Consider this option when designing old-growth timber harvest plans. Review yearly road maintenance plans to assure alignment with proposed young-growth harvests. Young-growth harvests may be planned in the beach and estuary buffer where boat launches, kayak launches, shelters and other recreation development projects could occur. Time the development of those projects to coincide with young-growth harvest opportunities. Young growth two-aged management areas may provide material and equipment for stream restoration including trees with root wad attached. Time nearby stream restoration activities that require such material to coincide with this activity.

Card 03
Activity: Harvest of Young Growth Using Uneven-aged Management

Description: Harvest following a planned sequence of treatments designed to result in a stand with three or more distinct age classes either intimately mixed or in small groups.

Objectives: Promote improved wildlife habitat in older young growth stands while producing a commercial timber product. Manage for multi-aged stand structure primarily for increased wildlife benefit over even-aged or two-aged management. This activity is used to provide young-growth timber for sale to meet timber production targets while maintaining the stand to continue growing toward culmination of mean annual increment and provide a more diverse stand structure and habitat across the landscape in the future. The activity may be used to increase the diversity in acreage of young-growth age classes across certain landscapes to address age class imbalances.

Related Actions: Landings, equipment trails, second and third entry harvests, Tree Planting (Activity Card 11), Precommercial Thinning (Activity Card 5), NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17)

Methods: Single tree selection, group selection, group selection with reserves.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems**.** Hand equipment may be used such as in the case of microsales of products.

What are the general guidelines constraining this activity?

This activity may only occur within the suitable land based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction such as: meeting the objectives of the Land Use Designations (LUDs; Chapter 3), the standards and guidelines of Chapter 4, and the plan components for young growth in Chapter 5, and are within potential harvest units as shown in the logging system and transportation analysis (LSTA) prepared for this project.

What are the resource-specific guidelines?

Silviculture

This activity is limited to single tree or group selection prescriptions. Harvest may be in group selections up to 2 acres in size or via partial harvest using individual tree selection. Conduct stand exams and windthrow risk assessment prior to prescription development. Group selections should harvest no more than approximately 33 percent of the stand area during any cutting cycle. Subsequent cuttings should be scheduled to avoid habitat loss and/or take advantage of opportunities to lower operating costs. For example consider scheduling future cuttings for when any precommercial thinning slash from activities following a previous cutting have decomposed. Schedule cuttings to coincide with other activities that lower the cost of the operation. Partial harvest (individual tree selection) should maintain at least 50 percent residual basal area in moderate windthrow risk areas and at least 75 percent in high risk areas. Implement this activity primarily where the combination of other resource objectives already limits timber harvest opportunities. Incorporate buffers on karst, streams, or wildlife areas as an age class if possible.

This activity is appropriate for use in the beach and estuary buffer, RMAs outside of TTRA buffers, and in old growth reserves (OGRs). See Forest Plan pages 5-5 to 5-8 for additional limitations related to size of openings and basal area or percent of the stand that can be harvested. If used in Beach and Estuary fringe areas, the Forest Plan limits this activity to the first 15 years after Plan approval unless best available scientific information shows that this harvest is warranted and meets the LUD objectives. Additional entries must be completed within the first 15 years after the Forest Plan Record of Decision was signed (2031). A 200-foot no-harvest shoreline buffer is required.

Appendix 1

Timber

Uneven-aged management may require the use of helicopter logging to achieve the silvicultural prescription and stand objectives.

Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are about 0.05 acres in size. Continuous roadside landings are also used.

Temporary barge beach access points may be used to facilitate equipment mobilization and log loading.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective harvest method available for each setting (generally in the order of shovel, then cable, and finally helicopter).

All applicable permits will be obtained prior to implementation for harvest that requires equipment access and/or removal of material across areas below mean high tide.

Transportation

Roaded access is usually needed to effectively manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long-term access needs to determine the appropriate road classification: temporary or system.

The construction of temporary roads will be considered when that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4

Wildlife

See Forest Plan direction p. 5-5 and p. 5-8 for young growth harvest directions.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active eagle nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. Wildlife biologist may recommend opening size and placement, and slash treatment.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include putting roads in storage or decommissioning.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management

Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7). When considering young-growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

When considering young growth harvest within the 1,000-foot beach fringe, consult a Fish Biologist prior to development of log landings, access trails, and barge beach access points to ensure streams and tidal or subtidal beds of aquatic vegetation are identified and protected. Avoid beaches with high amounts of vegetation. Avoid placement of log landings within the 200-foot no commercial harvest beach fringe and minimize access trail width within the 200-foot beach fringe. Locate barge access points more than 300 feet from the mouths of intertidal channels of fish streams, or tidal or subtidal beds of aquatic vegetation to avoid significant impairment. Design and operate barge access points to minimize the risk to near-shore marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. Minimize the amount of time a barge access a beach to minimize environmental impacts to beach and near-shore habitat. Consider use of matting or other protective measures to minimize damage to soils and wetlands. Prohibit equipment storage, maintenance, and re-fueling within the beach zone, 200-foot beach fringe and riparian management areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Avoid access trails through riparian management areas.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.3, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.19, 14.25, 14.26, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Minimize the impacts of logging activities on watershed health by following BMPs. Use existing roads and/or road bases unless existing road locations do not meet current BMPs. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist would need to evaluate existing detrimental soil conditions in each stand per R10 Soil Quality Standards. An on-site slope stability analysis may be required. To minimize additional wetland or soil disturbance, try to use existing temp roads, heavy machinery trails, landings, and yarding corridors. Ground-based yarding should follow all BMPs. Ground-based yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. Leaving dense puncheon slash, creating ruts greater than 12 inches in depth, and operating on small non-forested wetlands should be avoided. In some instances, the puncheon trail should be scattered upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a soil scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. A minimum of partial suspension is required for yarding operations. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6

Botany

Prior to implementation a qualified botanist/ecologist must conduct a site-specific pre-field review to determine if potential habitat for R10 Sensitive Plants or Tongass National Forest Rare Plants are present. Any surveys required shall be conducted at the appropriate time of the year and at an appropriate intensity level (Forest Plan PLA3 p. 4-40). If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for

any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aide in decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

See Introduction for additional WBMPs that apply to all activities 1-6See Forest management WBMPs 17-18 on page 9, and Roads WBMPs 7-13 on pages 7-9 in Krosse 2017.

Geology/Karst

Karst resources need to be evaluated according to their vulnerability.

Uneven-aged management is allowed on lands identified as low vulnerability karst lands (see Forest Plan Appendix H).

On lands identified as moderate vulnerability karst (see Forest Plan Appendix H), the maximum size of any created opening for commercial timber harvest must not exceed 10 acres with a maximum removal of 35 percent of the acres of the original harvested stand.

Commercial timber harvest is not allowed on lands identified as high vulnerability karst lands (see Forest Plan Appendix H).

Existing roads and quarries should be used whenever possible.

Opportunities to restore original flow paths of surface waters to karst features should be sought.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic logging equipment, associated infrastructure and culturally modified trees may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2). Consult scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.
The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Explore opportunities for rotational timber harvest to meet production goals when young stands approach a condition where at least 50 percent of the total volume would come from trees with at least two full 34 foot logs. In non-timber production areas evaluate needs with the District Wildlife Biologist, Fish Biologist, or Hydrologist to determine appropriate treatment areas and timing.

Integration Opportunities: Old-growth harvest activities offer an opportunity to construct/repair roads that may access young-growth stands. Consider this option when designing old-growth timber harvest plans. Review yearly road maintenance plans to assure alignment with proposed young-growth harvests. Young-growth harvests may be planned in the beach and estuary buffer where boat launches, kayak launches, shelters and other recreation development projects could occur. Time the development of those projects to coincide with young-growth harvest opportunities. Young growth uneven-aged management areas may provide material and equipment for stream restoration. Group selection harvest may provide areas suitable for harvesting trees with root wad attached. Time nearby stream restoration activities that require such material to coincide with this activity.

Card 04
Activity: Commercial Thinning of Young Growth

Description: Commercial harvest of young growth that reduces the density of trees in a stand. Only a portion of the trees in the stand are harvested while leaving the remaining trees generally evenly spaced across the stand. Access by skid trails are used to remove cut material. The treatment requires the removal of at least part of the felled material as commercial products.

Objectives: This activity is used to improve tree growth and vigor, enhance forest health, improve understory and wildlife habitat, reduce slash as compared to precommercial treatments, improve viewsheds around recreation areas, enhance hydrologic function in RMAs and around karst features, or to meet other desired future stand conditions while recovering potential timber values.

Related Actions: Landings, equipment trails, recreation site development in young growth, NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17)

Methods: Mechanical thinning, crown thinning, free thinning, variable retention thinning, thinning from below.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems**.** Hand equipment may be used such as in the case of microsales of products.

What are the general guidelines constraining this activity?

This activity may only occur within the suitable land based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction such as: meeting the objectives of the Land Use Designations (LUDs; Chapter 3), the Standards and Guidelines of Chapter 4 and the plan components for young growth in Chapter 5 and are within potential harvest units as shown in the logging system and transportation analysis (LSTA) prepared for this project.

What are the resource-specific guidelines?

Silviculture

Due to economic constraints of partial harvesting compared to even-aged management, apply primarily to enhance wildlife habitat, address viewshed and recreation objectives, and to improve hydrologic function. Commercial thinning is generally not an economic method for generating timber products from young growth stands. Consider other method to obtain those objectives. When conducting commercial thinning, perform a windthrow risk assessment prior to prescription development. Mechanical thin, thin from below, or crown thin while maintaining at least 50 percent of the pre-treatment basal area in moderate to low windthrow risk stands. In high risk stands maintain at least 75 percent of pre-treatment basal area. Account for access trails when determining tree removal limits. This activity may occur within the suitable land base.

This activity is appropriate for use in the beach and estuary buffer, RMAs outside of TTRA buffers, and in old growth reserves. See Forest Plan pages 5-5 to 5-8 for additional limitations related to size of openings and basal area or percent of the stand that can be harvested. If used in Beach and Estuary fringe areas, the Forest Plan limits this activity to the first 15 years after Plan approval unless best available scientific information shows that this harvest is warranted and meets the LUD objectives. Additional entries must be completed within the first 15 years after the Forest Plan Record of Decision was signed (2031). A 200-foot no-harvest shoreline buffer is required.

Timber

Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are about 0.05 acres in size. Continuous roadside landings are also used.

Temporary barge beach access points may be used to facilitate equipment mobilization and log loading.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective harvest method available for each setting (generally in the order of shovel, then cable, and finally helicopter).

All applicable permits will be obtained prior to implementation for harvest that requires equipment access and/or removal of material across areas below mean high tide.

Transportation

Roaded access is needed to effectively and economically manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long-term access needs to determine the appropriate road classification: temporary or system.

The construction of temporary roads will be considered when that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4

Wildlife

See Forest Plan direction p. 5-5 and p. 5-8 for young growth harvest direction.

Where feasible locate activities outside of required nest/den buffers.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active eagle nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Thinning is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. Wildlife biologist may recommend opening size and placement, and slash treatment.

Consult with Wildlife Biologist to identify areas that may be lacking or limited in heterogeneity across the landscape, travelways between habitats and structural diversity and prioritize those areas for light or no treatments. Prioritize areas to enhance or provide connectivity by leaving untreated or lightly treated areas across the landscape.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7). When considering young-growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

When considering young growth harvest within the 1,000-foot beach fringe, consult a Fish Biologist prior to development of log landings, access trails, and barge beach access points to ensure streams and tidal or subtidal beds of aquatic vegetation are identified and protected. Avoid beaches with high amounts of vegetation. Avoid placement of log landings within the 200-foot no commercial harvest beach fringe and minimize access trail width within the 200-foot beach fringe. Locate barge access points more than 300 feet from the mouths of intertidal channels of fish streams, or tidal or subtidal beds of aquatic vegetation to avoid significant impairment. Design and operate barge access points to minimize the risk to near-shore marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. Minimize the amount of time a barge access a beach to minimize environmental impacts to beach and near-shore habitat. Consider use of matting or other protective measures to minimize damage to soils and wetlands. Prohibit equipment storage, maintenance, and re-fueling within the beach zone, 200-foot beach fringe and riparian management areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Avoid access trails through riparian management areas.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.3, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.19, 14.25, 14.26, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Minimize the impacts of logging activities on watershed health by following BMPs Use existing roads and/or road bases unless existing road locations do not meet current BMPs. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist would need to evaluate existing detrimental soil conditions in each stand per R10 Soil Quality Standards. An on-site slope stability analysis may be required. To minimize additional wetland or soil disturbance, try to use existing temp roads, heavy machinery trails, landings, and yarding corridors. Ground-based yarding should follow all BMPs. Ground-based yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. Leaving dense puncheon slash, creating ruts greater than 12 inches in depth, and operating in small non-forested wetlands should be avoided. In some instances, the puncheon trail should be scattered upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a soil scientist for any ground-based equipment operations on slopes over 35 percent gradient. A minimum of partial suspension is required for yarding operations. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist

will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

See Introduction for additional WBMPs that apply to all activities 1-6. See Krosse 2017 for All Activities WBMPs pages 5-7, Forest Management WBMPs 17 and 18 on page 9, and Roads WBMPs 7-13 on pages 7-9.

Geology/Karst

Commercial thinning is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no thinning shall be permitted on lands determined to be of high vulnerability such as within 100 feet of a cave entrance, a karst feature accepting surface flow, or of the edge of a sinking or losing stream within 1/4 mile upstream of their swallow hole or loss point. On a case-by-case basis, other karst features will be assessed as to their susceptibility to surface disturbing activities, the proposed harvest method, and the thinning prescription. Susceptibility is a function of the karst systems openness and whether the karst feature is directly receiving surface water. The area surrounding these features is still considered high vulnerability and should be mapped as such, however thinning of this sensitive area might be considered permissible. All features not fully protected would be buffered from their center to just outside the lip of the sink allowing for thinning within the area that would normally be a non-harvest buffer. It is recommended that a zone equal to one tree height be left untreated to ensure that no material will be placed in these features. All thinned timber will be directionally felled from the untreated area surrounding the karst feature and split yarded from the area. Any material landing on the slope break of the feature or within the feature will be hand removed. No yarding across or through the untreated area surrounding the feature will be allowed. Directional falling and split yarding away from the karst depressions and features should provide adequate protection for water quality and karst features. It is believed that the benefit of hydrologic recovery of the areas adjacent to these features outweighs the risk of harvest.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic logging equipment and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

This activity is prohibited within designated Wilderness areas.
The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Ideal implementation timing would be when trees reach a sufficient size to allow a marketable level of material be harvested that supports at least part of the cost of the operation and while understory plants are still present in the stand.

In non-timber development areas evaluate needs with the District Wildlife Biologist, Fish Biologist, or Hydrologist to determine appropriate treatment areas and timing.

Integration Opportunities: Old-growth harvest activities offer an opportunity to construct/repair roads that may access young-growth stands. Consider this option when designing old-growth timber harvest plans. Review yearly road maintenance plans to assure alignment with proposed young-growth harvests. Young-growth harvests may be planned in the beach and estuary buffer where boat launches, kayak launches, shelters, and other recreation development projects could occur. Time the development of those projects to coincide with young-growth harvest opportunities.

Card 05
Activity: Precommercial Thinning – Timber Production Emphasis

Description: Precommercial thinning (PCT) is the selective cutting of young growth trees in regenerated stands to reduce the density of trees to improve growth and vigor, enhance forest health, improve understory vegetation or meet other desired future stand conditions.

No part of the cut material is required to be removed as part of the contract agreement.

Objectives: 1) Increase tree and stand growth by removing competition between trees; 2) promote desired species composition; 3) remove deformed or diseased trees; and 4) reduce the time for development of large-diameter trees.

Related Actions: A combination of treatments will be used to achieve site-specific objectives. These may include, but are not limited to: slash control (Activity Card 10), wildlife travel corridors, wildlife gaps, pruning (Activity Card 9), and girdling (Activity Card 8). Individual stand objectives may include timber, riparian (Activity Card 6), and/or wildlife (Activity Card 7) emphases.

Methods: Thinning from below,

Equipment Used: Handcrews with chainsaws.

What are the general guidelines constraining this activity?

Activities will generally not occur within non-development LUDs or in areas considered unsuitable for timber management due to Forest Plan Forest-wide Standards and Guidelines as outlined in Chapter 4 (1,000-foot beach and estuary zones, etc.).

What are the resource-specific guidelines?

Silviculture

Stands will be surveyed prior to a prescription to determine that the stand is a good candidate for the investment. In general, productive stands in an overstocked state will be prioritized for thinning. The PCT window is considered 15-30 years old, with stands less than 15 not old enough to express the best genotypic and phenotypic trees and stands greater than 30 having the potential for large slash loading.

Prioritize treatments on lands with the highest productivity where harvest operability and access is favorable to minimize costs. Target residual density to approximately 222 to 303 trees per acre.

A signed prescription by a Certified Silviculturist is required before any tree cutting activities occur. Precommercial thinning prescriptions will be developed on a site specific basis utilizing variable spacing techniques, selected treatments (pruning, girdling, etc.), phenotypic selection criteria, and species preferences.

Timber

Strive to maximize future resource values and timber products. Implement thinning treatments in young conifer stands to increase timber volume or value of remaining trees and improve future growth.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

The Wildlife Biologist may recommend size and placement of thinning openings as well as slash treatments.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

See Forest Plan direction p. 5-5 and p. 5-8 for young growth harvest direction.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Thinning is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. Wildlife biologist may recommend opening size and placement, and slash treatment.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches in and around treatment stands should be identified and protected in the following manner:

For Class I, II, and III streams, at least a 10-foot-wide no-thin buffer shall be left on each side of the stream. Buffers less than 10 feet shall be approved by a Fisheries Biologist. Evaluate steep side-slopes to determine if trees outside the 10-foot no-thin buffer will be prone to falling into the stream course. In this case, a no-thin buffer within the stream's v-notch may be appropriate.

Cut trees shall be felled away from any Class I, II, III, or IV streams. Any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course and out of the no-thin buffer. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

Consider a riparian emphasis prescription within riparian management area where feasible, to meet stream process group objectives.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

To minimize additional erosion, buffer any existing landslides within a thinning unit with a 50-foot buffer around the headwall to provide root stability.

R10 BMPs: 12.5, 12.17, and 13.5

National Core BMPs: AqEco-2, Veg-2, and Veg-8

Botany

Prior to implementation a qualified botanist/ecologist must conduct a site-specific pre-field review to determine if potential habitat for R10 Sensitive Plants or Tongass National Forest Rare Plants are present. Any surveys required shall be conducted at the appropriate time of the year and at an appropriate intensity level (Forest Plan PLA3 p. 4-40). If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travelways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants. If equipment is being used for the project, or roads are being restored follow WBMPs for Roads in Krosse 2017, 7-13 on pages 7-9.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (WBMP 17.1 and 17.2).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Precommercial thinning is appropriate on all karst lands when the karst management objectives can be met. Precommercial thinning to near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is recommended that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams it must be removed by hand.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Precommercial thinning activities would occur before the stand reaches the stem exclusion stage, approximately 15 to 30 years after completion of harvesting activities depending on stand location, site productivity, access, and management objectives.

Integration Opportunities: Look for opportunities to integrate PCT activities into Stewardship contracts whenever possible.

Card 06
Activity: Riparian Thinning

Description: Thinning young growth in Riparian Management Areas (RMA) to accelerate a return to old-growth conditions.

Objectives: 1) Decrease the time needed for trees to grow and be recruited into the stream channel to stabilizes bed load, create deep pools for fish, serve as a substrate for aquatic insect production, improve water quality by stabilizing stream banks and dampen high flows events as well as increase the diversity of the stream channel, resulting in improved fish habitat. 2) Increase the value of the riparian zone for wildlife by promoting vegetative diversity and forage.

Related Actions: A combination of treatments will be used to achieve site-specific objectives. These may include, but are not limited to: slash control (Activity Card 10), wildlife travel corridors, wildlife gaps, pruning (Activity Card 9), girdling (Activity Card 8), as well as the harvest of cut and rootwad trees for in-stream restoration (Activity Card 29). Individual stand objectives may include timber, riparian, and/or wildlife (Activity Card 7) emphases.

Methods: Thinning from below, single-tree selection, group selection, variable density thinning, commercial thinning.

Equipment Used: Handcrews with chainsaws, mechanical equipment.

What are the general guidelines constraining this activity?

No commercial timber harvest is allowed within 100 feet horizontal distance either side of Class I streams and Class II streams that flow directly into a Class I stream (Tongass Timber Reform Act). Provide reasonable assurance of windfirmness (RAW).

What are the resource-specific guidelines?

Silviculture

Evaluate risk of windthrow. When RAW is determined to be moderate or greater, protect RMA by leaving additional windfirm trees standing in the area adjacent to RMA. Target residual density to approximately 109 to 222 trees per acre.

A signed prescription by a Certified Silviculturist is required before any tree cutting activities occur. Riparian thinning prescriptions will be developed on a site-specific basis utilizing variable spacing techniques, selected treatments (pruning, girdling etc.), selection criteria based on desirable characteristics or traits, and species preferences.

Timber

Consider integration of projects, other resource activities, and other harvests during initial project area determination.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

See Forest Plan direction p. 5-6 and p. 5-7 for young growth harvest direction.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Thinning is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

All applicable laws, BMPs, and Forest-wide direction must be followed.

Fisheries

Prior to implementation, stream reaches in and around riparian treatment stands should be protected in the following manner:

For Class I, II, and III streams, at least a 10-foot-wide no-thin buffer shall be left on each side of the stream. Buffers less than 10 feet shall be approved by a Fisheries Biologist. Evaluate steep side-slopes to determine if trees outside the 10-foot no-thin buffer will be prone to falling into the stream course. In this case, a no-thin buffer within the stream's v-notch may be appropriate.

Cut trees shall be felled away from any Class I, II, III, or IV streams. Any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course and out of the no-thin buffer. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

For commercial thinning treatments, stream reaches within the affected areas will be identified and protected according to their stream class, Channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p.5-6 and 5-7). When considering young growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

R10 BMPs: 12.6, 12.6a, 13.9, 13.14, and 13.16

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) are the primary mechanism for meeting water quality standards for nonpoint source pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

All proposed areas using mechanized equipment would need to be reviewed by a Tongass Soil Scientist for suitability upon implementation. A Soil Scientist will need to evaluate the stand for existing detrimental soil conditions. Heavy machinery is required to operate on puncheon material and should not operate on slopes greater than 25 percent. Consult a Soil Scientist if ground-based activities are proposed on slopes over 35 percent gradient. If the site is well drained, a Soil Scientist may approve equipment to operate up to 35 percent slopes. Heavy machinery should avoid creating ruts greater than 12 inches in depth. All rootwad extraction locations are required to be approved by a Soil Scientist prior to removal and must follow the current forest guidelines for extraction. Wetland areas should be avoided. Dense slash and woody debris accumulations are not permitted. Avoid locating temporary roads on slopes greater than 67 percent. Minimize soil disturbance. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17. 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: AqEco-2, Road-2, Road-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. Prior to implementation a qualified botanist/ecologist must conduct a site-specific pre-field review to determine if potential habitat for R10 Sensitive Plants or

Tongass National Forest Rare Plants are present. Any surveys required shall be conducted at the appropriate time of the year and at an appropriate intensity level (Forest Plan PLA3 p. 4-40). If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1).

Integrate weed prevention and management in all soil, watershed and stream restoration projects (Invasive Plant Management WBMP 22).

See Introduction for additional WBMPs that apply to all activities 1-6.See Forest Management WBMPs 17-18, Soil and watershed WBMP 22 on page 10, and any Road disturbances WBMPs 7-13 on pages 7-9 in Krosse 2017.

Geology/Karst

Require protection of all sinking or losing streams and their tributaries irrespective of whether the channels carry perennial, ephemeral, or intermittent flows. A non-harvest buffer is required of a minimum of 100 feet from the edge of a sinking or losing stream within no less than ¼ mile (1,320 feet) upstream of their swallow hole or loss point. Additional protection beyond this point may be needed and should take into consideration parameters such as gradient, channel type, soil characteristics, and susceptibility to mass wasting and erosion along the stream's or tributary's course or within the watershed. The karst management specialist should work in conjunction with hydrologists and soil scientists to design additional stream protection if needed. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of that zone (pay special attention to the area within two site-potential tree height of the no-harvest zone. In the event that the stream is less than 1/4 mile long, the stream will be buffered to the stream's source.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic logging equipment and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource.

There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

No riparian thinning projects are authorized to take place within designated Wilderness areas with this project. The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Discourage cutting within 100 feet of the river in scenic river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Thinning activities would typically occur in stands that are approximately 15 to 50 years old depending on stand location, site productivity, need for restoration, and management objectives.

Integration Opportunities: Stream restoration, commercial thinning, PCT with timber and wildlife emphases,

Card 07
Activity: Wildlife Thinning

Description: Thinning, either precommercial or commercial, to benefit wildlife by improving forage production and providing travel corridors. Thinning to benefit wildlife should not be limited to non-development LUDs.

Objectives: 1) To increase the amount of light reaching the forest floor by opening the forest canopy to enhance forage production in areas with limited or no forage; 2) to create a variety of habitat types (thinned/unthinned, young and old-growth areas) across the landscape; 3) to facilitate wildlife movement through the stand by providing unthinned corridors within treated stands; and 4) to increase structural diversity and future large trees and/or snags.

Related Actions: A combination of treatments will be used to achieve site-specific objectives. These may include, but are not limited to: slash control (Activity Card 10), wildlife travel corridors, wildlife gaps, pruning (Activity Card 9), and girdling (Activity Card 8). Individual stand objectives may include timber (Activity Card 5), riparian (Activity Card 6), and/or wildlife emphases, precommercial thinning or commercial thinning (Activity Card 4).

Methods: Thinning from below, fixed or variable density thinning, pruning, slash treatments, and gaps.

Equipment Used: Handcrews with chainsaws, mechanical equipment.

What are the general guidelines constraining this activity?

When wildlife thinning activities occur in development LUDs follow all applicable Forest Plan direction so as to meet Land Use Designation objectives.

What are the resource-specific guidelines?

Silviculture

A signed prescription by a Certified Silviculturist is required before any tree cutting activities occur. Wildlife thinning prescriptions will be developed on a site specific basis utilizing variable spacing techniques, selected treatments (pruning, girdling etc.), selection criteria based on desirable characteristics or traits, and species preferences. Target residual density to promote or retain understory vegetation development or acceleration of old-growth stand structure. Include other treatment elements (*i.e.*, slash control, wildlife travel corridors, wildlife gaps, pruning, and girdling) when beneficial to meeting wildlife objectives.

Timber

See Commercial Thinning Activity Card #04

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

Consult with the Wildlife Biologist to identify areas that may be lacking or limited in heterogeneity across the landscape, travelways between habitats, and structural diversity and prioritize those areas for light or no treatments. Prioritize areas to enhance or provide connectivity by leaving untreated or lightly treated areas across the landscape. Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. Wildlife biologist may recommend opening size and placement, and slash treatment.

Evaluate roads needed for treatments to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning.

See Forest Plan direction p. 5-5 and p. 5-8 for direction on young growth harvest.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Thinning is considered a Category C activity in the National Bald Eagle Management Guidelines. See the Introduction to Activity Cards for more information.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

For PCT treatments, stream reaches in and around treatment stands should be identified and protected in the following manner:

For Class I, II, and III streams, at least a 10-foot-wide no-thin buffer shall be left on each side of the stream. Buffers less than 10 feet shall be approved by a Fisheries Biologist. Evaluate steep side-slopes to determine if trees outside the 10-foot no-thin buffer will be prone to falling into the stream course. In this case, a no-thin buffer within the stream's v-notch may be appropriate.

Cut trees shall be felled away from any Class I, II, III, or IV streams. Any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course and out of the no-thin buffer. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

For CT treatments, stream reaches within the affected areas will be identified and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7). When considering young-growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures.

R10 BMPs: 12.6, 12.6a, 13.9, 13.14, and 13.16

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

All proposed areas using mechanized equipment would need to be reviewed by a Tongass Soil Scientist for suitability upon implementation. A Soil Scientist will need to evaluate the stand for existing detrimental soil conditions. Heavy machinery are required to operate on puncheon material and should not operate on slopes greater than 25 percent. If the site is well drained, a Soil Scientist may approve equipment to operate up to 35 percent slopes. Consult a Soil Scientist for any ground-based equipment operations on slopes over 35 percent gradient. Heavy machinery should avoid creating ruts greater than 12 inches in depth. Wetland areas should be avoided. Dense slash and woody debris accumulations are not permitted. Avoid locating temporary roads on slopes greater than 67 percent. Minimize soil disturbance. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17. 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: AqEco-2, Road-2, Road-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1).

See Introduction for additional WBMPs that apply to all activities 1-6. See Forest Management WBMPs 17-18 for timber or other vegetation removal activities page 9. If roads are involved see Roads WBMPs 7-13 on pages 7-9 in Krosse 2017.

Geology/Karst

Pre-commercial thinning is appropriate on all karst lands when the karst management objectives can be met. Pre-commercial thinning to near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is probable that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand. Commercial thinning is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no thinning shall be permitted on lands determined to be of high vulnerability such as within 100 feet of a cave entrance, a karst feature accepting surface flow, or of the edge of a sinking or losing stream within 0.25 mile upstream of their swallow hole or loss point. On a case-by-case basis, other karst features will be assessed as to their susceptibility to surface disturbing activities, the proposed harvest method, and the thinning prescription.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource.

There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

Commercial thinning is prohibited within designated Wilderness areas and no precommercial wildlife thinning activities are authorized to take place within designated Wilderness areas with this project.

The wilderness manager should be consulted if commercial or precommercial wildlife thinning treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, may be considered.

Wild, Scenic and Recreational Rivers

Allow wildlife habitat improvements where their principal objective is the protection or restoration of river resources and enhancement of outstandingly remarkable values (ORVs) of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain free-flowing condition, water quality and river classification. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Wildlife habitat enhancement activities could occur within a stand when a need is identified. For improved forage production, when possible, treat stands before they reach the stem exclusion stage at approximately 15 to 35 years old depending on stand location, site productivity, and management objectives.

Integration Opportunities: Stream restoration, tree rootwad extraction, commercial thinning. PCT timber and riparian emphasis,

Card 08
Activity: Girdling

Description: The severing of the bark through the cambium around the entire circumference of the bole of larger diameter trees during thinning operations instead of felling so as to delay tree mortality (approximately 2 to 5 years).

Objectives: To reduce the accumulation of slash on the ground during thinning activities so as not to impede wildlife movement as well as provide future snag recruitment for wildlife.

Related Actions: Thinnings (Activity Cards 5 through 7), wildlife travel corridors, and wildlife trees (Activity Card 30).

Methods: Traditional girdling or Vertical Shave girdling (preferred method). Traditional girdling will consist of at least two (2) cuts. Each cut will be at least ¼ inch in width, and deep enough to expose white wood with a maximum depth of no more than .5 inch. Each cut will completely girdle the tree. Girdling cuts will be at least 4 inches to 8 inches apart and below the lowest live limb.

Vertical Shave girdling, a vertical cambium shave that removes the bark and live cambium completely from the entire circumference of the tree, is the preferred method. This method will consist of vertical cuts at least 6 inches long, at least ¼ inch but no more than 1 inch deep. The entire cambium will be remove vertically for at least 4 inches around the entire circumference of the tree yet not remove more than a third of the bole diameter. This equates to a maximum ¾ inch depth on a 5 inch tree.

Equipment Used: Handcrews using chainsaws or other devices designed for the purpose.

What are the general guidelines constraining this activity?

Trees would not be girdled adjacent to roads, trails and other structures/areas where falling trees could cause damage or create hazards or safety concerns.

What are the resource-specific guidelines?

Silviculture

A signed prescription by a Certified Silviculturist detailing girdling specifications is required before any tree cutting activities occur. Girdling may be used during thinning operations on trees between approximately 7 inches to 14 inches dbh to achieve desired spacing, reduce the amount of slash left on the ground as well as reduce thinning costs.

Timber

In suitable timber lands, strive to maximize future resource values and timber products. Implement thinning treatments in young conifer stands to increase timber volume or value of remaining trees and improve future growth.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

Prioritize WAAs that have limited or are lacking deer winter range (south facing stands below 800 feet in elevation). Prioritize areas within these WAAs to provide deer winter range by increasing forage production in areas where it is currently lacking or limited. Girdling, as compared to other thinning treatments, will result in less slash on the ground, increasing access to the forage and movement through the treated area.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Appendix 1

Fisheries

Avoid girdling trees within 10 feet of Class I, II, and III streams.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

To minimize additional erosion, buffer any existing landslides within a thinning unit with a 50-foot buffer around the headwall to provide root stability. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.5, and 13.9

National Core BMPs: AqEco-2, Veg-2, and Veg-8

Botany

Botanical surveys are not needed unless activity is located within beach buffer. Within the beach buffer, conduct targeted surveys for the Region 10 Sensitive lichen, *Ricasolia amplissima* ssp. *sheiyi*. If found, avoid these areas to maintain live trees for this species' habitat. This is the only habitat it is known to occur in at this time.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Girdling is appropriate on all karst lands when the karst management objectives can be met. Girdling near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is probable that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

No girdling activities are authorized to take place within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs) of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain free-flowing condition, water quality, and river classification. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

In stands where felling all the trees required to meet thinning objectives would result in a large accumulation of slash, or there are a number of larger diameter trees that would substantially increase thinning costs, girdling of trees within a specific diameter range may be used to prevent negative impacts. Girdling may also be used to provide future snag recruitment for wildlife purposes.

Integration Opportunities: Girdling of trees will usually be done in conjunction with other thinning activities.

Card 09
Activity: Pruning

Description: Removal of limbs on the lower bole of crop trees after precommercial thinning to enhance wood quality, increase wood growth, and promote/retain understory vegetation, or meet other desired future stand conditions.

Objectives: 1) Increase the amount of sunlight reaching the forest floor to enhance forage production; 2) Improve tree structure, form, and/or wood quality; 3) Address forest health concerns; 4) For safety purposes particularly around recreation sites; or 5) for visibility and/or aesthetics.

Related Actions: Precommercial, riparian, wildlife, and commercial thinnings (Activity Cards 4 through 7), wildlife travel corridors, and Viewshed Improvement (Activity Card 42).

Methods: Removal of lower branches to various specifications.

Equipment Used: Handcrews using pruning saws, pole saws, or other equipment designed for the purpose.

What are the general guidelines constraining this activity?

Pruning in development LUDs follow all applicable Forest Plan direction so as to meet Land Use Designation objectives.

What are the resource-specific guidelines?

Silviculture

A signed prescription by a Certified Silviculturist is required before any tree cutting activities occur. Pruning prescriptions will be developed on a site specific basis taking into consideration phenotypic selection criteria and species preferences. A variety of pruning intensities may be used depending on site specific characteristics and stand objectives. This will range from pruning every tree up to every 8th tree. No tree less than 15 feet in height will be pruned. All live and dead branches shall be removed from the tree bole to a height up to 50 percent of the total tree height, not to exceed 17 feet as measured from uphill side of the tree. Lift will not remove greater than 60 percent of existing tree canopy. All branches, alive and dead, shall be removed from the ground level up to the specified pruning height. These branches shall be completely severed from the tree as close to the bole as possible without cutting into the branch collar. The sever point shall not exceed ½ inch beyond the branch collar. Branch stubs should not exceed 4 inches in length. When feasible pruning will be performed in conjunction with other thinning activities. Consider epicormic branching when pruning spruce. All care should be taken to minimize any damage to adjacent trees.

Timber

In suitable timber lands strive to maximize future resource values and timber products.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

Prioritize WAAs that have limited or are lacking deer winter range (intact low-elevation old-growth forest on south facing stands); prioritize areas within these WAAs to provide deer winter range by increasing forage production in areas where it is currently lacking or limited.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active eagle nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any slash that enters a stream shall be pulled back out of the stream course before handcrews leave the site. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.6, 12.6a, 12.8, 12.9

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

Minimize soil disturbance. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.5, and 13.9

National Core BMPs: AqEco-2, Veg-2, and Veg-8

Botany

Botanical surveys are not needed unless activity is located within beach buffer. Then targeted surveys for the Region 10 Sensitive lichen, *Ricasolia amplissima* ssp. *sheiyi*, should be conducted on the trees that are to be pruned. This is the only habitat it is known to occur in at this time.

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travelways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Pruning is appropriate on all karst lands when the karst management objectives can be met. Pruning to near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is probable that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be

taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). In non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

No pruning activities are authorized to take place within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Allow wildlife habitat improvements where their principal objective is the protection or restoration of river resources and enhancement of outstandingly remarkable values (ORVs) of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain free-flowing condition, water quality and river classification. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Stands will not be pruned until trees exceed 15 feet in height at approximately 15 to 20 years old depending on species and site productivity. Pruning should occur after stands have been thinned.

Integration Opportunities: Pruning will usually be done in conjunction with other thinning activities.

Card 10
Activity: Slash Treatment

Description: Treatment (removal or redistribution) of woody material generated by thinning activities including the slash from previous harvest to reduce the influence of slash on wildlife movement, forage production or to meet other desired future stand conditions.

Objectives: 1) To facilitate wildlife movement, 2) increase forage production and availability, 3) encourage natural regeneration, and/or 4) increase wood fungi colonization

Related Actions: Old-growth and Young-growth harvest (Activity cards 1-3 and 13-14); and commercial, precommercial, wildlife, and riparian thinnings (Activity Cards 4 through 7).

Methods: Bucking to various lengths, delimbing, lop and scatter, machine/hand pile, chipping, crushing (by equipment driving over the slash, breaking it up, and compacting it closer to the ground).

Equipment Used: Handcrews with chainsaws, mechanical equipment.

What are the general guidelines constraining this activity?

Slash treatment may depend upon funding and may be prioritized in WAAs where proposed activities would have a greater effect to deer.

What are the resource-specific guidelines?

Silviculture

Specifications for slash treatments of activity generated woody material will be part of the stand prescription when required to meet stand objectives and desired future condition. During all precommercial, wildlife, and riparian thinnings, slash would be pulled clear of roadways, associated ditches, karst features, streams, and road banks.

Timber

Treatment of slash within timber production areas will not be required for all thinning activities but may be considered on site specific locations to address resource concerns.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs for administrative use on a case-by-case basis per the implementation plan.

Wildlife

Consult a wildlife biologist for recommendations for locations for this activity. This activity may also occur in areas identified as needing wildlife corridors.

This activity may improve forage production, wildlife access to the forage, and access through the treated area. When slash is piled, the piles will create small mammal habitat. Slash treatment may be more intensive in areas of wildlife travelways, beach buffers, and riparian management areas.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Slash generated from timber harvest should not affect RMAs, ensure that slash generated from riparian thinning does not inhibit stream or riparian area functionality. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.6, 12.6a, 12.8, 12.9

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

Appendix 1

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

A site-specific slope stability assessment is required by a Tongass Soil Scientist upon implementation to determine landslide and erosion potential. All proposed areas using mechanized equipment will need to be reviewed by a Tongass Soil Scientist for suitability upon implementation, and the stand will be evaluated for existing detrimental soil conditions. Mechanized equipment are required to operate on puncheon material and should not operate on slopes greater than 25 percent. If the site is well drained, a Soil Scientist may approve equipment to operate up to 35 percent slopes. Consult a Soil Scientist for any ground-based equipment operations on slopes over 35 percent gradient. Mechanized equipment should avoid creating ruts greater than 12 inches in depth. Wetland areas should be avoided. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.5, 13.9, 19.2, and 19.3

National Core BMPs: AqEco-2, Fire-2, Veg-2, Veg-4, Veg-6, and Veg-8

Botany

No botanical surveys required, unless equipment and people will be staged in an area for a time period.

When treating slash that was generated from other activities it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travelways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.(see Krosse 2017 for all WBMPs)

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

Commercial thinning is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Slash treatment to near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is probable that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work

will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). For projects that do not include young growth, SIOs depend on LUDs and distance from VPRs. Very Low SIO applies to young-growth projects in development LUDs. Additional management approaches are specified for Modified Landscape (ML) and Scenic Viewshed (SV) LUDs (Forest Plan, S-YG-SCENE-01). For young growth projects in non-development LUDs, LUD-specific SIOs apply (Forest Plan, SCENE2).

Wilderness

No slash treatment activities are authorized to take place within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Allow wildlife habitat improvements where their principal objective is the protection or restoration of river resources and enhancement of outstandingly remarkable values (ORVs) of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain free-flowing condition, water quality and river classification. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest and slash treatment will not occur in wild river corridors. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

When slash generated by thinning activities combined with the slash from the original harvest adversely affects other resources. This activity would be implemented to improve wildlife habitat or to meet other stand objectives. Slash treatments should be implemented in conjunction with harvest or thinning activities or within a year or two of completion.

Integration Opportunities: When feasible, implement slash treatments in conjunction with harvest or thinning activities to reduce costs and minimize impacts.

Card 11
Activity: Timber Stand Establishment – Planting and Inter-planting

Description: Planting or inter-planting of tree seedlings in stands where a reforestation or other need has been identified to meet desired future conditions.

Objectives: Planting: 1) Promote species diversity; 2) to accelerate tree establishment and growth; 3) in the event natural regeneration is insufficient to meet the 1976 National Forest Management Act certification after the third growing season, or the minimum stocking level falls below the Tongass National Forest stocking guidelines. Inter-planting of yellow-cedar: 1) To maintain yellow-cedar as a component of the stand's species composition; 2) to facilitate the migration of yellow-cedar to better drained locations and higher elevations; 3) to aid yellow-cedar in competing with faster growing Sitka spruce and western hemlock.

Related Actions: Non-lethal browse control measures (*i.e.*, tree shelters, netting, enclosures, repellents, alternative forage), even-aged, two-aged, and uneven-aged management (Activity Cards 1, 2, 3, 13, and 14)

Methods: Hand planting.

Equipment Used: Manual (hoe-dad or shovel).

What are the general guidelines constraining this activity?

Ensure compliance with the 1976 National Forest Management Act and the Tongass National Forest stocking guidelines when considering any planting activities.

What are the resource-specific guidelines?

Silviculture

Pretreatment exams for reforestation will be scheduled within 5 years post-harvest to evaluate all harvested units to ensure adequate natural regeneration is present as required by the National Forest Management Act (Forest Plan pg. 4-72). If planting is considered necessary to enhance species composition or diversity, or to achieve minimum required stocking levels, a prescription will be written, seedlings ordered, and planting activities scheduled as soon as feasible. Subsequent precommercial thinning treatments should be scheduled and implemented in a timely manner to maintain planting investment.

Timber

In suitable timber lands strive to maximize future resource values and timber products.

Transportation

Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

This activity will increase both the species and structural diversity of a stand, both of which will be beneficial to a variety of wildlife species. All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

No fisheries-specific guidelines for seedling planting; see Fisheries information in the connected actions cards (even-aged, two-aged, uneven-aged management).

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

Soil disturbance should be minimized to the extent practicable. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, and 12.17

National Core BMPs: AqEco-2, Veg-2, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. Main concern here is the staging area for trees and people to do the work, disturbance of forest edges or planting in wetland inclusions that are sensitive plant habitat within a harvested unit targeted for planting. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Planting or inter-planting of tree seedlings is appropriate on all karst lands when the karst management objectives can be met. Surface disturbance should be minimized to the extent practicable.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

None

Scenery

None

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if commercial thinning treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

If planting or inter-planting activities are deemed necessary based on reforestation pretreatment exams, they will be scheduled as soon as possible, usually within 2 to 3 years. Sometimes there are other needs for planting such as at recreation sites, old roads/trails, wildlife and riparian habitat.

Integration Opportunities: Ensure there is sufficient seed stored to meet any future planting needs. Monitor good cone crop years and schedule cone collection for seed procurement when necessary. Anticipate any potential planting needs for inclusion in Timber Harvest KV plans. Any animal damage control activities should occur in conjunction with planting to protect seedlings from browse.

Card 12
Activity: Cone Collection

Description: Harvesting of mature cones to obtain native seed for reforestation purposes.

Objectives: To collect and maintain a viable seed cache sufficient to support current and future reforestation efforts.

Related Actions: Commercial salvage sale (Activity Card 15).

Methods: Pruning or felling of select trees and collecting cones by hand.

Equipment Used: Hand crew with chainsaws.

What are the general guidelines constraining this activity?

Trees will not be cut within Inventoried Roadless Areas, riparian areas or in land use designations where commercial timber harvest is prohibited.

What are the resource-specific guidelines?

Silviculture

The number of bushels per species to be collected will be determined by a Certified Silviculturist. Cone will be collected from individually selected trees located within a few hundred feet of roads. Trees not selected by Forest Service personnel must be approved prior to the start of any collection activities. All precautions will be taken to prevent damage to adjacent trees.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Access is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

When pruning or felling trees that will not also be made available as commercial timber, stream reaches in and around cone collection sites should be identified and protected in the following manner:

For Class I, II, and III streams, at least a 10-foot-wide no-cut buffer shall be left on each side of the stream. Evaluate steep side-slopes to determine if trees outside the 10-foot no-cut buffer will be prone to falling into the stream course. In this case, a no-cut buffer within the stream's v-notch may be appropriate.

Cut trees shall be felled away from any Class I, II, III, or IV streams. Any cut trees or slash that inadvertently enters a stream shall be pulled back out of the stream course and out of the no-cut buffer. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19

National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3

When felling trees for cone collection that will also be made available as commercial timber, stream reaches within cone collection sites will be identified and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply, although some young-growth harvest can occur outside the TTRA buffer in these additional buffer areas (Forest Plan, p. 5-6 and 5-7). When considering young-growth harvest within an RMA, give preference to areas where treatments are most needed to accelerate old-growth characteristics and achieve the stream process group objectives.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.6, 12.6a, 13.9, 13.14, and 13.16

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Road-10, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

Avoid harvesting cones and cutting trees within 50 feet of a new or existing landslide and within non-forested wetland areas.

R10 BMPs: 12.5 and 13.5

National Core BMPs: Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. The main concern here would be trampling under trees that are to be harvested for cones. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Cone collection is appropriate on all karst lands when the karst management objectives can be met.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties

exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

None

Scenery

None

Wilderness

This activity is prohibited within designated Wilderness areas.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Collection would occur in late August or September after cones have ripened during good cone crop years, usually every 5 to 7 years when necessary to maintain the Region's seed cache or a permit is issued under a TIMS product plan.

Integration Opportunities: When feasible, coordinate cone collection within active timber harvest units.

Card 13
Activity: Rotational Harvest of Old Growth using Even-aged Management

Description: Harvest of old-growth timber that results in a new stand of trees composed of a single age class.

Objectives: This activity is used to regenerate existing stands of timber, and converts mature to over-mature timber stands where growth is being offset or exceeded by decay into healthy stands of young-growth timber. The activity minimizes the risk of post-harvest windthrow, promotes natural regeneration of desirable species, and minimizes defect and disease that will be present in the future stand to the maximum extent possible. The activity is generally recognized as an efficient and most economic method of harvesting old-growth timber that promotes the potential for an economic timber sale.

Related Actions: Landings, Tree Planting (Activity Card 11), NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17).

Methods: Clearcutting and clearcutting with reserves.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems**.**

What are the general guidelines constraining this activity?

This activity may only occur within the suitable lands based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction.

What are the resource-specific guidelines?

Silviculture

The Forest Plan (pages 4-68 to 4-69) requires a number of considerations/determinations before this activity can be applied. Clearcutting must be planned in a way that isolated stands of timber will not be created and existing stands of regeneration from previous harvests will not be destroyed. A finding from a Certified Silviculturist that clearcutting is the best method to meet objectives and requirements is necessary. That finding must conform to direction in FSM 2470 Supplement No.: R-10 2400-2005-1 which defines requirements on the use of clearcutting, generally limiting the activity to places where it is necessary to address concerns for insect and disease, windthrow, logging damage, or other factors affecting forest health. For the purpose of this assessment, this means an old-growth stand proposed for clearcutting must have a moderate or high windthrow risk, insect or disease rating, or a combination of the three. The Forest Plan and NFMA limit the size of even-age openings to 100 acres with certain exceptions. In order to be considered a separate opening from an adjacent timber stand for the purpose of determining the acreage, the adjacent stand must be well stocked with trees at least 5 feet tall. If adjacent stands do not meet this requirement, a stand of timber must be left to separate the two stands. Leave strips between openings must be of sufficient size and composition to be managed as a separate stand (minimum stand mapping size is 10 acres).Exceptions to the 100 acre size of even-aged openings are discussed on page 4-69 of the Forest Plan and R10 Supplement FSM 2400-2002-1. Harvest openings larger than 100 acres will not to be considered without additional site-specific NEPA analysis and Forest Supervisor approval.

Timber

Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are about 0.05 acres in size. Continuous roadside landings are also used.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective harvest method available for each setting (generally in the order of shovel, then cable, and finally helicopter).

Consider incorporating a mix of stands with different volumes/values to improve economics for the contract offerings.

Transportation

Roaded access is required to effectively manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long-term access needs to determine the appropriate road classification: temporary or system.

The construction of temporary roads will be considered when that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, the temporary road construction is viable within the Standards and Guidelines of the Forest Plan (Chapter 4), and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the Forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4.

Wildlife

Consult with Wildlife Biologist to identify areas that may be lacking or limited in habitat variability across the landscape, travelways between habitats and structural diversity and prioritize those areas for partial or no harvest. Prioritize areas to enhance or provide connectivity by leaving untreated or lightly treated areas across the landscape. Prioritize WAAs that have limited or are lacking deer winter range (south facing stands below 800 feet in elevation). Prioritize areas within these WAAs to provide deer winter range by increasing forage production in areas where it is currently lacking or limited.

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. The Wildlife Biologist may recommend opening size and placement and slash treatment.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include putting roads in storage or decommissioning.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines**.** See Introduction to Activity Cards for more information.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows directly into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.3, 13.4, 13.5, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.19, 14.25, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Road-10, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas (timber harvest units) to be reviewed for hydrologic concerns once identified (*e.g.*, sedimentation, wind firmness). Minimize the impacts of logging activities on watershed health by following BMPs. Use existing roads and/or road bases unless existing road locations do not meet current BMPs and minimize off-road travel. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Upon implementation, a Tongass Soil Scientist review for harvest suitability is required if there are wetlands, landslides, and/or hollow topography present, ground-based equipment is proposed, or if units are located on slopes greater than 55 percent. All proposed yarding activities should follow BMPs with a minimum of partial suspension to meet soil and wetland resource concerns. Some units may only be suitable under full suspension requirements. The ground based operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground based yarding on slopes over 25 percent gradient. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth. Temporary roads would also be reviewed for suitability. Avoid locating roads on slopes greater than 67 percent or on slopes greater than 55 percent on glacial till soils. When determining temporary road locations, wetlands should be avoided to the extent practicable. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, Veg-6

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. The main concern here would be trampling under trees that are to be harvested for cones. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

See Introduction for additional WBMPs that apply to all activities 1-6. See all Roads and Forest Management WBMPs on pages 7-9 in Krosse 2017.

Geology/Karst

If on karst lands, prior to implementation, the Forest Geologist will review for harvest suitability and conduct a vulnerability assessment. The vulnerability assessment will determine the appropriateness of the proposed activity and define mitigation if needed. The following vulnerability classifications will be applied (see Forest Plan Appendix H).

Low vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are not likely to be appreciably greater than those posed by similar activities on non-carbonate substrate.

The moderate vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are appreciably greater than those posed by similar activities on low vulnerability karst lands. Management objectives on these lands is to provide for other land uses while taking into account function and biological significance of the karst and cave resources within the landscape. Timber harvest and related activities could be conducted in such areas under more restrictive guidelines than normally employed on lands underlain by non-carbonate bedrock. To protect the fragile soils found here, as a minimum, the yarding system selected may be required to achieve partial suspension. Longer timber harvest rotational periods may be appropriate. Reduced timber harvest unit size and a greater dispersal of harvest units may be required. Existing roads will be used in preference to the construction of new ones. Roads should avoid sinkholes and other collapse features and sinking or losing streams. Roads should not divert water to or from karst features. Measures shall be taken to reduce erosion and sediment transport from the road surface and cut slopes. Assess the need for ditches and culverts. Sediment traps, cut and fill slope revegetation, and road closure and revegetation may be appropriate. Because subsurface drainage networks may be more open to the surface in moderate vulnerability areas, additional design criteria may be required. Existing quarries will be used in preference to the construction of new ones. No quarry shall be developed atop karst without adequate site survey and design.

The high vulnerability karst lands are those areas where resource damage threats associated with land management activities are appreciably greater than those posed by similar activities on low or moderate vulnerability karst lands. These are the areas contributing to or overlying significant caves and areas containing a high density of karst features. Timber management and related activities should be excluded from these lands. Small expanses of these areas may be crossed by roads to access areas where harvest is appropriate, *i.e.*, low or moderate vulnerability karst lands and non-carbonate areas. This would only be allowed if no other route or option was available and karst resource values would not be compromised. No quarry development would be allowed on these lands.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where timber harvest may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with

proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if commercial thinning treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Discourage cutting within 100 feet of the river in scenic river corridors. In recreational river corridors, ensure sufficient old growth is maintained to meet the size, spacing, composition and connectivity requirements of the Forest Plan's old-growth conservation strategy. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

This activity would be considered primarily for the purpose of contributing old-growth timber volume to the large and small timber sale programs through contract offerings.

The timing and intensity of the activity across the landscape would be limited to stands where the silvicultural requirements regarding the justification for clearcutting are met.

What are the potential resource integration opportunities? This activity may require road construction and normally requires road maintenance. This creates an opportunity to coordinate with road maintenance needs including red pipe replacement and offers an opportunity to leverage mobilization of heavy equipment so that other roads important for subsistence use and for other activities can be maintained. Clearcut timber harvest results in some trees that are non-merchantable as sawtimber being cut; this creates an opportunity for that material to be used for other purposes like personal use firewood, biomass, and stream restoration material. Road construction requires rock pit development that creates an opportunity for personal use rock sources.

Card 14
Activity: Harvest of Old Growth using Uneven-aged Management

Description: Harvest following a planned sequence of treatments designed to result in a stand with three or more distinct age classes. Partial harvest designed to retain old-growth structure while removing a percentage of the trees in the stand. The harvest may be by individual tree or in small groups of trees up to two acres.

Objectives: Maintain old-growth structure while producing timber products.

Related Actions: Landings, equipment trails, Tree Planting (Activity Card 11), Precommercial Thinning (Activity Card 5), NFS Road Construction (Activity Card 18), Temporary Road Construction (Activity Card 19), NFS Road Reconstruction (Activity Card 20), Quarry Development (Activity Card 23), Road Maintenance (Activity Card 24), and Log Transfer Facilities (Activity Card 17).

Methods: Single tree selection, group selection, group selection with reserves.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems or by hand in the case of microsales of products.

What are the general guidelines constraining this activity?

This activity may only occur within the suitable land based on legal and technical factors (Forest Plan Appendix A). This activity will also only occur in areas that meet all applicable Forest Plan direction.

What are the resource-specific guidelines?

Silviculture

This activity is limited to single tree or group selection prescriptions. Harvest may be in group selections up to 2 acres in size or via partial harvest using individual tree selection. Conduct stand exams and windthrow risk assessment prior to prescription development. Group selections should harvest no more than approximately 33 percent of the stand area during any cutting cycle. Subsequent cuttings should be scheduled to avoid habitat loss and or take advantage of opportunities to lower operating costs. Partial harvest (single tree selection) should maintain at least 50 percent residual basal area in moderate windthrow risk areas and at least 75 percent in high risk areas. Implement this activity primarily where the combination of other resource objectives already limits timber harvest opportunities. The activity is most suited for areas requiring helicopter logging to meet other resource objectives.

Timber

Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are about 0.05 acres feet in size. Continuous roadside landings are also used.

Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber or restrict future access.

Consider the most cost effective harvest method available for each setting (generally in the order of shovel, then cable, and finally helicopter). Consider incorporating a mix of units with different volumes/values to improve economics for the contract offerings.

Transportation

Roaded access is required to effectively manage the timber resource. Reconstruction of stored roads may be required. Timber harvest methods may require construction of new roads. Analyze present and long term access needs to determine the appropriate road classification, temporary or system.

The construction of temporary roads will be considered when that construction is necessary for the facilitation of the yarding system, the economic value of the timber within a harvest area supports its construction, the temporary road construction is viable within the Standards and Guidelines of the Forest Plan (Chapter 4), and the construction adheres to all applicable BMPs. Temporary roads are not intended to be part of the Forest transportation system and are considered not necessary for long-term resource management.

The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4

Wildlife

Consult with Wildlife Biologist to identify areas that may be lacking or limited in habitat variability across the landscape, travelways between habitats and structural diversity and prioritize those areas for partial or no harvest. Prioritize areas to enhance or provide connectivity by leaving untreated across the landscape. Prioritize WAAs that have limited or are lacking deer winter range (south facing stands below 800 feet in elevation). Prioritize areas within these WAAs to provide deer winter range by increasing forage production in areas where it is currently lacking or limited.

Recommend incorporating leave strips that provide travel corridors. Maintain or enhance corridors between higher and lower elevations. The Wildlife Biologist may recommend opening size and placement and slash treatment.

Evaluate roads needed for harvest to determine ways to lessen disturbance to wildlife; this could include putting roads in storage or decommissioning.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines. See Introduction to Activity Cards for more information.

Fisheries

Prior to implementation, stream reaches within the affected areas will be surveyed, flagged, and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.3, 13.4, 13.5, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.19, 14.25, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Road-10, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas (timber harvest units) to be reviewed for hydrologic concerns once identified. Minimize the impacts of logging activities on watershed health by following BMPs. Use existing roads and/or road bases unless existing road locations do not meet current BMPs and minimize off-road travel. Limit new road construction to the degree possible, and close roads that are no longer in use. Avoid downhill cable yarding where possible.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist review for harvest suitability is required if there are wetlands, landslides, and/or hollow topography present, ground-based equipment proposed, or if units are located on slopes greater than 55 percent. All proposed yarding activities should follow BMPs with a minimum of partial suspension to meet soil and wetland resource concerns. Some units may only be suitable under full suspension requirements. The ground-based operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth. Temporary roads would also be reviewed for suitability. Avoid locating roads on slopes greater than 67 percent or on slopes greater than 55 percent on glacial till soils. When determining temporary road locations, wetlands should be avoided to the extent practicable. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (Invasive Plant Management WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

See Introduction for additional WBMPs that apply to all activities 1-6. Also see all WBMPs for Roads and Forest Management pages 7-9 in Krosse 2017.

Geology/Karst

If on karst lands, prior to implementation, the Forest Geologist will review for harvest suitability and conduct a vulnerability assessment. The vulnerability assessment will determine the appropriateness of the proposed activity and define mitigation if needed. The following vulnerability classifications will be applied (see Forest Plan Appendix H).

Low vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are not likely to be appreciably greater than those posed by similar activities on non-carbonate substrate.

The moderate vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are appreciably greater than those posed by similar activities on low vulnerability karst lands. Management objectives on these lands is to provide for other land uses while taking into account function and biological significance of the karst and cave resources within the landscape. Timber harvest and related activities could be conducted in such areas under more restrictive guidelines than normally employed on lands underlain by non-carbonate bedrock. To protect the fragile soils found here, as a minimum, the yarding system selected may be required to achieve partial suspension. Longer timber harvest rotational periods may be appropriate. Reduced timber harvest unit size and a greater dispersal of harvest units may be required. Existing roads will be used in preference to the construction of new ones. Roads should avoid sinkholes and other collapse features and sinking or losing streams. Roads should not divert water to or from karst features. Measures shall be taken to reduce erosion and sediment transport from the road surface and cut slopes. Assess the need for ditches and culverts. Sediment traps, cut and fill slope revegetation, and road closure and revegetation may be appropriate. Because subsurface drainage networks may be more open to the surface in moderate vulnerability areas, additional design criteria may be required. Existing quarries will be used in preference to the construction of new ones. No quarry shall be developed atop karst without adequate site survey and design.

The high vulnerability karst lands are those areas where resource damage threats associated with land management activities are appreciably greater than those posed by similar activities on low or moderate vulnerability karst lands. These are the areas contributing to or overlying significant caves and areas containing a high density of karst features. Timber management and related activities should be excluded from these lands. Small expanses of these areas may be crossed by roads to access areas where harvest is appropriate, *i.e.*, low or moderate vulnerability karst lands and non-carbonate areas. This would only be allowed if no other route or option was available and karst resource values would not be compromised. No quarry development would be allowed on these lands.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Discourage cutting within 100 feet of the river in scenic river corridors. In recreational river corridors, ensure sufficient old growth is maintained to meet the size, spacing, composition and connectivity requirements of the Forest Plan's old-growth conservation strategy. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

This activity would be considered primarily for the purpose of contributing old-growth timber volume to the large and small timber sale programs through contract offerings.

This activity would be considered in development LUDs to address other resource concerns or Forest Plan constraints.

Integration Opportunities: This activity normally requires road construction and maintenance. This creates an opportunity to coordinate with road maintenance needs including red pipe replacement and offers an opportunity to leverage mobilization of heavy equipment so that other roads important for subsistence use and for other activities can be maintained. Timber harvest results in some trees that are non-merchantable as sawtimber being cut; this creates an opportunity for that material to be used for other purposes like personal use firewood, biomass, and stream restoration material. Road construction requires rock pit development that creates an opportunity for personal use rock sources.

Card 15
Activity: Salvage of Dead, Dying, and Damaged Timber

Description: Commercial salvage of individual trees that are dead, down, or are expected to die within the next five years based on existing insect or disease activity, physical damage, or a live crown ratio less than 10 percent. This includes removal of hazard trees along roads, recreation sites, and administrative sites. This activity also covers larger salvage opportunities resulting from catastrophic windthrow events and insect or disease outbreaks. Salvage trees could be offered as microsales, small sales, or large sales.

Objectives: Removal of hazard trees that pose the danger of falling near places where people frequent. Salvage of commercial products and other material that can be used by local businesses from trees that are already damaged, dead, dying or down.

Related Actions: Roads (Activity Cards 18, 19, 20, 21, 22, and 24), Landings, Slash treatment (Activity Card 10)

Methods: Salvage of individual trees, groups of trees, or areas of catastrophic events.

Equipment Used: Equipment used must provide the needed suspension and limit soil disturbance to meet Forest Plan and other requirements. These requirements may include partial suspension, which means suspending one end of the yarded log, or full suspension, which means suspending the full log being yarded. Common yarding systems include cable yarding systems, tracked shovel, hand, and helicopter yarding.

What are the general guidelines constraining this activity?

This activity will only occur in areas that meet all applicable requirements of the Forest Plan.

Direction outlined in the Forest Plan, Chapter 3, for each LUD should be used as guidelines.

What are the resource-specific guidelines?

Silviculture

Activity is limited to dead, down, dying, and damaged trees. Incidental cutting of other trees during salvage operations may occur to address access and safety concerns. Dead trees are defined as trees with no visible green foliage. Down trees are those trees that may have green foliage but have a compromised root system leaving the tree leaning at a 45 degree (or more) angle. Dying and damaged trees are defined as those that have a total of 10 percent or less live foliage remaining in the crown and/or significant disease or decay that would result in the expected falling or death of the tree within approximately 5 years. Evaluate individual trees or groups of trees proposed for salvage with the District Silviculturist to determine if these requirements are met and if a silvicultural prescription is required.

Timber

Trees designated for removal would be limited to damaged, dying, dead and down material. Standing, green trees could be removed to provide access to salvage areas, or when they posed a hazard to salvage operations. Removal of standing green trees for safety or operability concerns should be minimized to the extent practicable.

Transportation

Access is generally available on existing roads but new road may be constructed where necessary, depending on Forest Plan direction and resource benefits for the removal of the timber. Off-highway vehicles are occasionally used when highway vehicle access is not available. Maintain roads commensurate with use. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

Identify snags for retention per Forest Plan Forest-wide Standards and Guidelines (Chapter 4) and in accordance with safe operations to provide habitat for cavity-nesting wildlife species.

Where feasible implement activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be identified and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.3, 13.4, 13.5, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.19, 14.25, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Road-10, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Minimize the impacts of salvage activities on watershed health by following BMPs. Use existing roads when possible and minimize off-road travel.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist review is required for suitability if there are wetlands, landslides, and/or hollow topography present, ground-based equipment proposed, or if trees are located on slopes greater than 55 percent. Ground-based yarding should follow all BMPs. Specifically the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground based yarding on slopes over 25 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. A minimum of partial suspension is required to meet soil and wetland resource concerns. Exposed mineral soil should be grass seeded with a Tongass approved mix or have a slash treatment as mitigation. Consult a Tongass Soil Scientist if the area is greater than 100 square feet. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, 13.9, 14.5, 14.6, 14.7, 14.8, and 14.12

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Road-2, Road-3, Road-5, Road-6, Veg-1, Veg-2, Veg-4, and Veg-5

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Appendix 1

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all salvage timber projects, including road reconstruction (See Roads WBMPs pages 7-9 in Krosse 2017). Silvicultural prescriptions and logging plans will include weed prevention measures (WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (WBMP 18.1 on page 9 of Krosse 2017).

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

On lands underlain by carbonate, where salvage of dead, down, dying, and damaged trees is proposed, a karst resource inventory shall be conducted. The openness of the underlying karst system, that system's vulnerability to surface disturbance, and the likelihood of additional sediment production or surface runoff by harvesting the dead, down, dying, and damaged trees shall be determined. The appropriateness of salvage of dead, down, dying, and damaged trees on karst lands will be determined on a case-by-case basis in the field by a karst management specialist.

Salvage is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no salvage shall be permitted on lands determined to be of high vulnerability, within 100 feet of a losing stream, a karst feature, or on lands that overlie a "significant cave". For relatively minor, isolated features surrounded by low to moderate vulnerability karst, if the logging system to salvage the dead, down, dying, and damaged trees can be designed to not disturb the timber spanning or blown into the feature, salvage shall be permitted within 100 feet of the lip or edge of the feature. Before harvest, the sale administrator, purchaser representative, and the karst management specialist should walk through the harvest unit to review the layout and resource management concerns.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities shall consider the Recreation Opportunity Spectrum (ROS) setting for the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers should be provided, if possible, in areas where resource activities could disrupt the integrity of the recreation experience or adversely impact the value of recreation resources.

Hazard trees will be removed for public safety and the protection of resources at recreation sites and along National Forest System trails.

Scenery

SIOs for area should be met where possible (Forest Plan, Chapters 3 and 4).

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if salvage areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Salvage harvest of dead or down material along the river shoreline may occur in wild, scenic and recreational river corridors provided ORVs are protected. Discourage cutting within 100 feet of the river in the wild and scenic river corridors. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

This activity would be contingent on the occurrence and harvest feasibility of trees that meet salvage sale or hazard tree removal requirements.

Integration Opportunities: Salvage harvesting may provide a source of material for instream restoration work. Hazard tree analysis and removals should be performed for new and existing recreation and other infrastructure such as roads, MAFs, and administrative sites should consider the opportunity to integrate as a commercial operation. Road maintenance may be required to access commercial salvage areas.

Card 16
Activity: Commercial Wood Energy Product Salvage

Description: Cutting and removal of dead and down trees for commercial use. Includes removal and processing cull material from log decks created by past projects and following future commercial harvest operations.

Objectives: Provide an opportunity for the development of a biomass market, and maintain and enhance the opportunity for commercial firewood.

Related Actions: Roads (Activity Cards 19, 20, 21, 22, and 24)

Methods: Salvage

Equipment Used: By hand, by groundlead skidding with motorized vehicles, log loaders.

What are the general guidelines constraining this activity?

Salvage of material for commercial use requires a timber sale permit.

What are the resource-specific guidelines?

Silviculture

Activity is generally limited to dead and down trees, or previously decked cull material; otherwise it may require a silvicultural prescription. Dead trees are defined as trees with no visible green foliage. Down trees are those trees that may have green foliage but have a compromised root system leaving the tree leaning at a 45 or more degree angle. Commercial harvest of previously cut thinning slash is permitted so long as the permit stipulates that residual tree damage must be avoided. Review all commercial harvest plans with the District Silviculturist prior to approval.

Timber

This activity may occur as a commercial sale conducted to salvage existing cull log decks or other material for biomass or firewood. Commercial sales of standing dead trees for firewood in easily accessible areas should be avoided if it may interfere with non-commercial demand.

Transportation

Access is generally available on existing roads. Use of closed roads is allowed with proper permits and mitigation. Commercial users maintain roads commensurate with their use. Before closing new roads, evaluate the potential for this activity to occur and adjust the timing of the closure as needed.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Activities limited to one-tree length from road in OGRs.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prior to implementation, stream reaches within the affected areas will be identified and protected according to their stream class, channel type, and protection category (see the Aquatics section in the Introduction to Activity Cards).

Under the TTRA, no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply.

During road construction, reconstruction, and maintenance activities in and around streams, avoid fish disturbance and mortality by using ADF&G timing windows and other mitigation measures. Prohibit equipment storage, maintenance, and re-fueling within

riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.3, 13.4, 13.5, 13.9, 13.10, 13.11, 13.14, 13.16, 14.2, 14.19, 14.25, 14.27

National Core BMPs: AqEco-2, AqEco-4, Plan-2, Plan-3, Road-2, Road-5, Road-7, Road-10, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, and Veg-7

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.5, 12.6, 12.6a, 12.8, 12.9, 13.1, 13.2, 13.5, 13.9, 13.10, 13.14, 13.16

National Core BMPs: Plan-2, Plan-3, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-3, Veg-4, Veg-5, Veg-6 and Veg-7

Soils/Wetlands

Prior to implementation, a Tongass Soil Scientist review for suitability is required if there are wetlands, landslides, and/or hollow topography present, ground-based equipment proposed, or if trees are located on slopes greater than 55 percent. Ground-based yarding should follow all BMPs. Specifically the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a Soil Scientist for ground-based equipment operations proposed on slopes over 35 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth. A minimum of partial suspension is required to meet soil and wetland resource concerns. Exposed mineral soil should be grass seeded with a Tongass approved mix or have a slash treatment as mitigation. Consult a Tongass Soil Scientist if the area is greater than 100 square feet. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 13.2, 13.5, and 13.9

National Core BMPs: Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-4, and Veg-5

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Follow all Roads and Forest Management WBMPs in Krosse 2017 pages 7-10 including:

Ensure that weed prevention is considered in all timber projects. Silvicultural prescriptions and logging plans will include weed prevention measures (WBMP 17.1). Treat pre-existing and proposed marine access facilities, landings, skid trails and helispots that are weed infested before logging activity to ensure they are weed free, including monitoring after harvest activities end (WBMP 17.2).

Monitor for weeds after sale activity and treat as needed (WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (WBMP 18.1).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

On lands underlain by carbonate, where salvage of timber is proposed, a karst resource inventory shall be conducted. The openness of the underlying karst system, that system's vulnerability to surface disturbance, and the likelihood of additional sediment production or surface runoff by harvesting the salvageable timber shall be determined. The appropriateness of salvage of timber on karst lands will be determined on a case-by-case basis in the field by a karst management specialist.

Salvage is appropriate on low to moderate vulnerability karst lands management objectives can be met. Generally, no salvage shall be permitted on lands determined to be of high vulnerability, within 100 feet of a losing stream, a karst feature, or on lands that overlie a "significant cave". For relatively minor, isolated features surrounded by low to moderate vulnerability karst, if the logging system to salvage the timber can be designed to not disturb the timber spanning or blown into the feature, salvage shall be permitted within 100 feet of the lip or edge of the feature. This salvage must be carefully designed. Before harvest, the sale administrator, purchaser representative, and the karst management specialist should walk through the harvest unit to review the layout and resource management concerns.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites and historic logging equipment/infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Hazard trees will be removed for public safety and the protection of resources at recreation sites and along National Forest System trails.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if commercial thinning treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Salvage harvest of dead or down material along the river shoreline may occur in wild, scenic and recreational river corridors provided ORVs are protected. Discourage cutting within 100 feet of the river in the wild and scenic river corridors. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

The activity would be implemented on a case-by-case basis.

Integration Opportunities: New road construction and timber harvesting associated with commercial timber sales provides the best opportunity to expand the availability of the resource.

Card 17
Activity: Log Transfer Facilities and Sortyard – Construction, Reconstruction, and Maintenance

Description: Construct, reconstruct, and maintain Log Transfer Facilities (LTF) with an associated sortyard.

Objectives: Log transfer facilities include the site and structures used for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa). This work would keep these facilities at an operational level during the use period.

Related Actions: Commercial timber management (Activity Cards 1, 2, 3, 4, 13, and 14), Quarry development (Activity Card 23), Docks

Methods: Uplands are cleared and rocked to provide sufficient log storage for anticipated needs. A transfer facility is constructed to move the logs bundles into the water for log booms or onto barges. Sufficient area needs to be used to provide a safe, efficient operation. Blasting may be required to remove bedrock and create sufficient workspace.

Equipment Used: Heavy equipment – excavators, loaders, rock trucks, rock drills, loaders

What are the general guidelines constraining this activity?

Log Transfer Facility Guidelines, Forest Plan Appendix G has detailed guidelines on siting, construction and maintenance, and monitoring and reporting. Applicable local, state and federal permits must be obtained prior to implementation.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid damaging the remaining trees adjacent to the facility to eliminate future hazards. Evaluate the site for existing hazard trees and address during site development.

Timber

When planning to construct, perform maintenance, or reconstruct LTFs, ensure location meets the needs both physically and economically of planned and future timber sales and activities.

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction

Transportation

Log Transfer Facility Guidelines, Forest Plan Appendix G, Forest-wide Standards and Guidelines (Chapter 4), Region 10 BMPs: 14.25 and 14.26

Wildlife

LTFs are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction to Activity Cards for more information.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Consult a Fish Biologist prior to the expansion of existing LTFs or the construction of new LTFs so that any streams in the affected areas are identified and protected.

Site LTFs and log rafts according to direction in Forest Plan Appendix G to protect fish and fish habitat. Direction includes siting log rafts in a minimum depth of 40ft at mean lower low water, along channels or deep bays where currents may be strong enough to disperse wood debris, along steep shorelines where there is little substrate for plant or animal growth, and prohibiting log rafts within 300ft of the mouth of an anadromous stream,

Design, construct, and operate facilities to minimize the risk to marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. This can be accomplished by keeping overland flow from entering the LTF or adjacent facilities, collecting runoff from the facility in settling basins, or retaining vegetative buffer strips.

Time in-water construction to limit adverse impacts to marine and estuarine fishery resources. Generally, avoid in-water construction from mid-March to mid-June to protect juvenile salmon and spawning herring, but the actual timing windows will depend on specific locations.

Following the 2013 Blasting Standard (Timothy 2013) to minimize and mitigate the impacts of blasting on fish.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.2, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.19, 14.25, 14.26, 14.27

National Core BMPs: AqEco2, AqEco-3, Fac-2, Fac-5, Fac-10, Plan-2, Plan-3, Rec-8, Road-2, Road-3, Road-4, Road-6, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution, including excess erosion.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Region 10 BMPs: 12.8, 12.9, 14.25 and 14.26

National Core BMPs: AqEco-2, Fac-1, fac-2, Fac-6, Road-1, Road-9, Road-10, Veg-2, Veg-4, and Veg-6

Soils/Wetlands

LTF construction, or reconstruction and maintenance outside of the existing footprint would need to be reviewed for soils and wetlands by a Tongass Soil Scientist upon implementation. Minimize soil disturbance. All areas of exposed mineral soil should be grass seeded with a Tongass approved seed mix. Location of LTFs should avoid wetlands to the extent practicable. If wetland avoidance is not feasible, a wetland delineation should be completed and 404 permit may be required from the U.S. Army Corps of Engineers.

R10 BMPs: 12.5, 12.8, 12.13, 12.17, 13.9, 13.10, 14.4, 14.5, 14.25, 14.26, and 14.27

National Core BMPs: AqEco-2, Fac-1, fac-2, Fac-6, Road-1, Road-9, Road-10, Veg-2, Veg-4, and Veg-6

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Ensure that weed prevention is considered in all timber projects. Treat pre-existing marine access facilities, if infested before logging activity, to ensure they are weed free, including monitoring after harvest activities end (Invasive Plant Management WBMP for Forest Management 17.2).

Monitor for weeds after sale activity and treat as needed (Invasive Plant Management WBMP 6.1). Collect KV or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities (Invasive Plant Management WBMP 18.1).

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (Invasive Plant Management WBMP for Roads 7.1, 7.2, 7.4, 7.5)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (Invasive Plant Management WBMP for Roads 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (Invasive Plant Management WBMP 9.1 for Roads). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (Invasive Plant Management WBMP 9.2 for Roads).

Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (Invasive Plant Management WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (Invasive Plant Management WBMP 10.2).

See Introduction for additional WBMPs that apply to all activities 1-6 including washing equipment. See all Roads WBMPs on pages 7-9. See also Administrative/General WBMP 27 that states that projects ensure all Forest Service administrative sites are weed free (Krosse 2017).

Geology/Karst

Conduct a Karst Vulnerability Assessment if the proposed facility is on or adjacent to karst to determine appropriateness of the project and/or to propose any mitigation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites and historic logging equipment/infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource.

There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Exceptions may be made for a non-conforming development as a log transfer facility within a High SIO or non-development LUD (Forest Plan p. 4-55).

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if facilities to be constructed are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Locate log transfer facilities outside of wild, scenic, and recreational river corridors. Ensure facilities located outside the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Log Transfer Facilities are required for moving logs and timber products from land based transportation forms to water based transportation forms (or vice versa).

Integration Opportunities: Use of heavy equipment is required for LTF maintenance and reconstruction. Other work in the area requiring heavy equipment may benefit with saved mobilization and implementation costs. May provide opportunities for boat launch sites.

Card 18
Activity: NFS Road Construction

Description: New roads constructed and added to the National Forest Transportation System. These roads are considered to be permanent and will be maintained as such (although some may be placed in a stored condition that does not allow motorized traffic). Although these roads are mostly open for public and administrative use, some seasonal closures may occur for safety, wildlife protection, or other reasons. These NFS roads will be displayed on the Motor Vehicle Use Maps (MVUM) if they are open for public use.

Objectives: These roads are intended to provide long-term access to National Forest System lands. The construction of these roads has originally been for access to timber resources, and, to a lesser extent, recreational use but most provide a range of public and administrative uses.

Related Actions: Rotational Harvest of Young Growth Using Even-aged Management (Activity Card 01), Rotational Harvest of Young Growth using Two-aged Management (Activity Card (02), Harvest of Young Growth Using Uneven-aged Management (Activity Card 03), Commercial Thinning of Young Growth (Activity Card 04), Rotational Harvest of Old Growth using Even-aged Management (Activity Card 13), Harvest of Old Growth using Uneven-aged Management (Activity Card 14), Salvage of Dead, Dying, and Damaged Timber (Activity Card 15), Wood Energy Product Salvage (Activity Card 16), Quarry development (Activity Card 23), Road Maintenance (Activity Card 24), Road storage (Activity Card 21) Stream Crossing Structures (Activity Card 25), Improve Fish Passage (Activity Card 26), Winter Sport Access Improvements for Over-the-snow Vehicle Use (Activity Card 39)

Methods: Road construction requires clearing of timber, stumps, rock, and other materials to allow for construction. Most NFS roads are single lane with pull-outs, constructed with blasted quarry rock, and designed for off-highway loads. Typical construction method is to use an excavator to clear to the clearing limits, excavate as needed and establish a pioneer road. A spread cat and dump trucks follow this with an overlay of blasted quarry rock (shot rock) from an established source. Culverts and bridges are installed in specific locations to account for drainage and stream crossing requirements. Rock is developed from quarries and hauled in trucks to the construction site.

Equipment Used: Heavy equipment – excavator, loaders, crawler tractors, rock drills, dump trucks, graders, rock crushers, cranes, along with sawyers for initial clearing of timber.

What are the general guidelines constraining this activity?

The management prescriptions in the Forest Plan describes the guidelines for transportation activities by LUD. Forest-wide Standards and Guidelines (Chapter 4) are established to guide road location, design, and construction.

Best Management Practices, both Region 10 specific and National Core provide performance and accountability standards in relation to road construction activities.

What are the resource-specific guidelines?

Silviculture

If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid damaging the remaining trees adjacent to the road prism to eliminate future hazards. Evaluate the adjacent area for existing hazard trees or windthrow risk and address during road construction.

Timber

Ensure road locations meet the needs of planned and future timber harvests and consider the integration of other resource activities and projects

Transportation

Specific road construction activities are controlled through specifications and Best Management Practices (BMPs). Standard construction specifications and Forest Service special project specifications for each individual project are assigned to control construction activities. Construction drawings are assigned as needed for specific work items.

Undertake access and travel management planning based on Forest Plan goals, objectives, and desired conditions. Designate the class of vehicles and if appropriate time of year for allowable use.

Road maintenance is required to keep roads at required working levels throughout the use period. NFS roads may be stored during periods when access is not needed.

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4.

Wildlife

Roads are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction for more information.

Evaluate roads needed to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning. No road construction is permitted within 600 feet of a wolf den unless site-specific analysis indicates that local landform or other factors will alleviate potential adverse disturbance.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Monitor road density for each watershed to avoid adversely affecting water quality. Locate roads as far from waterbodies as is practicable to achieve access objectives. Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska.

Any new fish crossing structures must provide fish passage. Stream crossings should be minimized and, as much as terrain permits, roads should cross the stream as close as possible to a right angle. Particular care needs to be taken with road design at stream crossings to provide filter strips, settlement areas or other methods to reduce siltation of streams from the road surface or drainage system.

Construction materials for log stringer bridges should generally not be obtained from TTRA buffers. If circumstances dictate removal of timber in a buffer to construct a bridge, a Streamcourse Protection Plan should be developed.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.14, 13.16, 14.1, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, 14.14, 14.15, 14.19, 14.20

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Fac-10, Plan-2, Plan-3, Road-1, Road-2, Road-3, Road-4, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Stream crossing structures must be able to pass the appropriate water flows for the area of watershed drained and the degree of anticipated land disturbance (harvest). Design and maintain roads to provide proper drainage to minimize sediment delivery.

Seek to limit total road construction (system and temporary) to 2 percent of the watershed area.

Specific project areas/roads to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8,12.9, 12.17, 14.1,14.2,14.3,14.5, 14.6, 14.7, 14.8, 14.9, 14.10,14.12, 14.14, 14.15, 14.17

National Core BMPs: Road-7

Appendix 1

Soils/Wetlands

Avoid locating roads on wetlands to the extent practicable. Use overlay construction where possible and install extra cross drains to avoid altering surface and subsurface flow. Avoid locating roads on slopes greater than 67 percent and on glacial till soil greater than 55 percent in order to minimize mass failures. Proposed roads located on slopes over 55 percent would need to be reviewed by a Tongass Soil Scientist for stability and risks to downstream resources. All areas of mineral soil exposed during construction activities shall be grass seeded and fertilized. Practice erosion control measures in accordance with contract specifications and applicable BMPs.

R10 BMPs: 12.5, 12.17, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.22

National Core BMPs: AqEco-2, Road-1, Road-2, Road-3, Road-4, Road-10 and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (Invasive Plant Management WBMP 7.1, 7.2, 7.4, 7.5)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (Invasive Plant Management WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (Invasive Plant Management WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (Invasive Plant Management WBMP 9.2).

Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (Invasive Plant Management WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (Invasive Plant Management WBMP 10.2).

Ensure that weed prevention and related resource protection are considered in travel management (Invasive Plant Management WBMP 11).

See Introduction for additional WBMPs that apply to all activities 1-6. This includes equipment washing WBMP 3. See Roads WBMPs 7-13 on pages 7-9 in Krosse 2017.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Forest Plan Appendix H; 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Forest Plan Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Acid rock drainage (ARD) is created when iron pyrite, oxygen, and water combine and produce acidified water that dissolves metal compounds resulting in elevated metal concentrations in the water. The ARD acronym is used for rock containing sulfides such as

iron pyrite that break down and produce acidified water. Road construction and quarry development within the Project Area would utilize and excavate into the underlying Descon Shale. Any existing material source or newly developed source within the Descon Formation and used to construct access to the proposed harvest areas shall be assessed as to its ARD potential. All potential material sources shall be analyzed for ARD potential. Any questionable material sources shall be tested to determine their ARD potential. Material deemed unsuitable will not be used for construction.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3, 4, and 5). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist in project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components, including those relating to development of rock sources and roadside cleanup.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if road construction is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

No roads are allowed in wild river corridors. For scenic river corridors, design and locate roads such that, except for short segments or at occasional bridge crossings, they are not evident to a traveler on the river. In recreational river corridors, roads may parallel the river bank and be conspicuous when viewed from the river. For both scenic, and recreational rivers, ensure roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

NFS road construction would be implemented when vehicular access is needed for the protection, administration, and utilization of the National Forest.

Integration Opportunities: NFS road construction can provide motorized access to new areas. This access can provide opportunities for free use and personal use forest products. Timber sales, subsistence uses, and recreation uses can also occur in areas previously not accessible by motorized methods. Rock quarries are needed for road construction; these quarries can provide opportunities for personal use rock for the public.

Card 19
Activity: Temporary Road Construction

Description: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not included in a Forest transportation atlas. Temporary roads are not intended to be part of the National Forest Transportation System and not necessary for long-term resource management.

Objectives: These roads are intended to provide short-term access for activities within National Forest System lands. These roads are decommissioned after their designated use period is over.

Related Actions: Rotational Harvest of Young Growth Using Even-aged Management (Activity Card 01), Rotational Harvest of Young Growth using Two-aged Management (Activity Card (02), Harvest of Young Growth Using Uneven-aged Management (Activity Card 03), Commercial Thinning of Young Growth (Activity Card 04), Rotational Harvest of Old Growth using Even-aged Management (Activity Card 13), Harvest of Old Growth using Uneven-aged Management (Activity Card 14), Salvage of Dead, Dying, and Damaged Timber (Activity Card 15), Wood Energy Product Salvage (Activity Card 16), Quarry development (Activity Card 23), Stream Crossing Structures (Activity Card 25), Improve Fish Passage (Activity Card 26)

Methods: Road construction requires clearing of timber, stumps, rock, and other materials to allow for construction. Typical construction method is to use an excavator to clear to the clearing limits, excavate as needed, and establish a pioneer road. A spread cat and dump trucks follow this with an overlay of blasted quarry rock from an established source. Culverts and bridges are installed in specific locations to account for drainage and stream crossing requirements. Rock is developed from quarries and hauled in trucks to the construction site.

Equipment Used: Heavy equipment– excavators, loaders, crawler tractors, rock drills, dump trucks, graders, rock crushers, cranes, along with sawyers for initial clearing of timber.

What are the general guidelines constraining this activity?

The management prescriptions in the Forest Plan describes the guidelines for transportation activities by LUD. Forest-wide Standards and Guidelines (Chapter 4) are established to guide road location, design, and construction.

Best Management Practices, both Region 10 specific and National Core, provide performance and accountability standards in relation to road construction activities.

What are the resource-specific guidelines?

Silviculture

The activity is typically covered by the prescription prepared for the associated silvicultural activity. If temporary road construction is done in support of other resource management activities, consult the District Silviculturist to determine if a prescription is necessary.

Timber

Temporary road construction must be economical for harvest activities.

Transportation

Road construction activities are controlled through specifications and BMPs. Timber sale road construction specifications in the timber sale contract are assigned to control construction activities. Construction drawings are assigned as needed for specific work items.

Road maintenance is required to keep roads at required working levels throughout the use period.

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4.

Wildlife

Temporary roads are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction for more information.

Evaluate roads needed to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning. No road construction is permitted within 600 feet of a wolf den unless site-specific analysis indicates that local landform or other factors will alleviate potential adverse disturbance.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Monitor road density for each watershed to avoid negatively affecting water quality.

Locate roads as far from waterbodies as is practicable to achieve access objectives.

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska.

Any new fish crossing structures must provide fish passage and must be removed when road is decommissioned. Stream crossings should be minimized and, as much as terrain permits, roads should cross the stream as close as possible to a right angle. Particular care needs to be taken with road design at stream crossings to provide filter strips, settlement areas or other methods to reduce siltation of streams from the road surface or drainage system.

Construction materials for log stringer bridges should generally not be obtained from TTRA buffers. If circumstances dictate removal of timber in a buffer to construct a bridge, a Streamcourse Protection Plan should be developed.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Road closure devices may be needed to protect fish streams.

R10 BMPs: 12.1, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.14, 13.16, 14.1, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, 14.14, 14.15, 14.19, 14.20

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Fac-10, Plan-2, Plan-3, Road-1, Road-2, Road-3, Road-4, Road-5, Road-6, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Stream crossings must pass the appropriate flows for the area of watershed drained. When crossings are removed, the stream channel should be returned to near-natural conditions. Decommission temporary roads promptly when designated use ends, block access, restore natural drainage and implement erosion control measures (Road-6)

Seek to limit total road construction (system and temporary) to 2 percent of the watershed area.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 12.17, 13.11, 14.1, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.14, 14.15, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-5, Road-6, Road-7

Soils/Wetlands

Avoid locating roads on wetlands to the extent practicable. Use overlay construction where possible and install extra cross drains to avoid altering subsurface flow. Avoid locating roads on slopes greater than 67 percent and on glacial till soil greater than 55 percent in order to minimize mass failures. Proposed roads located on slopes over 55 percent would need to be reviewed by a Tongass Soil Scientist for stability and risks to downstream resources. All areas of mineral soil exposed during

construction activities shall be grass seeded and fertilized. Practice erosion control measures in accordance with contract specifications and applicable BMPs. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.22

National Core BMPs: AqEco-2, Road-1, Road-2, Road-3, Road-4, Road-5, Road-10 and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (Invasive Plant Management WBMP 7.1, 7.2, 7.4, 7.5 pages 7-8)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (Invasive Plant Management WBMP 8.1 page 8).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (Invasive Plant Management BMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (Invasive Plant Management WBMPs 9.19.2 page 8).

Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (Invasive Plant Management WBMP 10.1 page 8). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (Invasive Plant Management WBMP 10.2 page 8).

Ensure that weed prevention and related resource protection are considered in travel management (Invasive Plant Management WBMP 11 page 8. See Roads WBMPs pages 7-9 in Krosse 2017).

See Introduction for additional WBMPs that apply to all activities 1-6. See Lands and Special uses WBMPs 23 and 24 on page 10 to incorporate weed prevention in all special use authorizations, road use permits, and easements (Krosse 2017).

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Acid rock drainage (ARD) is created when iron pyrite, oxygen, and water combine and produce acidified water that dissolves metal compounds resulting in elevated metal concentrations in the water. The ARD acronym is used for rock containing sulfides such as iron pyrite that break down and produce acidified water. Road construction and quarry development within the Project Area would utilize and excavate into the underlying Descon Shale. Any existing material source or newly developed source within the Descon Formation and used to construct access to the proposed harvest areas shall be assessed as to its ARD

potential. All potential material sources shall be analyzed for ARD potential. Any questionable material sources shall be tested to determine their ARD potential. Material deemed unsuitable will not be used for construction.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during stand design and project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is typically prohibited within designated Wilderness areas. No temporary road construction is authorized to take place within designated Wilderness areas with this project.

The wilderness manager should be consulted if temporary road construction is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

No roads are allowed in wild river corridors. For scenic river corridors, design and locate roads such that, except for short segments or at occasional bridge crossings, they are not evident to a traveler on the river. In recreational river corridors, roads may parallel the river bank and be conspicuous when viewed from the river. For both scenic, and recreational rivers, ensure roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Temporary road construction would occur when short-term access to resources or emergency access is required and the road will not be needed as part of the forest transportation system.

Integration Opportunities: Rock quarries are needed for road construction; these quarries can provide opportunities for personal use rock for the public.

Card 20
Activity: NFS Road Reconstruction

Description: Work performed to raise a stored road's level of service above that to which it was originally constructed or upgrading an open road to provide a higher level of service.

Objectives: Reconstruction improves a road above its originally constructed level of service. This action rebuilds a road to allow vehicular access on road that otherwise would not be passable or increases the efficiency of an existing road. These actions generally occur to facilitate timber haul; other road uses include recreational and subsistence access.

Related Actions: Rotational Harvest of Young Growth Using Even-aged Management (Activity Card 01), Rotational Harvest of Young Growth using Two-aged Management (Activity Card 02), Harvest of Young Growth Using Uneven-aged Management (Activity Card 03), Commercial Thinning of Young Growth (Activity Card 04), Rotational Harvest of Old Growth using Even-aged Management (Activity Card 13), Harvest of Old Growth using Uneven-aged Management (Activity Card 14), Salvage of Dead, Dying, and Damaged Timber (Activity Card 15), Wood Energy Product Salvage (Activity Card 16), Quarry development (Activity Card 23), Road Maintenance (Activity Card 24), Stream Crossing Structures (Activity Card 25), Improve Fish Passage (Activity Card 26)

Methods: Road reconstruction is highly variable depending on the existing road condition. Typical work entails clearing of brush from the roadway, removing berms and other vehicular blockages, installation of drainage structures (culverts and bridges), and new rock surfacing. Road widening may be appropriate to improve operating efficiency. Rock is developed from quarries and hauled in trucks to the reconstruction site.

Equipment Used: Heavy equipment – excavators, loaders, cats, rock drills, dump trucks, graders, rock crushers, cranes, along with sawyers for initial clearing of timber if heavily overgrown with trees.

What are the general guidelines constraining this activity?

The management prescriptions in the Forest Plan describe the guidelines for transportation activities by LUD. Forest-wide Standards and Guidelines (Chapter 4) are established to guide road reconstruction.

Best Management Practices, both Region 10 specific and National Core, provide performance and accountability standards in relation to road construction activities.

What are the resource-specific guidelines?

Silviculture

This action would not typically require a silvicultural prescription if constrained to the existing road prism.

Timber

In some cases merchantable young-growth timber may need to be removed. Harvest all merchantable timber and handle appropriately to avoid damage and loss of value. Deck merchantable timber where it will be readily available for sales or other uses such as administrative uses and restoration. Work with engineering to ensure road locations meet the needs of planned and future timber harvests and consider the integration of other resource activities and projects. Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Road construction activities are controlled through specifications, construction drawings, and BMPs. Standard construction specifications and Forest Service special project specifications for each individual project are assigned to control reconstruction activities. Construction drawings are assigned as needed for specific work items.

Undertake access and travel management planning based on Forest Plan goals, objectives, and desired conditions. Designate the class of vehicles and if appropriate time of year for allowable use.

Road maintenance is required to keep roads at required working levels throughout the use period. NFS roads may be stored during periods when access is not needed.

Region 10 BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National BMPs: Road-2, Road-3, Road-4.

Wildlife

Roads are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction for more information.

Evaluate roads needed to determine ways to lessen disturbance to wildlife; this could include seasonal closures, putting roads in storage or decommissioning. No road construction is permitted within 600 feet of a wolf den unless site-specific analysis indicates that local landform or other factors will alleviate potential adverse disturbance.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Avoid reconstructing roads within 300ft alongside a Class I or Class II stream.

Any new fish crossing structures must provide fish passage. Stream crossings should be minimized and, as much as terrain permits, roads should cross the stream as close as possible to a right angle. Particular care needs to be taken with road design at stream crossings to provide filter strips, settlement areas or other methods to reduce siltation of streams from the road surface or drainage system.

Construction materials for log stringer bridges should generally not be obtained from TTRA buffers. If circumstances dictate removal of timber in a buffer to construct a bridge, a Streamcourse Protection Plan should be developed.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.14, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.15, 14.19, 14.20,

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Fac-10, Plan-2, Plan-3, Road-1, Road-3, Road-4, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Crossings must pass the appropriate flows for the area of watershed drained. Drainage and crossings should be brought up to current standards for newly reconstructed roads.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

National Core BMPs: Road-7

Soils/Wetlands

All areas of mineral soil exposed during construction activities shall be grass seeded and fertilized. Implement erosion control measures in accordance with contract specifications and applicable BMPs. Minimize soil disturbance.

R10 BMPs: 12.5, 12.8, 12.17, 13.9, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, 14.20, and 14.22

National Core BMPs: AqEco-2, Road-1, Road-2, Road-3, Road-4, Road-5, Road-7, Road-10, Veg-2, Veg-3, and Veg-4

Appendix 1

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Follow all Roads WBMPs 7-13 in Krosse 2017 on pages 7-9 including:

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (WBMPs 7.1, 7.2, 7.3, 7.4, 7.5)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2).

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Forest Plan Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Forest Plan Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the current Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. For this activity, follow the Forest Plan direction for SIOs for transportation, including the development of rock sources and roadside cleanup.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if road reconstruction is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

No roads are allowed or will be reconstructed in wild river corridors. For scenic river corridors, reconstructed roads should not be evident to a traveler on the river, except for short segments or at occasional bridge crossings. In recreational river corridors, reconstructed roads may parallel the river bank and be conspicuous when viewed from the river. For both scenic, and recreational rivers, ensure reconstructed roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For reconstructed roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

NFS road reconstruction would be implemented when vehicular access is needed for the protection, administration, and utilization of the National Forest.

Integration Opportunities: NFS road reconstruction can provide motorized access to areas that have been closed or if a higher standard of road is needed. This access can provide opportunities for free use and personal use forest products. Timber sales, subsistence, and recreation uses can also occur in new areas previously not accessible by motorized methods. Rock quarries are needed for road reconstruction; these quarries can provide opportunities for personal use rock for the public. Wood removed for road clearing may provide source wood for commercial timber products, personal use, administrative uses or restoration opportunities.

Card 21
Activity: NFS Road Storage

Description: System Roads not needed for access for long periods may be put into storage (Intermittent Stored Service—Maintenance Level [ML] 1 (FSM 7709.59)). ML-1 roads receive basic custodial maintenance focusing on maintaining drainage facilities and runoff patterns to avoid or minimize damage to adjacent resources and to perpetuate the road for future use. The integrity of the roadway is retained to the extent practicable and measures are implemented to reduce sediment delivery from the road surface and fills as well as reduce the risk of crossing failure and stream diversion. These stored roads will not be displayed on the Motor Vehicle Use Maps (MVUM).

Objectives: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by storing closed roads not needed for long periods. Stabilize prism to preserve the road structure and/or to reduce erosion and then stored between use cycles. When appropriate, stored roads may be dually designated as motorized trails for off-highway vehicles. NFS roads may be stored to address wildlife concerns.

Related Actions: Access Travel Management Planning

Methods: Drainage structure removal in locations that present an unacceptable risk of failure or diversion, construct waterbars as needed, traffic control measures.

Equipment Used: Heavy equipment

What are the general guidelines constraining this activity?

36 CFR 212 establishes direction on travel management planning. 36 CFR 211.5 directs the responsible official identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. Roads identified through travel analysis as not needed for long periods may be put into storage. Best Management Practices, both Region 10 specific and National Core, provide performance and accountability standards in relation to road storage activities.

What are the resource-specific guidelines?

Silviculture

Interdisciplinary review of road segments proposed for the activity should occur to assess if the near-term future needs of the road for silvicultural activities has changed. Leave the road in a passable condition for off-road vehicles and foot traffic. Replacement of structures rather than removal, is preferable on roads where future silvicultural activities are planned. In development LUDs, damage to adjacent timber should be avoided.

Timber

To the extent practicable, limit the activity to roads that are not needed for resource management activities or administrative use.

Transportation

Specific road storage activities are controlled through specifications, construction drawings, and BMPs. Standard construction specifications and Forest Service special project specifications for each individual project are assigned to control storage activities. Construction drawings are assigned as needed for specific work items.

Region 10 BMPs: 12.17, 14.5, 14.7, 14.8, 14.9, 14.12, 14.14, 14.24

National BMPs: Road-6.

Wildlife

Prioritize WAAs that have high road densities (0.7-1.0 miles per square mile or above) for possible road storage to address wolf concerns. The Wildlife Biologist may recommend road closures in WAAs that exceed recommended road densities.

Roads are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction for more information.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed, including subsistence hearings.

Fisheries

Remove "RED" fish stream crossing structures (culverts) to provide unimpeded fish passage, or replace passage issue structures with structures that meet current fish passage standards when near-term access is necessary.

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. If stored roads are going to continue to be accessible to motorized use, fish streams must be protected; consult a fish biologist for site-specific protections.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17,13.14, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-10, Plan-2, Plan-3, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Remove crossings to provide natural flow passage where possible, maintain monitoring and maintenance where structures remain to ensure flood flow passage.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National BMPs: Road-6, Road-7

Soils/Wetlands

All areas of mineral soil exposed during construction activities shall be grass seeded and fertilized. Practice erosion control measures in accordance with contract specifications and applicable BMPs.

R10 BMPs: 12.5, 12.17, 14.5, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.22

National Core BMPs: AqEco-2, Road-1, Road-4, Road-5, Road-6, Road-10 and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If needed, surveys would focus on areas of disturbance such as waterbars, structure removal, and traffic control installations. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Appendix 1

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Follow all Roads WBMPs in Krosse 2017 7-13 on pages 7-9 including:

Avoid blading roads or pulling ditches when weeds are in seed set stage (WBMP 7.3). Consult with botanist as to the proper timing.

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

None

Wild, Scenic and Recreational Rivers

Roads will be closed to motorized vehicle use in wild river corridors. For scenic river corridors, stored roads should not be evident to a traveler on the river, except for short segments or at occasional bridge crossings. In recreational river corridors, stored roads may parallel the river bank and be conspicuous when viewed from the river. For both scenic and recreational rivers, ensure stored roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For stored roads inside and outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Roads identified through analysis as not needed for long periods are candidates for storage activities. Funding is required to implement road storage through public works contracts. It is advantageous to implement a number of storage activities within a small geographic area in order to make it financially viable.

Integration Opportunities: Opportunity for watershed rehabilitation within the same area as road storage, as similar equipment is used. Off-highway vehicle access through development of motorized trails on stored roads can provide access for subsistence and recreation uses.

Card 22
Activity: Road Decommissioning

Description: Activities that result in the stabilization and restoration of unneeded roads to a more natural state. Roads no longer needed are identified during transportation planning activities at the Forest, watershed, or project level. The road may be decommissioned or converted to a trail as appropriate (see Activity Card 36 – Roads to Trails). Temporary roads constructed for a specific short-term purpose are decommissioned at the completion of their intended use (see Activity card # 20 – Temporary Road Construction).

Objectives: Decommissioned roads are stabilized and restored to a more natural state to protect and enhance NFS lands.

Related Actions: Access Travel Management Planning, Stream and Floodplain Restoration.

Methods: Road decommissioning includes a variety of treatments to block the road, revegetate the road surface, restore surface drainage, remove crossing structures and fills, mitigate road surface compaction, re-establish drainage ways, remove unstable road embankments, and recontour the surface to restore natural slopes. One or more treatments are applied to decommission the road depending on resource objectives and cost. Road fill may be removed from streams, floodplains, and wetlands to restore natural flow patterns and ecological function.

Equipment Used: Heavy equipment and explosives.

What are the general guidelines constraining this activity?

36CFR211.5 directs the responsible official identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. Roads identified through travel analysis as not needed may be decommissioned. Best Management Practices, both Region 10 specific and National Core, provide performance and accountability standards in relation to road decommissioning activities.

What are the resource-specific guidelines?

Silviculture

Interdisciplinary review of road segments proposed for the activity should occur prior to funding to assure there are no future needs of the road for silvicultural activities. Minimize damage to adjacent stands.

Timber

To the extent practicable, limit the activity to roads that are not needed for resource management activities or administrative use.

Transportation

Specific road decommissioning activities are controlled through specifications, construction drawings, and BMPs. Standard construction specifications and Forest Service special project specifications for each individual project are assigned to control decommissioning activities. Construction drawings are assigned as needed for specific work items.

Region 10 BMPs: 12.17, 14.5, 14.7, 14.8, 14.9, 14.12, 14.14, 14.24

National BMPs: Road-6

Wildlife

Prioritize WAAs that have high road densities (0.7-1.0 miles per square mile or above) for possible road decommissioning to address wolf concerns. The Wildlife Biologist may recommend decommissioning in WAAs that exceed recommended road densities.

Roads are listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction to Activity Cards for more information.

Where possible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17,13.14, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-10, Plan-2, Plan-3, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Block access, remove structures, restore natural drainage patterns, and implement erosion control measures.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National BMPs: Road-6, Road-7

Soils/Wetlands

All areas of mineral soil exposed during construction activities shall be grass seeded and fertilized. Practice erosion control measures in accordance with contract specifications and applicable BMPs. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 14.5, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.22

National Core BMPs: AqEco-2, Road-1, Road-4, Road-5, Road-6, Road-10 and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Follow WBMPs for all transportation related projects 7-13 on pages 7-9 in Krosse 2017 including:

Avoid blading roads or pulling ditches when weeds are in seed set stage, which is normally in the late summer or fall (WBMP 7.3).

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner

that optimizes plant establishment for that specific site. Monitor revegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Minimize the spread of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2).

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11).

Treat weeds in obliteration and reclamation projects before roads are decommissioned (WBMP 13.1).

See introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

None

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For decommissioned

roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Roads identified through analysis as not needed are candidates for road decommissioning. Funding is required to implement road decommissioning through public works contracts. It is advantageous to implement a number of decommissioning activities within a small geographic area in order to make it financially viable.

Integration Opportunities: Opportunity for watershed rehabilitation within the same area as road decommissioning; similar equipment is used. Hiking access or off-highway vehicle access through development of trails on decommissioned roads can provide access for subsistence and recreation uses.

Card 23
Activity: Quarry Development

Description: Clearing and blasting to produce rock for maintenance and construction of roads and other facilities. These quarries would be located adjacent to open roads and would provide a source of rock for a period of years. When feasible rock sources developed within an economical zone around private land or communities would develop extra rock for issuance under non-commercial mineral material permits. Quarries may also be developed by commercial users for sale purposes.

Objectives: Construction of roads, log transfer facilities, boat launches, recreation site pads, and other facilities require rock to stabilize and provide a base for construction. Provide economical rock sources accessible to private lands and communities to address non-commercial construction needs. Quarries should be sized so that additional rock will be available to support future activities where possible.

Related Actions: Roads and other developments requiring a rock source (Activity Cards 18, 19, and 20), sale of cleared timber from development, and Invasive Plant Treatments (Activity Cards 34 and 35)

Methods: Quarry site is stripped of vegetation and overburden, rock drills produce holes to pack with explosives to produce useable material. In existing quarries material can often be developed by "ripping" exposed rock with an excavator.

Equipment Used: Heavy equipment – *e.g.*, excavators, rock drills; and explosives

What are the general guidelines constraining this activity?

Standard specifications guide the implementation of quarry development. Mine Safety and Health Administration regulations apply to quarry use and development.

What are the resource-specific guidelines?

Silviculture

This activity would generally not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Set clearing limits so that all potentially damaged timber is removed prior to blasting.

Timber

Fall all merchantable timber and handle appropriately to avoid unnecessary damage and loss of value. Stockpile logs where they will not be damaged by quarry development and may be sold or used for other activities if they are not already included as part of an existing timber sale. If not included in the timber contract commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Review the quarry development checklist in the implementation plan. Project specifications and drawings regulate the implementation of quarry development. Quarry development and use is considered an irretrievable and irreversible use of resources.

Region 10 BMPs: 12.17, 14.18

National BMPs: Min-5

Wildlife

Where feasible locate activity outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Consult a Fish Biologist prior to quarry development so that any streams in the affected areas are identified and protected. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.2, 14.4, 14.9, 14.10, 14.11, 14.12, 14.15, 14.18, 14.19, 14.25, 14.26

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-5, Fac-10, Min-5, Plan-2, Plan-3, Road-2, Road-3, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 12.10, 14.5, 14.6, 14.8, 14.18 and 14.25

National Core BMPs Fac-1, Fac-2, Fac-8, Min-3, Min-5, Min-6, Min-7 and Veg-2

Soils/Wetlands

Blasting operations should be designed to reduce risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. New rock pit development should avoid wetlands. To minimize soil erosion, clear off any overburden on the cut face of the rock pit. All areas of exposed mineral soil from construction should be grass seeded with a Tongass approved mix. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.10, 14.5, 14.6, 14.18, and 14.25

National Core BMPs: Fac-1, Fac-2, Fac-8, Min-5, Min-6, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Follow all Roads WBMPs 7-13 on pages 7-9 in Krosse 2017 including:

Minimize the spread of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2). Monitor for emerging weeds on stockpiled material at new and

existing pits. Monitor the area where pit material is used to ensure that no weed seeds are transported to the use site (WBMP 10.3).

Minimize weed establishment in mining operations and reclamation (WBMP 19).

Before equipment moves into new or existing mining operations, treat weeds along existing access roads within the area of operation (WBMP 20.1).

Minimize weed spread caused by moving infested gravel and fill material (WBMP 21).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised. Existing quarries will be used in preference to the construction of new ones. No quarry shall be developed atop karst without adequate site survey and design. Quarries should be properly closed after abandonment.

Acid rock drainage (ARD) is created when iron pyrite, oxygen, and water combine and produce acidified water that dissolves metal compounds resulting in elevated metal concentrations in the water. The ARD acronym is used for rock containing sulfides such as iron pyrite that break down and produce acidified water. Road construction and quarry development within the Project Area would utilize and excavate into the underlying Descon Shale. Any existing material source or newly developed source within the Descon Formation and used to construct access to the proposed harvest areas shall be assessed as to its ARD potential. All potential material sources shall be analyzed for ARD potential. Any questionable material sources shall be tested to determine their ARD potential. Material deemed unsuitable will not be used for construction.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

None

Wild, Scenic and Recreational Rivers

For wild rivers designated by Congress, Forest lands within 0.25 mile of the river are withdrawn from mineral entry subject to valid existing rights. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. For quarry development outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Quarry development is implemented when rock is needed for project development. Rock can be developed for both Forest Service use or as a commercial product.

Integration Opportunities: Personal use rock and commercial use of developed or new sources are potential opportunities.

Card 24
Activity: Road Maintenance and Reconditioning

Description: Road maintenance includes the repair or upkeep of a road necessary to perpetuate the road and provide for its safe use. Work items may include surface rock replacement, culvert repair and replacement, bridge replacement, slide removal, reconditioning ditches, shoulders, roadbeds, brushing, and other items that contribute to the preservation of the existing road. Opening a stored road is normally considered maintenance. Maintenance and reconditioning of existing NFS roads is an ongoing process that occurs on a periodic basis.

Objectives: These tasks are performed to keep the roads in the safe and useful condition for which they were designed. Control of road use and operations and appropriate maintenance can protect road investment and soil, water quality, and riparian resources. Periodic inventory and assessment of road conditions are used to determine operational controls and maintenance needs.

Related Actions: Stream crossing structures (Activity Card 25); Improve fish passage on roads and trails (Activity Card 26); Quarry Development (Activity Card 23).

Methods: Road maintenance requires the use of heavy equipment to perform a variety of tasks. Typical maintenance items include brushing, blading, drainage structure maintenance, and surface rock replacement.

Equipment Used: Heavy equipment – *e.g.*, brushers, graders, rollers, excavator, dump trucks.

What are the general guidelines constraining this activity?

The Forest Plan outlines LUD goals, objectives, and desired conditions related to road management. Forest-wide Standards and Guidelines and Forest Plan Chapter 4 –TRANS6 provides guidance on Maintenance Levels, Conditions, and Inspections. The level of maintenance is determined by the road maintenance level. Maintenance Level defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria. Level 1 - roads that have been placed in storage between intermittent uses. Level 2 - assigned to roads open for use by high clearance vehicles. Level 3 - assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. Level 4 - assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Level 5 - assigned to roads that provide a high degree of user comfort and convenience.

What are the resource-specific guidelines?

Silviculture

Interdisciplinary review of the road maintenance schedule should be conducted annually to align it with expected silvicultural activities and existing road conditions.

Timber

Interdisciplinary review of the road maintenance schedule should be conducted annually to align it with expected timber harvest and sale activities, salvage, personal use, and existing road conditions. Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Specific road maintenance activities are controlled through specifications, construction drawings, and BMPs. Standard construction specifications and Forest Service special project specifications for each individual project are assigned to control maintenance activities. Maintenance drawings are assigned as needed for specific work items.

Region 10 BMPs: 12.17, 13.11, 14.5, 14.6, 14.7, 14.8, 14.9, 14.12, 14.17, 14.18, and 14.20

National BMPs: Road-4

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Roads are listed in the National Bald Eagle Management Guidelines as a Category C activity. See the Introduction for more information.

Fisheries

During road maintenance activities, any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. Any new fish crossing structures must provide fish passage. Disconnect ditch drainage from perennial channels to avoid or minimize fish access to ditches. This can be accomplished by selecting properly sized crossing structures and installing ditch-blocks where appropriate. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.15, 14.19, 14.20,

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Road-1, Road-3, Road-4, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Maintain functionality of ditches and cross drains.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 12.17, 13.11, 14.5, 14.6, 14.7, 14.8, 14.9, 14.12, 14.20

National Core BMPs: AqEco-2, Fac-6, Fac-9, Road-4, Road-9, Road-10, Veg-2, and Veg-8

Soils/Wetlands

Minimize soil disturbance and avoid disturbing wetlands. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 14.5, 14.8, and 14.20

National Core BMPs: AqEco-2, Fac-6, Fac-9, Road-4, Road-9, Road-10, Veg-2, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. The main concern here would be trampling under trees that are to be harvested for cones. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Avoid impacting populations of yellow lady slipper (*Cypripedium parviflorum* var. *pubescens*), which occurs at multiple locations within the ROW, during road maintenance activities on the 2000 road north of the Neck Lake/Whale Pass. Consult with the District Botanist/Ecologist prior to implementation of this activity in/along that road and connecting road segments.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific

design features may be recommended to reduce the spread and introduction of invasive plants. This is an activity that is a high risk for spreading invasive plants.

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (WBMP 7.1, 7.2, 7.3, 7.4, 7.5)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor re-vegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Minimize the spread of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2).

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11). If invasive plant treatments occur on roads follow WBMPs 12.1 and 31.1 in Krosse 2017. Work with botanist to schedule blading where herbicides have been applied.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

None

Wild, Scenic and Recreational Rivers

No roads are allowed or will be maintained or reconditioned in wild river corridors. For scenic river corridors, road maintenance and reconditioning should not be evident to a traveler on the river, except for short segments or at occasional bridge crossings. For both scenic, and recreational rivers, ensure road maintenance and reconditioning activities within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. For reconstructed roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Roads and drainage systems normally deteriorate because of traffic, weather, and age. Many such conditions can be avoided and corrected by timely maintenance. Maintenance is implemented on an annual and cyclic basis depending on need. Emergency repairs may be required due to storms or other catastrophic events.

Integration Opportunities: Combining road maintenance activities with other work that requires the use of the road maintenance equipment can provide cost savings in mobilization and implementation.

Card 25
Activity: Stream Crossing Structures

Description: Culverts or bridges placed during road or trail construction, reconstruction or maintenance at junctures with streams.

Objectives: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing, reconstructing, or maintaining temporary and permanent waterbody crossings.

Related Actions: Road and trail maintenance, reconstruction, or construction (Activity Cards 18, 19, 20, 24, and 38); improve fish passage (Activity Card 26)

Methods: Bridges and culverts are used to cross waterbodies for roads and trails.

Equipment Used: Heavy equipment – *e.g.*, excavator, loader, dump trucks

What are the general guidelines constraining this activity?

Forest Plan Forest-wide Standards and Guidelines (Chapter 4) are established to guide road and trail location, design and construction.

Best Management Practices, both Region 10 specific and National Core, provide performance and accountability standards in relation to road and trail construction activities.

What are the resource-specific guidelines?

Silviculture

Review plans for sourcing native construction material (log stringers) with the District Silviculturist and TMA. Avoid using valuable logs when possible. When structures are removed, stage stringer logs so that salvage is possible following Tongass Timber Reform Act (TTRA) direction.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Stream crossing structures are designed to accommodate specific flood flows based on the amount of area draining to structure location and the type of structure. Forest Service Handbook provides direction on design criteria. Construction specifications and drawings control construction activities and specify how structures are constructed.

Region 10 BMPs: 14.3, 14.9, 14.14, 14.17

National BMP: Road-7

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. Any new fish crossing structures must provide fish passage. Minimize fish access to ditches by selecting properly sized crossing structures and installing ditch-blocks where appropriate. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.15, 14.19, 14.20

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Road-1, Road-3, Road-4, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Crossings should pass the appropriate flows for the amount of watershed drained and the degree of anticipated landscape disturbance within the drainage area. Structure installation should be conducted under low flow conditions to minimize impacts from construction activities.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Region 10 BMPs: 12.8, 12.9, 14.3, 14.9, 14.14, 14.15, 14.17

National Core BMPs AqEco-2, Road-2, Road-3, Road-4, Road-5, Road-7, and Road-10

Soils/Wetlands

Heavy machinery should avoid non-forested wetland areas to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Heavy equipment would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. In some instances, the puncheon trail should be scattered upon completion. Avoid creating ruts greater than 12 inches in depth. Minimize soil disturbance. All areas of exposed mineral soil should be grass seeded with a Tongass approved seed mix. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.8, 12.17, 13.9, 14.2, 14.5, 14.8, and 14.20

National Core BMPs: AqEco-2, Road-2, Road-3, Road-4, Road-5, Road-7, and Road-10

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (WBMPs 7.1, 7.2, 7.3, 7.4, 7.5 on page 7 in Krosse 2017)

Retain shade to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor revegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Minimize the spread of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid

establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2).

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11). See WBMP 22.1 for soil and water restoration on page 10 of Krosse 2017.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

No stream crossing structures are authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Trail bridges within a wild river corridor must be minor and rustic. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?
Stream crossing structures are installed as needed for roads and trails to allow for passage of vehicles and pedestrian traffic.
Integration Opportunities: During road storage activities it may be advantageous to construct off-highway vehicle crossing structures if converting to motorized trails.

Card 26
Activity: Improve Fish Passage on Road and Trail Systems (Red Crossings)

Description: Use heavy equipment to replace, remove, or improve stream crossings structures where fish passage is inhibited. Use explosives to remove stream crossing structures where fish passage is inhibited.

Objectives: To provide a means to improve fish passage on stream crossing structures that fail to meet the aquatic organism passage standards.

Related Actions: Road activities (Activity Cards 18 through 25).

Methods: Remove, replace, or improve structures and ensure drainage features are functional through use of heavy equipment or blasting techniques.

Equipment Used: Heavy equipment (*e.g.*, excavator, loader, skidder, bulldozer, dump truck) or explosives.

What are the general guidelines constraining this activity?

The Forest Plan outlines Standards and Guidelines (Chapter 4) on how to minimize effects to resources during project implementation. All applicable laws, Forest-wide Standard and Guidelines, Region 10 BMPs, and National Core BMPs will be followed. Permits (*e.g.*, 404 exemption waiver) will be obtained as needed.

What are the resource-specific guidelines?

Silviculture

When choosing between replacement, removal, or improvement of stream crossing structures for fish passage improvement, interdisciplinary review to assess the near-term future needs of the road for silvicultural and other activities will help inform what other uses could be impacted and which stream crossing treatment best serves multiple resources. Replacement of structures is preferable on roads where future silviculture or timber harvest activities are planned. Avoid damage to adjacent stands.

Timber

Concerns addressed in silviculture section.

Transportation

Design the appropriate crossing structure to meet the road management objectives and fish passage standards. On roads where no vehicle use is allowed, blasting may be an appropriate method to restore fish passage.

Region 10 BMPs: 14.3, 14.9, 14.14, 14.17

National BMP: Road-7

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest-wide Standard and Guidelines must be followed, including subsistence hearings.

Culverts removal, may impact subsistence access.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. Any fish stream crossing structures must be designed to meet current fish passage standards per handbook direction. Minimize fish access to ditches by selecting properly sized crossing structures and installing ditch-blocks where appropriate. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.15, 14.17, 14.19, 14.20

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Road-1, Road-3, Road-4, Road-5, Road-7, Road-10, Road-11, Veg-2, Veg-3, Veg-4

Hydrology

Crossings should pass the appropriate flows for the amount of watershed drained and the degree of anticipated landscape disturbance within the drainage area. Structure installation should be conducted under low flow conditions to minimize impacts from construction activities. Stream channel should resemble natural width, bank full depth, and substrate.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 14.17

National Core BMPs: AqEco-2, Road-4, Road-7, and Road-10

Soils/Wetlands

If activities require equipment to operate off of the road prism, heavy machinery should avoid non-forested wetland areas to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Heavy equipment would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. In some instances, the puncheon trail should be scattered upon completion. Avoid creating ruts greater than 12 inches in depth. Minimize soil disturbance. All areas of exposed mineral soil should be grass seeded with a Tongass approved seed mix.

R10 BMPs: 12.5, 12.8, 12.17, 13.9, 14.5, and 14.20

National Core BMPs: AqEco-2, Road-4, Road-7, and Road-10

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds (WBMP 7.1, 7.2, 7.3, 7.4, 7.5)

Retain shade sources to suppress weeds. Minimize the removal of trees and other roadside vegetation to the extent practicable (WBMP 8.1).

Re-establish and monitor vegetation on bare ground due to construction activities to minimize weed spread. For all transportation improvement projects (including grading and blading) seed all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. Monitor revegetation activities (WBMP 9.1). Follow Tongass recommended seeding specifications, which includes guidance on the use of native plant materials (WBMP 9.2).

Minimize the spread of existing and new weed species caused by moving infested gravel and fill material. Inspect all active gravel and borrow sources before use and transport. If weeds are present, treat before transport and use or avoid infested areas. Avoid establishing new material sources in areas where weeds are present (WBMP 10.1). If new infestations occur at a borrow pit that was previously approved, that pit may not be used as a material source for that project unless the top 8 inches of contaminated material is removed and stockpiled (WBMP 10.2). Integrate weed prevention and management in all soil, watershed and stream restoration projects (WBMP 22 page 10 in Krosse 2017.

Ensure that weed prevention and related resource protection are considered in travel management (WBMP 11).

See Introduction for additional BMPs 1-6 that apply to all activities.

Geology/Karst

Require protection of all sinking or losing streams and their tributaries irrespective of whether the channels carry perennial, ephemeral, or intermittent flows. A non-harvest buffer is required at a minimum of 100 feet from the edge of a sinking or losing stream within no less than 0.25 mile (1,320 feet) upstream of their swallow hole or loss point. Additional protection beyond this point many be needed and should take into consideration parameters such as gradient, channel type, soil characteristics, and susceptibility to mass wasting and erosion along the stream's or tributary's course, or within the watershed. The karst management specialist should work in conjunction with hydrologists and soil scientists to design additional stream protection if needed. Some past management activities have impeded natural water flows or creating unnatural water flows to karst features. Adjacent to existing roads and previously harvested areas, opportunities to correct historic surface flows will be identified and prioritized. An example might be where a road drainage ditch captures and directs surface flow to a karst feature where it naturally would not have drained.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads, trails, and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

None

Wilderness

No fish passage improvements are authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if fish passage improvements are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Stream crossing structures could be removed, replaced, or improved when a need has been identified to improve fish passage. Stream crossing structures could be obliterated with explosives when a need has been identified to remove structures that are impairing fish passage.

Integration Opportunities: Impaired watersheds where other restoration activities are being considered may benefit from culvert and road material removal/replacement, especially if the removal/replacement will improve fish passage. Routine road and trail maintenance may be integrated with fish passage remediation.

Card 27
Activity: Fish Habitat Improvements

Description: Conduct instream work to improve access to spawning and rearing habitat, and bioenhancement projects to improve wild salmon runs in areas that historically produced larger runs.

Objectives:

Work toward improving wild sockeye salmon runs in areas that historically produced much larger runs.

Identify rivers, streams, and creeks that have natural barriers to fish passage (specifically Pacific salmon) and implement actions that more fully use natural spawning and rearing habitat.

Related Actions: Refer to card #26 and 28 ("Improve Fish Passage" and "Stream Restoration")

Methods:

For improving wild sockeye salmon runs, one and/or a combination of the following bioenhancement techniques could be used:

- Lake fertilization through the application of nitrogen and/or phosphorus nutrient(s) to the surface of wild stock sockeye salmon lakes that are exhibiting low levels of fertility and high potential for salmon production.
- Sockeye salmon egg incubation to increase egg-to-fry survival.
- Fry stocking to establish or reestablish self-perpetuating wild runs of sockeye salmon.

For improving Pacific salmon access to spawning and rearing habitat, the following methods could be used:

- Natural partial or full barriers could be modified using explosives or drills, or in combination with the construction/reconstruction of fishways.
- Beaver dams could be removed using hand tools and chainsaws.

Equipment Used: Explosives, hydraulic and gas powered drills, water pumps, chain saws, helicopter, ATV, hand tools, boats, fertilizer, incubation boxes, temporary field camps, float planes, weirs.

What are the general guidelines constraining this activity?

The Forest Plan outlines the goals, objectives, and desired conditions for fish habitat, riparian areas, and each process group. Improvement projects would be constrained to streams, lakes, and RMAs where desired conditions are not being met. The Forest Plan also outlines direction on how to minimize effects to resources during project implementation. Chapter 40 of Aquatic Habitat Management Handbook outlines considerations for different types of fish habitat improvement projects. All applicable laws, Forest Plan direction, Region 10 BMPs, and National Core BMPs will be followed. Fishpass projects and wildstock supplementation projects abide by the standards and best practices for these projects included in the Guidelines for Enhancement Planning section of the Comprehensive Salmon Enhancement Plan for southeast Alaska Phase III (June 2004). Projects should seek approval from the Southeast Alaska Regional Planning Team (RPT) and permitting (fish collection and transport) approval through ADF&G. Cooperate/coordinate with state and federal agencies and aquaculture associations to facilitate bioenhancement activities. During project planning consider the need to monitor prior to, during and upon the accomplishment of project objectives.

What are the resource-specific guidelines?

Silviculture

If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Where temporary roads are built to access in-stream sites, consider treatment of adjacent stands within the RMA to minimize re-entry costs and mechanical damage to residual trees.

Timber

None

Transportation

Maintain roads commensurate with project use.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest-wide Standard and Guidelines must be followed, including subsistence hearings.

Fish habitat improvement may impact the abundance and distribution of subsistence resources.

Fisheries

When considering restoration or improvement, priority should be given to restoration projects over improvement/enhancement projects (FISH3.I.A.).

Use the Cooperative Fisheries Planning process (ANILCA Section 507) and/or other cooperative agreements for developing priorities for improvement/enhancement activities.

Once a project opportunity has been identified, conduct a Feasibility Analysis (FSH 2090.21, 40.12) to identify any site-specific factors that might prohibit project development.

Determine habitat capability on streams and lakes prior to considering improvement/enhancement activities.

Prior to considering improvement/enhancement activities, consider whether other factors such as water quality, ocean conditions, competition, predation, and fishing pressure may be limiting fish production; adaptive management may be needed to address fish population concerns. Favor activities that correct the source of the degradation more than activities that mitigate, or treat symptoms of, the problem (AqEco-1).

For lake fertilization projects, thoroughly assess the food web structure to determine if preferred food species dominate the system and whether other planktivore species benefiting from increased zooplankton could outcompete juvenile sockeye. Regular long-term monitoring is required to identify and address any water quality concerns. Identify all applicable elements of water resource monitoring plans and specify rationale for each (Chem-6). Monitor water quality and sediments pre- and post-chemical treatment at representative locations to evaluate relevant water chemistry and chemical concentrations (Chem-4 and Chem-6).

Any in-stream work in a fish stream needs to occur during species-specific timing windows, and must receive concurrence with the State of Alaska. Remove fish from construction worksite prior to dewatering and construction, and use block nets to prevent fish from re-entering until in-stream work is complete. Conduct operations during low-flow periods (AqEco-2). Fish pass sites should be dewatered during construction to reduce sediment input downstream. Explosive charges in-stream need to meet Alaska blasting standards for the proper protection of fish (Timothy, 2013).

Prohibit equipment storage, maintenance, and re-fueling within riparian areas and frequently inspect equipment for leaks. Equipment should use vegetable-based hydraulic fluid for hydraulics when operating in or near water.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 14.1, 14.3, 14.5, 14.6, 14.8, 14.9, 14.17, 14.19, 18.1, 18.3, 18.5

National Core BMPs: Plan-2, Plan-3, AqEco-1, AqEco-2, AqEco-3, AqEco-4, Chem-1, Chem-2, Chem-3, Chem-4, Chem-5, Chem-6, Road-3, Road-4, Road-5, Road-7, Road-10, Veg-2, Veg-3, Veg-4, Veg-5, WatUses-6

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Soils/Wetlands

Proposed areas would need a review by a Tongass Soil Scientist. Blasting operations should be designed to reduce risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. Minimize soil disturbance. All areas of exposed mineral soil should be grass seeded with a Tongass approved seed mix.

R10 BMPs: 12.5, 12.8, 12.17, and 13.9

National Core BMPs: AqEco-2, Veg-2

Botany

Prior to implementation a qualified botanist/ecologist must conduct a site-specific pre-field review to determine if potential habitat for R10 Sensitive Plants or Tongass National Forest Rare Plants are present. Any surveys required shall be conducted at the appropriate time of the year and at an appropriate intensity level (Forest Plan PLA3 p. 4-40). If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

See Weed BMP 22 for Soil and Watershed 22, on page 10, which requires integration of weed prevention and management in all soil, watershed and stream restoration projects including seeding guidance in Exhibit 6 of Krosse 2017. See Introduction that states WBMPs for all activities 1-6 on pages 5-7 and described in Krosse 2017.

Geology/Karst

Require protection of all sinking or losing streams and their tributaries irrespective of whether the channels carry perennial, ephemeral, or intermittent flows. A non-harvest buffer is required at a minimum of 100 feet from the edge of a sinking or losing stream within no less than 0.25 mile (1,320 feet) upstream of their swallow hole or loss point. Additional protection beyond this point many be needed and should take into consideration parameters such as gradient, channel type, soil characteristics, and susceptibility to mass wasting and erosion along the stream's or tributary's course, or within the watershed. The karst management specialist should work in conjunction with hydrologists and soil scientists to design additional stream protection if needed.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

No fish habitat improvements are authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if fish habitat improvements are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Permanent stream obstructions are not permitted within a wild river corridor. Discourage stream obstructions in scenic and recreational river corridors. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Prior to implementation, site-specific surveys for fish pass projects and monitoring of the physical and chemical parameters of the aquatic ecosystem as well as status of algae and zooplankton communities for any lake fertilization and egg/fry stocking projects would be conducted so that habitat capability analyses and Feasibility Analyses (FSH 2090.21, 40.12) can be completed. If site-specific analysis shows that habitat improvement projects would meet fish habitat objectives outlined in the Forest Plan, the Cooperative Fisheries Planning process (ANILCA Section 507) and/or other cooperative agreements would be used to prioritize improvement activities.

Integration Opportunities: Reaches could be improved in watersheds in which land management activities are ongoing so that operation costs could be minimized. Personnel could be shared between projects during implementation. Explosives work could be coordinated with other blasting work to lessen logistical costs.

Card 28
Activity: Stream and Floodplain Restoration

Description: Conduct work in stream channels and floodplains of impaired stream reaches.

Objectives: Restore hydrologic function of impaired streams to achieve process group objectives, support critical fish life stages, and increase flood resiliency. Improve or restore aquatic habitat characteristics to more closely align with reference stream reaches.

Related Actions: Other related restoration work includes road maintenance, decommissioning, storage, riparian thinning, fish habitat improvement, improving fish passage on road and trail systems and harvest of rootwad trees (Activity Cards 6, 26, 27, and 29).

Methods: Install wood or (occasionally) boulder structures for energy displacement, floodplain connectivity, and habitat complexity. Excavate and re-shape streambed and banks to bolster structures and create habitat features consistent with natural channel design approaches including gradient control. Strategically tip over trees with rootwads attached and fell whole cut trees in-place across the stream or floodplain. Construct equipment access trails as needed and rehabilitate post-project. Remove decommissioned road fill where it impairs stream, floodplain, or wetland function. Stabilize disturbed soils with methods such as strategically scattering slash and limbs and revegetating.

Equipment Used: Heavy equipment (*e.g.*, excavator, loader, skidder, bulldozer, dump truck), chain saws, low boy and other trucks, helicopter, ATV, hand tools.

What are the general guidelines constraining this activity?

The Forest Plan outlines the goals, objectives, and desired conditions for fish habitat, riparian areas, and each process group. Watershed Restoration Action Plans identify the restoration treatments necessary to improve watershed condition. Restoration projects would be constrained to streams and floodplains where desired conditions are not being met. The Forest Plan also outlines Standards and Guidelines (Chapter 4) on how to minimize effects to resources during project implementation. All applicable laws, Forest-wide Standard and Guidelines, Region 10 BMPs, and National Core BMPs will be followed.

What are the resource-specific guidelines?

Silviculture

Discuss the activity with the District Silviculturist before proceeding. A silvicultural prescription will generally be required before conducting the activity. If material is sourced from adjacent riparian stands, the prescription will set requirements for which trees to be removed or retained so that an appropriate stocking is maintained for future recruitment and other objectives. Plan and review the location of access routes and potential wood sources with the interdisciplinary team no later than the season prior to when the work is scheduled. Locate machinery routes to avoid damaging the roots and boles of adjacent trees. Use non-commercial debris sourced from areas unsuitable for timber production when practical. See additional recommendations for the harvest of rootwad trees.

Timber

Source wood for restoration projects should avoid high-value trees and stands, or stands that are in or planned to be included in future commercial timber harvests.

Transportation

Contractors implementing these projects must maintain roads commensurate with their use. Use of closed or decommissioned roads requires appropriate permits and mitigation. When using stored or decommissioned roads, upon project completion return the road to a stored or decommissioned condition.

Region 10 BMPs: 14.2, 14.5, 14.6, 14.8, 14.9, 14.10, 14.11, 14.14, 14.15, 14.18, 14.20, and 14.24

National BMPs: Road-3, Road-4, Road-5, Road-6, Road-7

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest-wide Standard and Guidelines must be followed.

Stream and floodplain restoration may impact the abundance and distribution of subsistence resources.

Fisheries

If sourcing wood in riparian areas, select trees to accelerate the return to old growth characteristics and the desired future condition of the stream process group. Prohibit equipment storage, maintenance, and re-fueling within riparian areas and frequently inspect equipment for leaks (Road-10). Equipment should use vegetable-based hydraulic fluid for hydraulics when operating in or near water (AqEco-2). Avoid fish disturbance and mortality by using timing windows and other mitigation measures deemed necessary for in-stream work. When appropriate, use minnow traps to remove fish from worksite, and block nets to prevent fish from re-entering until in-stream work is complete. Conduct operations during low-flow periods and prepare or mitigate for the potential higher flow (AqEco-2). Any instream work in a fish stream must receive concurrence with the State of Alaska.

R10 BMPs: 12.1, 12.3, 12.4, 12.5, 12.6, 12.8, 12.9, 12.17, 18.1, 18.3, 18.5

National BMPs: Plan-2, Plan-3, AqEco-1, AqEco-2, AqEco-4, Road-5, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Restoration design and methods will consider 100-year flood recurrence and risk to downstream infrastructure. Excess soil from excavator tracks should be removed prior to each stream entry. At the point of entry use cut trees, tree tops, or fabricated erosion control materials to “bridge” from stream bank to stream bed to minimize impact to stream bank. Heavy equipment used within a stream’s high water marks should be power-washed prior to mobilization onto NFS land. Spill Prevention Control and Countermeasures (SPCC), spill response plans, erosion control plans, and emergency response plans will be developed for each project.

Consider other ongoing land management activities so that compounding adverse short term impacts to water quality may be minimized during operations.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.3, 12.8, 12.9, 18.3

National BMPs: AqEco-1, AqEco-2, AqEco-4, Road-10

Soils/Wetlands

Heavy machinery access points should be reviewed by a Tongass Soil Scientist upon implementation. A Soil Scientist will need to evaluate the stand for existing detrimental soil conditions. Non-forested wetland areas should be avoided to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Heavy equipment would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. In some instances, the puncheon trail should be scattered upon completion. Minimize soil disturbance. Avoid creating ruts greater than 12 inches in depth. All areas of exposed mineral soil should be grass seeded with a Tongass approved seed mix. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.8, 12.17, 13.9, 14.5, and 14.20

National Core BMPs: AqEco-2, Road-4, Road-7, and Road-10

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the

population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Integrate weed prevention and management in all soil, watershed and stream restoration projects (WBMP 22). If road building equipment is being used in restoration, follow WBMPs for Roads in Krosse 2017, specifically 7-13 on pages 7-9.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Contact geologist or karst specialist when working in high vulnerability karst areas. Avoid ground disturbance when working around sink holes or insurgence locations. Some past management activities have impeded natural water flows or creating unnatural water flows to karst features. Adjacent to existing roads and previously harvested areas, opportunities to correct historic surface flows will be identified and prioritized. An example might be where a road drainage ditch captures and directs surface flow to a karst feature where it naturally would not have drained.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

No stream or floodplain restoration is authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if stream or floodplain restoration is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Permanent stream obstructions are not permitted within a wild river corridor. Discourage stream obstructions in scenic and recreational river corridors. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Undertake watershed improvements within 0.25 mile each side of a wild, scenic or recreational river only where the deteriorated soil or hydrologic conditions create a threat to ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Streams suspected of not meeting Forest Plan desired conditions for process group, riparian area, or fish habitat will be evaluated to determine what action, if any, is needed (Appendix B-9). Evaluation includes consideration of previous land management activities, overall watershed condition, Proper Functioning Condition (PFC) surveys, and Tier II surveys to evaluate stream condition, stream function, and fish habitat objectives. If evaluation shows restoration is needed to meet the desired conditions, then streams would be restored in order of priority and proximity to other ongoing land management activities as described in Watershed Restoration Action Plan.

Integration Opportunities: Wood for instream placement could be sourced from old-growth timber harvest and road activities such as road right-of-way clearing and log bridge decommissioning. Young-growth thinning projects (riparian, wildlife gaps, and corridors) could also contribute wood to nearby stream restoration activities. Equipment access and material staging to streams from roads must be coordinated with other road uses, followed by appropriate road maintenance, storage, or decommissioning as applicable.

Card 29
Activity: Harvesting Wood for Stream Restoration Needs

Description: Harvesting rootwad trees, cut trees, and salvage of cull logs and stumps for stream restoration needs.

Objectives: To provide a source of Large Woody Debris (LWD) for stream restoration projects where trees and trees with rootwads are needed to achieve stream restoration objectives.

Related Actions: Stream Restoration (Activity Card 28)

Methods: Harvesting rootwad trees involves pushing and pulling trees over so that the roots are still attached. Cut trees would be harvested with chainsaws similar to timber harvest. Wood for stream restoration may also be salvaged from cull logs and old growth stumps. Cut trees, trees and their rootwads, cull logs, and stumps may then be removed from the original location and transported to another location for stream restoration.

Equipment Used: Heavy equipment (*e.g.*, excavator, loader, skidder, bulldozer, dump truck), low boy and other trucks, helicopter, chainsaws, hand tools.

What are the general guidelines constraining this activity?

All applicable laws, Forest-wide Standard and Guidelines, Region 10 BMPs, and National Core BMPs will be followed.

What are the resource-specific guidelines?

Silviculture

Consult the District Silviculturist before conducting the activity. A silvicultural prescription will generally be required. Individual trees harvested in this fashion should be designated by a team consisting of a Certified Silviculturist, a Tongass Soil Scientist, and when in RMAs, an aquatics specialist. General sideboards for site and tree selection: Source lower timber value material from non-development LUDs when possible. Use trees that are easily accessible from existing roads particularly trees that are growing on the cut bank or within 20 feet of the road surface. High-value species and/or quality trees that may produce a valuable sawlog are not appropriate for the activity. If harvest occurs in development LUDs, damage to the root and boles of adjacent trees must be avoided. If trees are harvested beyond 20 feet from existing roads in development LUDs, plan for small group openings where machinery can work and not damage the residual stand.

Timber

Target trees in non-development LUDs and attempt to avoid timber production LUDs to reduce the effect on the suitable timber base. Consult timber/silviculture for locations outside the RMA. When obtaining trees with rootwads for restoration projects attempt to avoid high-value trees and stands, or stands that are planned to be included in future commercial timber harvests. Tree should be selected as close to restoration activities as is practical.

Transportation

Contractors implementing these projects must maintain roads commensurate with their use. Use of closed or decommissioned roads requires appropriate permits and mitigation.

Wildlife

Consult with the Wildlife Biologist before harvesting any trees; especially in non-development LUDS.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest-wide Standard and Guidelines must be followed.

Timber harvest is considered a Category C activity in the National Bald Eagle Management Guidelines**.** See the Introduction for more information.

Fisheries

If sourcing wood in riparian areas, select trees to accelerate the return to old growth characteristics and the desired future condition of the stream process group. Follow guidance per Rootwad Harvest Guidelines (Landwehr 2009). Non-toxic vegetable or other biodegradable oils should be used for hydraulic equipment and chainsaws when working in or near streams. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 18.1, 18.3

National Core BMPs: AqEco2, AqEco-3, AqEco-4, Plan-2, Plan-3, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

When harvesting within an RMA wood should be selected to meet riparian objectives and desired future conditions. Harvest treatments in young-growth stands in RMAs need to help accelerate the return to old growth characteristics.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.3, 12.8, 12.9

National Core BMPs: AqEco-2, Road-2, Raod-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8

Soils/Wetlands

All proposed extraction locations are required to be reviewed by a Tongass Soil Scientist for rootwad extraction suitability upon implementation. In young-growth stands a Soil Scientist will need to evaluate existing detrimental soil conditions. Heavy machinery are required to operate on puncheon material and should not operate on slopes greater than 25 percent. If the site is well drained, a Tongass Soil Scientist may approve equipment to operate up to 35 percent slopes if they are not carrying a load. Consult a Soil Scientist for any ground-based equipment use proposed on slopes over 35 percent gradient. Heavy machinery should avoid creating ruts greater than 12 inches in depth. Wetland areas should be avoided. Minimize soil disturbance. All exposed mineral soil in rootwad areas are required to be covered with slash or grass seed. Adhere to R10 Soil Quality Standards and Rootwad Harvest Guidelines.

R10 BMPs: 12.5, 12.17, and 13.9

National Core BMPs: AqEco-2, Road-2, Road-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Integrate weed prevention and management in all soil, watershed, and stream restoration projects (WBMP 22). Under Roads WBMPs follow 7-13 on pages 7-9 if road equipment is being used for these activities, see Krosse 2017.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Activities on moderate vulnerability karst should be analyzed on a case by case basis. No removal should occur on high vulnerability karst.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3, 4, and 5). SIOs depend on LUDs and distance from VPRs.

Wilderness

No harvesting of wood for stream restoration is authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if these activities are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Stream restoration source wood would be harvested as needed for restoration activities.

Integration Opportunities: Stream restoration source wood could be harvested in watersheds in which land management activities are ongoing so that operation costs could be minimized. Land management activities that could be integrated include timber harvest and road work.

Card 30
Activity: Wildlife Trees in Young-growth Stands

Description: Identify areas within young-growth stands that could benefit from the creation of wildlife trees such as snags or trees with damage (such as broken tops) or decay. Use methods below to create snags and/or other structural diversity in the identified area. Use fungal inoculation, blasting, or topping trees to create or improve habitat. Nesting or roosting boxes and nesting platforms may also be used where appropriate.

Objectives: This action would improve or provide wildlife habitat.

Related Actions: Girdling (Activity Card 8), Precommercial Thinning (Activity Card 5), Commercial Thinning (Activity Card 4), Riparian Thinning (Activity Card 6), and Pruning (Activity Card 9).

Methods: Blasting, fungal inoculation, girdling, and topping trees. The methods used are generally very site-specific and result in little to no disturbance other than to the target tree.

Equipment Used: Explosives, native fungus, chainsaws, hand tools.

What are the general guidelines constraining this activity?

Follow all National Bald Eagle guidelines. No blasting within 1/2 mile of eagle nests. Address safety issues by using the guidelines in Reserve Tree Selection Guidelines, R10- MB-215, March 1993. See Reserve Tree/Cavity-Nesting Habitat Standard and Guideline information in the Introduction to Activity Cards.

What are the resource-specific guidelines?

Silviculture

In general limit the activity to young-growth stands that are 45 years old or older and located in areas unsuitable for timber production. Consult the District Silviculturist before conducting the activity. A silvicultural prescription will generally be required.

Timber

Avoid damage to surrounding commercial trees and stands.

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

Provide or improve habitat for cavity-nesting or denning wildlife species. Consult with the Wildlife Biologist to identify areas with limited or lacking cavity nesting or denning habitat.

Where feasible locate activities outside of required buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Avoid girdling trees within 10 feet of Class I, II, and III streams. When considering blasting near fish streams consult a fish biologist for site-specific protections. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 18.1, 18.3

National Core BMPs: AqEco-2, Fac-6, Plan-3, Road-10, Veg-3, Veg-8

Appendix 1

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 18.1, 18.3

National Core BMPs: AqEco-2, Fac-6, Plan-3, Road-10, Veg-3, Veg-8

Soils/Wetlands

Avoid non-forested wetlands and minimize soil disturbance. Avoid blasting around unstable slopes. An on-site evaluation may be needed if the tree is located on slopes greater than 55 percent. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.4, 12.5, 12.9, and 13.5

National Core BMPs: AqEco-2, Chem-1, and Veg-2

Botany

Botanical surveys are not needed unless activity is located within beach buffer. Within the beach buffer, conduct targeted surveys for the Region 10 Sensitive lichen, *Ricasolia amplissima* ssp. *sheiyi* If found, avoid these areas to maintain the live trees for this species' habitat. Then the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

None

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

None

Scenery

None

Wilderness

The creation of wildlife trees in young growth stands is not authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs) of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain free-flowing condition, water quality, and river classification. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors. Forest Plan components for young growth do not apply to designated or recommended wild, scenic, or recreational rivers. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Where the existing condition in young-growth stands is lacking in structural diversity and the desired condition is to provide or increase the structural diversity. This activity would be contingent on other activities in the area.

Integration Opportunities: Girdling

Card 32
Activity: Soil Restoration

Description: Use heavy equipment and hand tools to restore soil productivity where detrimental soil conditions approach or exceed 15 percent of an activity area.

Objectives: To provide a means to restore soil productivity in areas where soil productivity has been reduced, an IDT has determined that soil productivity can be restored, and that it is beneficial to do so considering site and stand factors. To minimize soil erosion as stated in BMPs (FSH2509.22 and National Core BMPs). Soil restoration is designed to restore soil productivity, and to some extent restore soil processes and functions.

Related Actions: Timber harvest cards (1-4 and 13-15), Thinning cards (5-10), Stream cards (26-29), Invasives (34), Road cards (18-25), Wood Energy Product card (16), Karst flows card (33), Roads to trails card (37).

Methods: Detrimental soil conditions found in the project area may include detrimental displacements, detrimental soil erosion (including landslides), detrimental puddling, and detrimentally altered soil wetness. A need for soil restoration may exist in older young-growth stands that were logged with spar tree corridors or tractors. Soil restoration through stabilization may be needed on landslide tracks or historic spar tree corridors. Soil disturbance from proposed activities in combination with soil disturbance from past activities my cumulatively justify a need for soil restoration in some areas of some stands.

For restoring soil productivity where soil erosion is occurring, whether it is a non-ground or ground disturbing activity, the following techniques could be used:

- Vegetation establishment, grass seeding, tree planting
- Coir logs, silt fences, sediment traps, waterbars, rock walls, and other structural techniques

For restoring soils buried under road prisms:

- Soils under temporary roads may be restored by obliterating the road and reshaping to match natural contours or in some cases subsoiling to destroy compacted soil layers

For improving soil productivity from ground disturbing activities (*e.g.*, recently harvested stands) the following methods could be used:

- Moving the topsoil from one part of the stand to a detrimentally displaced area
- Importing topsoil and/or organic matter from another area to the detrimentally displaced area
- Covering detrimentally displaced areas with slash
- Fertilization with or without seeding may be used to offset the effects of soil displacement

For restoring soil productivity in areas of detrimentally altered wetness, microsites may be formed by importing woody debris or mounding soil, or removing the drainage obstruction (road prism removal).

For areas where soil paludification is identified, the following methods may be used:

- Breaking up the subsoil cemented horizons to improve soil drainage
- Root wad removal or tree/stump tipping to help break up the cemented layers

Equipment Used: Heavy equipment (*e.g.*, excavators, dump trucks, bulldozers) hand tools, helicopters with seeders, hand seeders, waddles or coir matting or logs, silt fences, chain saws, ATV, fertilizer, and Tongass approved grass seed mix.

What are the general guidelines constraining this activity?

The Forest Plan outlines direction on how to minimize effects to resources during project implementation. All applicable laws, Forest-wide Standard and Guidelines, Region 10 BMPs, National Core BMPs, and R10 Soil Quality Standards will be followed.

What are the resource-specific guidelines?

Silviculture

If this activity is occurring outside of either a commercial harvest unit or a precommercial thinning unit with a current prescription, and is expected to require the cutting of live trees or vegetation disturbance, the District Silviculturist should be consulted to determine if a prescription is necessary.

If this activity is deemed necessary for commercial harvest in young-growth stands, the project silviculturist should be notified and allowed opportunity to incorporate any necessary vegetation management into the prescription.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Access is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis per the implementation plan.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

When using rootwad removal to help break up cemented layers, consider opportunities for using the rootwads for restoration projects and follow guidance per Rootwad Harvest Guidelines (Landwehr 2009).

Consult a fish biologist prior to using fertilizers near waterbodies so that site-specific protections can be prescribed.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17,13.14, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22, 18.4

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Chem-1, Chem-2, Chem-3, Fac-2, Fac-10, Plan-2, Plan-3, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.3, 12.8, 12.9

National Core BMPs: AqEco-2, Road-2, Raod-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8.

Soils/Wetlands

The proposed areas would have an on-site field review by a Tongass Soil Scientist to determine extent of existing detrimental soil conditions and determine the best restoration method to minimize further disturbance prior to implementation. Adhere to R10 Soil Quality Standards. All proposed heavy machinery activities will avoid small non-forested areas and prevent rutting. Slopes over 25 percent gradient may not be suitable under some moisture conditions. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth. Adhere to Region 10 Soil Quality Standards.

R10 BMPs: 12.2, 12.4, 12.5, 12.17, 13.5, 13.9, 14.5, 14.7, 14.8, 14.9, 14.18, 14.24, 14.25, and 16.4.

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-1, Fac-2, Plan-2, Road-6, Veg-2, Veg-4, and Veg-6.

Appendix 1

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi-purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants. Follow All Resources Invasive Plant Best Management Practices, pages 5-7 in Krosse 2017.

Ensure that weed prevention is considered in all earth moving projects.

Invasive Plant Management WBMP 23.1 on page 10 in Krosse 2017 includes Exhibit 6 for seeding specifications, guidance on using any native plant materials for reseeding or restoration.

Geology/Karst

If on karst lands, all proposed sites would be reviewed by the Forest Geologist upon implementation. No activity should occur on high vulnerability karst lands.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological resources may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during project design and project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.

The wilderness manager should be consulted if soil restoration is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Undertake watershed improvements within 0.25 mile each side of a wild, scenic or recreational river only where the deteriorated soil or hydrologic conditions create a threat to ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

If identified early enough in the planning process, soil restoration can be included in stewardship plans and conducted immediately after harvest operations are complete and before the equipment leaves the area.

Integration Opportunities: Soil restoration can be included with other restoration plan or vegetation treatment activities, or as a stand-alone project. Rootwads removed for soil restoration could be used in stream restoration projects.

Card 33
Activity: Restore Altered Karst Surface Water Flow Paths

Description: Removal of material blocking historical flow into and out of karst systems where drainages and channels are altered by past activity, such as roads.

Objectives: Impacted and damaged karst systems would be repaired, by clearing blockages and fixing diverted water flows from culverts and ditch features. Sediment has infiltrated karst systems from past management activities and some blockages have occurred. These blockages have increased surface flow and erosion in some areas. Opportunities exist to improve the karst systems where ditches, culverts, slash, and beaver dams/structures are impeding natural water flows or creating unnatural water flows to karst features.

Related Actions: Road Maintenance (Activity Card 24)

Methods: Removal of material from losing streams or diverting water flows to historical pathways.

Equipment Used: Hand tools and heavy equipment

What are the general guidelines constraining this activity?

Appendix H of the Forest Plan, Section 4 (b)(ii) and 4 (c)(ii)

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain adjacent to karst features.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any in-stream work in a fish stream needs to occur during species-specific timing windows, and must receive concurrence with the State of Alaska. Prohibit equipment storage, maintenance, and re-fueling within riparian areas and frequently inspect equipment for leaks (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions). If heavy equipment will be operating within a stream channel then vegetable-based hydraulic fluid should be used, fish should be removed from the worksite where applicable, and nets should be installed to prevent fish from re-entering until in-stream work is complete.

R10 BMPs: 12.3, 12.4, 12.6, 12.6a, 12.8, 12.9, 14.20, 18.3,

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Plan-2, Plan-3, Road-4, Road-7, Road-10, Veg-2, Veg-3, Veg-4

Hydrology

Work should be done under low-flow conditions to minimize impacts.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs: AqEco-2

Soils/Wetlands

Minimize soil disturbance. If the heavy machinery leaves the road prism, the machinery is required to operate on puncheon material. Heavy equipment should avoid creating ruts greater than 12 inches in depth. Soil disturbance should be kept to minimum. Consult a Soil Scientist for any ground-based equipment use proposed on slopes over 35 percent gradient. Avoid operating heavy equipment in wetlands. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.8, 12.17, 14.5, 14.8, 14.20, and 14.24

National Core BMPs: AcEco-2, Fac-1, Road-4, Road-6, Road-9, Road-10, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Integrate weed prevention and management in all soil, watershed, and stream restoration projects (WBMP 22). Since many of these restoration locations may be associated with existing roads, follow the WBMPs for roads pages 7-9 in Krosse 2017.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Some past management activities have impeded natural water flows or creating unnatural water flows to karst features. Adjacent to existing roads and previously harvested areas, opportunities to correct historic surface flows will be identified and prioritized. An example might be where a road drainage ditch captures and directs surface flow to a karst feature where it naturally would not have drained. Such restoration should be carefully designed and accomplished during periods with little precipitation or at low flows.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed

in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

Restoration of altered surface karst water flow paths is not authorized within designated Wilderness with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Undertake watershed improvements within 0.25 mile each side of a wild, scenic or recreational river only where the deteriorated soil or hydrologic conditions create a threat to ORVs. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

As opportunities were identified and machines were available.

Integration Opportunities: Could be combined with road building, road decommissioning, or stream restoration opportunities.

Card 34
Activity: Invasive Plant Treatments – Manual and Mechanical

Description: Control, contain and eradicate non-native, invasive plant populations with manual and/or mechanical treatments. Most of the known non-native, invasive plant infestations occur in developed areas, such as along roadsides, at administrative sites, rock pits, and recreation areas.

Objectives: These treatments are used to achieve the Forest-wide goal of maintaining ecosystems capable of supporting the full range of native and desired non-native species and ecological processes. Specifically, through the objective to manage the Forest in order to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of non-native, invasive species.

Related Actions: Potential for seeding post-treatment.

Methods: Methods vary by species, infestation size, life-stage, and growing substrate but typically involve actions that physically remove and destroy portions of plants to cause mortality or reduce the reproductive potential. Hand pulling can effectively remove above- and below-ground portions of plants while limiting disturbance to the surrounding vegetation. Similar effects are achieved when using hand tools to dig invasive plants (*e.g.*, shovels, pulaski, weed fork), but the potential for soil disturbance and non-target vegetation damage increases. Weed torches destroy above ground portions of plants and may cause heat damage to nearby non-target vegetation. Ground tarping is achieved by covering the entire extent of smaller invasive plant infestations. Above ground portions of invasive plants can be removed via multiple methods including hand tools, string trimmer and chainsaws.

Equipment Used: Hand tools, weed torch, ground tarp, string trimmer, chainsaw, brush saw

What are the general guidelines constraining this activity?

General Project Design Features (PDF):

Prepare a specific treatment plan which includes the location, target species, and method of treatment (manual/mechanical).

Annually, a weed assessment review team will be assembled to review the planned treatments and to ensure PDFs are applied; integrated treatment methods will be determined by factors such as species and location of the site and based on priorities detailed in the annual treatment plan.

Forest Plan, Chapter 4 Forest-wide Standards and Guidelines, Invasive Species Control and Management: INV3

What are the resource-specific guidelines?

Silviculture

This activity does not require review by a Certified Silviculturist.

Timber

None

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

All applicable laws, BMPs, and Forest Plan direction must be followed.

The removal of invasive plants may improve the abundance and availability of native plants for subsistence users.

Fisheries

Direct mortality due to trampling: If any manual or mechanical treatments require working in the water, activities would be planned through timing to avoid impacts to redds or disturbance to spawning fish.

Apply erosion control (*e.g.*, silt fences) and revegetation (*e.g.*, mulching, native grass seeding, planting) measures for manual treatment where detrimental soil disturbance or de-vegetation may result in the delivery of sediments.

Appendix 1

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Soils/Wetlands

Soil disturbance should be kept to a minimum. If an area greater than 100 square feet of mineral soil is exposed by pulling or burning, a Tongass Soil Scientist should be consulted to review and make mitigation recommendations. Avoid using a weed torch on dry days. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 14.8 and 14.25

National Core BMPs: AqEco-2 and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will evaluate invasive plant populations to determine appropriate method and tool for control. Implementation of treatment methods will be coordinated to meet Forest Plan Objectives.

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

If on karst lands, all proposed sites would be reviewed by the Forest Geologist upon implementation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. There is an association between ROS and land use

designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

A Minimum Requirements Analysis has been completed and approved by the Regional Forester for manual and mechanical treatments in designated wilderness. The Minimum Requirements Analysis concludes the activity can only be conducted when the principle objective is to protect or restore the Wilderness resource. The means of treatment used will be a site-specific, professional judgement.

No motorized equipment or mechanical transport will be used.

Crew size will be kept to 12 people or fewer.

Crew camps, if needed, will be located in previously used campsites if available, and crews will follow Leave-No-Trace guidelines (www.lnt.org).

Review treatment plans with the District wilderness manager to ensure Wilderness objectives will be met.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Documented populations of Priority Invasive Species are targeted for treatment to reduce their population size and/or limit their spread using an integrated pest management approach. Manual and mechanical treatments will be selected at sites where Priority Invasive Species are known to occur and where the Invasive Plant Program Manager has determined they will achieve the desired level of control.

Integration Opportunities: Sites are often susceptible to invasive plant invasion following any ground disturbing activity. Post-implementation monitoring after these activities is useful to identify introduced invasive plant populations early and successfully control/eradicate before they become large infestations.

Card 35
Activity: Invasive Plant Treatments – Herbicidal

Description: Application of herbicides to eradicate, control or contain selected non-native, invasive plant populations. Most of the known non-native, invasive plant infestations occur in developed areas, such as along roadsides and at administrative sites, rock pits, and recreation areas.

Objectives: These treatments are used to achieve the Forest-wide goal of maintaining ecosystems capable of supporting the full range of native and desired non-native species and ecological processes. Specifically, through the objective to manage the Forest in order to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species. The eradication or control of existing and new infestations of district priority Invasive Species protects non-infested areas from future introduction by reducing the spread of non-native, invasive plants from existing populations. Herbicide treatments will focus on invasive plant infestations where repeated manual/mechanical treatments have been ineffective or invasive plants species whose life history and biology make them difficult to control using only manual and mechanical treatment methods.

Related Actions: Potential for seeding post-treatment and temporary area closures following herbicide application.

Methods: Methods vary by species and infestation size. Three herbicides (glyphosate, aminopyralid, and imazapyr) are under consideration for use under this activity. To reduce the risks of environmental harm, only aquatically approved formulations of glyphosate and imazapyr are proposed for use; no aquatic formulation is currently available for aminopyralid. Only aquatically approved surfactants will be used as adjuvants. Herbicide use is proposed using ground-based methods, such as spot and selective hand spraying and broadcast methods that targets individuals and groups of plants. No aerial application would be used. Generally herbicide treatments are approved under an annual plan that can be reviewed by interested specialists (see Appendix B).

Equipment Used: Backpack sprayers, hand sprayers, stem injectors, sponge, paint brush, cloth wick, ATV and boom sprayer.

What are the general guidelines constraining this activity?

Federal, Alaskan State, and local standards and permits for herbicide use, herbicide label directions, risk assessment guidance, and implementing project design features developed by resource specialists (see resource specific guidelines below). The following project design features (PDF) are developed to reduce potential adverse impacts of herbicide application to all resources.

General PDFs:

Prepare a specific treatment plan for all sites where herbicide application is proposed. The plan should include the location, target species, herbicide, application method and rate.

Annually, a weed assessment review team will be assembled to review the planned treatments and to ensure PDFs and buffers are applied; integrated treatment methods will be determined by factors such as species and location of the site and based on priorities detailed in the annual treatment plan.

A Pesticide Use Proposal (PUP) will be prepared for herbicide use. The PUP should be reviewed annually to determine if changes are warranted due to changes in the project. If it is determined that substantive changes are warranted, a new PUP will be prepared, reviewed, and approved. If no changes are warranted, the original PUP is sufficient and does not need to be rewritten (Forest Service Handbook 2109.14).

Only applicators certified by the State of Alaska, or those under the direct supervision of a certified applicator, will be allowed to use restricted-use pesticides (Forest Service Manual (FSM) 2154.2, USDA Forest Service 1994b).

Prior to herbicide application, herbicide labels will be reviewed to ensure directions regarding herbicide selection, tank mixing, and use of adjuvants, surfactants and other activities, are followed.

Prior to herbicide application, calibrate sprayer to ensure herbicide is applied at the intended rate.

On saturated soils (including wetlands), and on sites with seasonally high water tables, use only aquatic formulations herbicides, where label restrictions allow.

The Herbicide Transportation, Handling, and Emergency Spill Response Plan and spill kit will be on-site when herbicide treatments occur. This Plan will include reporting procedures, project safety planning, accidental spill clean-up methods, and

information on the spill kit's contents and location as noted in FSM 2150 (USDA Forest Service 1994b) Pesticide-Use Management and Coordination and Handbook (FSH) 2109.14 (USDA Forest Service 1994a).

The maximum herbicide application rate will be restricted to the typical rate specified on the label.

No more than daily use quantities of herbicides will be transported to the project site. The exception is for crews staging at remote locations. Under these circumstances, crews can bring sufficient quantities of herbicides for the planned duration of the field work (*i.e.*, multiple days).

Herbicides and equipment used for application of herbicides will be transported in a leak-proof container, and will be secured to prevent tipping during transport.

To reduce the potential for spills, impervious material, such as a bucket or plastic, will be placed beneath mixing areas to contain any spills associated with mixing or refilling.

Follow herbicide label directions regarding the maximum daytime temperature permitted when applying (some types of herbicides volatilize in hot temperatures).

Herbicide spray equipment will be washed or rinsed a minimum of 150 feet from any waterbody, stream channel, or roadside ditch with flowing water or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150-foot setback). All herbicide containers and rinse water will be disposed of in a timely manner that will not cause exceeding the threshold of concern for aquatic systems (see Aquatic and Hydrology Herbicide Resource Report).

This project will use only aquatically approved surfactants. This feature will eliminate potential impacts from surfactants that have high levels of polyoxyethyleneamine (POEA), which, at high levels, can have adverse effects to aquatic species.

Marker dyes will be used to mark where herbicides have been applied to avoid over spraying.

To reduce potential spray drift, herbicides will not be applied when average wind speeds exceed the maximum wind speed stated on the product label. If a maximum average wind speed is not stated, herbicide application will be limited to times when wind speeds is less than 10 miles per hour.

Wind and other weather data will be monitored and reported for all pesticide applicator reports.

Herbicides will not be applied immediately prior to, during, or immediately after a rain event at the treatment site.

Avoid or minimize drift by using appropriate application equipment (for instance, nozzles that produce 200 to 800 micron diameter droplets, which are less prone to drift), adding drift reduction agents or adjusting equipment settings, such as nozzle pressure.

What are the resource-specific guidelines?

Silviculture

Review treatment plans with the District Silviculturist to determine if mitigations are necessary to avoid damage to non-target trees or vegetation.

Timber

None

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available and as a tool for broadcast spraying when needed. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

All applicable laws, BMPs, and Forest Plan direction must be followed. Review treatment plans with District Wildlife Biologist.

The removal of invasive plant species may increase the abundance and availability of native plants for subsistence users.

TES: If any threatened, endangered candidate or Forest Service sensitive wildlife species are present in the treatment area, protective measures may include, but are not limited to, the following: 1) avoiding sensitive areas, 2) seasonal restrictions, or 3) treatment methods designed to avoid adverse impacts.

Heron/Raptor: If there are active rookeries and raptor nesting habitat, disturbance during the active nesting season (generally March 1 through July 31) will not occur or will be postponed. Local biologist will be consulted to determine appropriate distances and timing prior to implementation.

Ground nesting birds: Ground nesting birds shall be considered when planning for all treatment types. If ground nests are discovered, a wildlife biologist will be consulted to determine any mitigation measures. Generally, treatment should be postponed near ground nests until after the nesting and fledgling season (approximately mid-July).

In the event of a wildlife species status changing to Threatened, Endangered, or Sensitive, additional analysis will be completed to determine potential impacts.

Bald Eagles: Bald eagle habitat will be managed in accordance with interagency agreement established with United States Fish and Wildlife Service (USFWS) to maintain habitat to support the long-term nesting, perching, and wintering roosting capability for bald eagles.

If project activities are visible or can be heard from a nest, weed treatment specialist will stay at least 330 feet (100 meters) from the nest, unless the eagles have demonstrated tolerance for similar activities (USFWS Guidelines).

Black Bears: During implementation, weed treatment specialist will seek to reduce human-bear conflicts. Areas of concentrated bear activity will be avoided, especially during the fall.

During annual project planning, the need for additional protection for important bear foraging sites (*e.g.*, fishing sites) will be evaluated in addition to the Forest Plan Chapter 4 Standards and Guidelines for Riparian (Forest Plan, pp. 4-48 through 4-52) and Beach and Estuary Fringe (pp. 4-4 and 4-5).

See Herbicide Biological Assessment/Biological Evaluation for more information.

Fisheries

Review treatment plans with District Fisheries Biologist and implement, as appropriate the following BMPs:

- R10 BMPs: 12.4, 12.6, 12.6a, 12.8, 12.9, 12.17, 15.1, 15.2, 15.4, 15.5
- National Core BMPs: AqEco2, AqEco-3, Chem-1, Chem-2, Chem-3

Buffers and Spray Distance to Water (BMP 15.5; Chem-3):

Aquatic-based formulations of glyphosate and imazapyr may be applied up to water's edge and for emergent vegetation that grows within the water column using hand application (*e.g.*, wicking or wiping, stem injection) or spot spraying techniques.

No broadcast spraying within 100 feet of the water's edge or within the water column for any chemical.

In the marine environment, aquatic-based formulations of glyphosate and imazapyr can be applied down to the mean high tide line during low or outgoing tides with spot-spray and hand application methods.

Begin application of pesticide products nearest the aquatic habitat boundary and proceed away from the aquatic habitat; do not apply towards a waterbody.

Hydrology

Review treatment plans with the District Hydrologist. Use only aquatically approved pesticides in the proximity of waterbodies (glyphosate and imazapyr).

Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

- National Core BMPs: AqEco-2, Chem-3, Chem-4
- R10 BMP: 15.5

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Erosion Control (BMP 12.17; AqEco-2; Forest Plan 4-61):

Apply erosion control measures (*e.g.*, silt fences) and native revegetation (*e.g.*, mulching, native grass seeding, planting) for manual treatment where detrimental soil disturbance or de-vegetation may result in the delivery of measurable levels of fine sediment.

Buffers and Spray Distance to Water (BMP 15.5; Chem-3):

Aquatic-based formulations of all herbicides may be applied up to water's edge using hand application or spot spraying techniques. Aquatic-based formulations of glyphosate and imazapyr may also be used to treat emergent vegetation directly over water.

Herbicide spray equipment would not be washed or rinsed within 150 feet of any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback). All herbicide containers and rinse water will be disposed of in a manner that would not cause contamination of waters.

The mixing and loading of herbicide(s) would take place a minimum of 150 feet from any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback).

Public Water Sources (PWS) and Supplies (BMP 15.5; Chem-3):

Before authorizing herbicide use within public water system source watersheds, consult with Alaska Department of Environmental Conservation (ADEC), the affected municipality, and/or the owner or operator of the water system.

Review the completed Source Water Assessment for the PWS watershed, available from ADEC prior to authorizing weed management activities in these watersheds.

Herbicide use within 1,000 feet of domestic wells or public water supplies will be coordinated with the water user, manager, or local Municipal Water board.

Minimum distance to surface waters is 200 feet for herbicide application within municipal watersheds.

All herbicide application, storage, chemical mixing, refilling and post-application equipment cleaning is completed at least 200 feet from domestic wells or public water sources, and in accordance to label guidance relative to water contamination (BMP Chem-5).

All known unclassified (private) water sources will receive the same consultation given to public systems, as outlined above, prior to herbicide application if located within a PWS source watershed. If located outside a PWS source watershed, consultation will occur if herbicide application is proposed within 1,000 feet of surface waters of known unclassified water sources.

Identify Riparian Areas (BMP 15.5; Chem-3):

Forest Service personnel will identify riparian areas according to methods outlined in the Tongass Riparian Management Area standards and guidelines prior to implementation of herbicide application. Forest Service specialists will work closely with herbicide applicators to ensure project design features are implemented.

Soils/Wetlands

Review treatment plans with the District/SO Soil Scientist.

Determine the suitability of the soil and wetlands for each type of herbicide prior to implementation. Use only aquatic formulations in wetlands.

Where elimination of an invasive plant population presents a soil erosion risk, consider erosion control measures appropriate for the site. Adhere to R10 Soil Quality Standards.

Revegetation will follow current Tongass National Forest standards for seed mix outlined in the Guidance for Invasive Plant Management Program (USDA 2017c).

R10 BMPs: 12.4, 12.5, 12.9, 15.1, 15.2, 15.4, and 15.5

National Core BMPs: AqEco-2, Chem-1, Chem-2, Chem-3, Chem-4, Chem-5, Chem-6, Fac-6, and Veg-8

Botany

Review treatment plans with the District/SO Botanist or Ecologist.

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Broadcast spraying will not occur within 100 feet of a known sensitive or rare plant occurrence for Glyphosate and aminopyralid, and 900 feet when using imazapyr.

No herbicides may be used within 60 feet of rare or sensitive plants; however the District Ranger may allow use of herbicides within 60 feet of a sensitive or rare plant occurrence (per Forest Plan direction) if deemed necessary to control an infestation that may pose a threat to that occurrence.

Herbicide treatments will be scheduled as practicable to reduce adverse impacts to nearby sensitive and rare plants. For example, herbicides should be applied to an infestation of a late-growing weed species after sensitive or rare plants in the vicinity have entered dormancy, to minimize potential impacts due to spray drift or run-off.

To reduce potential spray drift or run-off, herbicides will not be applied when average wind speeds exceed 10 miles per hour if no maximum wind speed is stated in the labeling.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

A Pesticide Use Proposal must be completed and reviewed by the Regional Pesticide Use Coordinator, and approved by the Regional Forester or delegated official prior to implementation. The District Invasive Plant Program Manager will evaluate invasive plant populations and prepare a treatment plan detailing the locations and types of herbicides to be used. This plan will be available for review by resource specialists to ensure appropriate project design features and BMPs are included. The decision maker must review the treatment plan to ensure the proposed treatments are within the scope of the effects analyzed prior to approving the plan for implementation. Treatment plans will be made available to the public.

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

Review treatment plans with the District/SO Geologist or Karst Specialist.

All hydrology and fisheries project design features will be applied to high and moderate vulnerability karst systems for both surface and subsurface aquatic systems.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Review treatment plans with the District Recreation Specialist.

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Immediately prior to initiating an herbicide application in developed recreation sites and areas of concentrated public use, such as picnic areas located along road systems, or popular berry picking sites, written notice will be posted. The notice will include date and time of application when the area can be re-entered, and the name and phone number of the Forest Service contact. Additional means of notification, such as public service announcements, may also be used at the discretion of the District Ranger.

Within areas of concentrated public use and developed recreation sites, implementation of this project should be limited to weekdays and non-holidays and avoid heavy use periods.

Temporary public use closures are allowed in areas where the public and workers co-mingle and public safety is compromised because of operating equipment, hand tools, and/or the herbicide label requires it. Time treatments to limit temporary closures.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

Review treatment plans with the District Wilderness Manager to ensure Wilderness objectives will be met.

A Minimum Requirements Analysis has been completed and approved by the Regional Forester for herbicide treatment activities taking place within designated Wilderness areas. The Minimum Requirements Analysis concludes the activity can only be conducted when the principle objective is to protect or restore the Wilderness resource. The means of treatment used will be a site-specific, professional judgement.

Any use of herbicides within Wilderness areas must be approved by the Regional Forester [FSM 2323.04c (USDA Forest Service 2007)] through a Pesticide Use Proposal.

No motorized equipment or mechanical transport will be used.

Crew size will be kept to 12 people or fewer.

Crew camps, if needed, will be located in previously used campsites if available, and crews will follow Leave-No-Trace guidelines (www.lnt.org).

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Documented populations of district priority Invasive Species are targeted for treatment to reduce their population size and/or limit their spread using an integrated pest management approach. New infestations would be treated in Early Detection and Rapid Response efforts using an integrated pest management approach. Herbicide treatments would be selected when the targeted invasive species is resistant to manual/mechanical methods due to its biology or the infestation site characteristics. Rhizomatous invasive plants such as Canada thistle and Japanese knotweed can reproduce from small root fragments and may be spread by manual treatments. Areas with soil prone to erosion may be selected for herbicide to reduce the disturbance that may occur from removing roots of invasive plants by tool or hand pulling.

Appendix 1

Integration Opportunities: Sites are often susceptible to invasive plant infestation following any ground disturbing activity. Post-implementation monitoring after these activities is useful to identify introduced invasive plant populations early and successfully control/eradicate before they become large infestations.

Card 36
Activity: Signage

Description: Improve signage on NFS lands to include informative and interpretive signs.

Objectives: To improve the network of signs on POW related to recreation structures, facilities, and activities. The intent of this activity would be to improve the ability for the public to find recreation sites on POW, whether on roads, trails, or waterways. This action would not only make navigation easier for the public, but could increase their safety by mitigating the chances of becoming disoriented on public lands and being able to identify their location in the case of emergency. Additionally, the addition of and improvement on interpretive signs could serve to enhance appreciation of the island's points of interest and their cultural, natural, and geographic significance, or for better understanding of management activities.

Related Actions: Signage could be connected to the full array of activities on the forest to include, but not limited to: Roads (Activity Cards 18, 20, 24); Boat Launches (Activity Card 41); Trails (Activity Card 38); Structures (Activity Card 45); Campgrounds (Activity Card 44); Canoe and Kayak Access Points (Activity Card 40).

Methods: Signs could be placed at strategic locations along trails and or roads, or points of interest, to aid the public with direction finding or to provide interpretive narratives and graphics to the public. Signage, methods, and equipment would follow Land Use Designation (LUD) and Forest Plan direction, and will meet current regional Forest Service specifications and current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS). Signage may include, but is not limited to, place names, direction arrows, mileages, or interpretive narratives and graphics and will be secured to posts using mechanical fasteners (*e.g.*, nuts and bolts, lag bolts). The installation of signs may require the use of posthole diggers or mechanical augers to drill foundation holes for metal or wooden sign posts. Sign posts may be secured either by earth tamping or with concrete, or by post fasteners to concrete foundations. Some site clearing may be required, but efforts would be made in planning to place signs at locations that result in minimal disturbance to the natural setting. Narratives on interpretive signs will be reviewed by the appropriate specialists prior to being set in place.

Equipment Used: Use of equipment may be constrained by LUD Management Prescriptions. Construction equipment may include the use of earth moving equipment (*e.g.*, backhoe with bucket or "bobcat") in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the site. Dependent on the required level of clearing there may be a need to haul off excess material such as soils, rocks, brush, and slash. Felled timber may be left on site as future firewood, or to decompose naturally; slash and brush may be left on site. Hauling inorganic or organic material from the site may require the use of manpower with wheelbarrows or small-scale hauling equipment (*e.g.*, OHV with dump bed); dependent on the LUD. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Regardless, in the planning phase of the project, efforts would be made to minimize the need for hauling natural materials from the site. Erection of signs would require the use of a variety of hand tools and, if permitted in the LUD, power and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials would be transported as close to the site as possible, to include concrete, based on authorized available routes. Transportation to and from the job site may require the use of short haul equipment (*e.g.*, OHV) or may need to be transported manually.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapter 3 and 4) provide general outlines on the permissible types of recreation activities within a specific use area. LUD-specific Standards and Guidelines for recreation are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 - Recreation, Wilderness, and Related Resource Management for guidance on Forest Service standards related to recreation assets.

Guidelines for signs are found in EM 7100-15: Signs and Poster Guidelines for the Forest Service.

Consideration should be given to directly impacted and adjacent resources due to the ground disturbing activities inherent to the installation of some signs.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond

that, the District Silviculturist should be consulted to determine if a prescription is necessary. If signage is to contain information regarding trees, vegetation, or silvicultural activities, have the language reviewed by the Forest Silviculturist.
Timber None
Transportation Follow the Manual on Uniform Traffic Control Devices when placing signs along roadways.
Wildlife Where feasible locate these areas outside of required nest/den buffers. Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area. All applicable laws, BMPs, and Forest Plan direction must be followed.
Fisheries Consult a Fish Biologist for site-specific protections when considering the use of earth moving equipment within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions). For signage installation, avoid cutting trees within 10 feet of a Class I, Class II, or Class III stream. Any cut trees or slash that inadvertently enters a stream during site prep for sign installation shall be pulled back out of the stream course and out of the no-cut buffer. Prohibit equipment storage, maintenance, and re-fueling within riparian areas, and frequently inspect equipment for leaks. R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19 National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3
Hydrology Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution. Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns. R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 14.19 National Core BMPs: AqEco-2, Fac-6, Road-10, Veg-3
Soils/Wetlands Avoid locating signs in wetlands and minimize soil disturbance to the extent practicable. R10 BMPs: 12.4, 12.5, 12.13, 12.17, 14.5, 14.25, and 16.1 National BMPs: AqEco-2, Fac-1, Fac-2, Fac-9, Rec-1, Rec-2, and Road-9
Botany Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Increase weed awareness and prevention efforts among forest users. Post prevention practices at all NFS trailheads, roads, boat launches, and forest portals (WBMP 15.2).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

None

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Potentially sensitive information pertaining to cultural history must follow standards set forth by the National Historic Preservation Act and Archaeological Resource Protection Act, and must receive tribal consultation.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

Primarily use signs for resource protection only. Should signs be used, conform to standards and guidelines for wilderness signing in FSM 7160.

Wild, Scenic and Recreational Rivers

Signs may be posted for informational, interpretive, safety, hazardous areas, and boundary location purposes. Signs should be kept to a minimum in wild river corridors. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?
Installation of signs would be implemented based on need, as expressed by the public or defined through agency assessments. Consideration will also be given to public safety. Agency funding limitations may constrain or delay the installation of signs; however, funding through grants, collaborative, or other outside sources may mitigate agency funding constraints. The intent of the Forest Service on POW is to develop recreation opportunities, to include signage, which meet the long-term needs of the public and are maintainable by district staff.
Integration Opportunities: Sign installation, whether informative or interpretive, may be associated with many recreation activities and could be integrated with site development when a need is identified. These activities include the development of facilities, structures, campgrounds, trails, water access points, etc. Signage may also be integrated with road development and improvement plans and forestry activities, as well as with features and activities associated with hydrology, fisheries, geology, cultural history and archaeology, and landforms, etc.

Card 37
Activity: Convert Roads to Trails

Description: Designated closed/gated roads could be selected to be maintained as recreational trails, such as walking, hiking, biking, OHV (less than 50 inches wide), winter recreation (*e.g.*, snow mobile, snowshoe, cross-country skiing), or interpretive trails.

Objectives: To maintain or expand recreation opportunities on Prince of Wales Island by providing the public with a range of access opportunities on NFS lands, to include trails of varying levels of development (*i.e.*, classes) and uses. Trails provide the public the means to experience the forest away from concentrated recreation activities and roads, and allow the public to avoid having to "bushwhack" through vegetated areas to reach points of interest and destinations; furthermore, trails help to mitigate damage to forest resources by providing designated routes for travel.

Related Actions: Road decommissioning (Activity Card 22), Road storage (Activity Card 21), Trails (Activity Card 38), Signage (Activity Card 36), Sea kayak and canoe access points (Activity Card 40).

Methods: Trails would be designed and built to current regional Forest Service specifications and meet current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications may be guided by Forest Plan LUD Management Prescriptions (Chapter 3). In some cases, roads converted to trails may already meet designation standards for OHV less than 50 inches wide and over-the-snow recreation; however, there may be a need to perform construction activities to modify for trail use. Construction of a trail may include: site layout and preparation, to include if necessary: select tree removal, brushing and grubbing, boulder removal, etc. Layout and preparation would consider standard design parameters (*i.e.*, tread width, surface, grade, cross slope, clearing, and turns), which in turn allows for site-specific deviations based on site condition, topography, intended use, and development level (*i.e.*, trail class). In most cases, slash, brush, felled timber, rocks, and disturbed soils will be used in trail construction or dispersed in the immediate vicinity to blend in with local resources. In cases where debris must be removed consideration must be given to Forest Plan direction, on the means of removal (*e.g.*, manual versus motorized). Trail tread, width, and easement will be determined based on the intended use and would be specified in the Trail Management Objectives (TMO) and design plan. Segments along the full extent of a trail may use varying tread types dependent on local resources, topography, and accessibility considerations; therefore, trail segments could include, but are not limited to, the use of bridges, fords, elevated boardwalks, puncheons, gravel, and staircases. In cases of developed or structural tread there could be a need for excavation work to establish post foundations and abutments, and to cut and fill terrain to account for structural limitations. Additional features of a trail may include the installation of interpretive signs at points of interest, informative signs that indicate the trailhead, and directional signs at trail junctions.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of small-scale earth moving equipment (*e.g.*, "bobcat" with attachments, OHV with dump) in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the trail tread and width, and establish the requisite easement for intended trail use. In some cases the use of explosives may be used to remove large obstacles or expedite grading. Helicopters may also be used to provide logistical support with delivery of materials; consideration must be given to adequate drop zones. Dependent on the required level of clearing there may be a need to haul off excess material such as soils, rocks, brush, and slash. Felled timber could be left on site to decompose naturally; slash and brush could be left on site to decompose naturally. Hauling soils or organic material from the site may require the use of manpower with wheelbarrows or small-scale hauling equipment (*e.g.*, OHV with dump bed), dependent on the LUD. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Regardless, in the planning phase of the project efforts would be made to minimize the need for hauling natural materials from the site. Construction of developed or structural tread may require the use of a variety of hand tools and, if permitted in the LUD, power and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials would be transported as close to the site as possible, to include concrete, based on authorized available routes. Transportation of materials and equipment to and from the job site may require the use of short-haul equipment such as an OHV, or will need to be transported manually. Instances could occur where the use of helicopters may the most efficient means of material and equipment delivery.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation activities within a specific use area. LUD-specific Standards and Guidelines for recreation and trails are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation and trails are listed in Chapter 4 of the Forest Plan.

Reference FSM 2350 - Recreation, Wilderness, and Related Resource Management for guidance and direction related to trail development and management.

Consideration should be given to directly impacted and adjacent resources due to the ground disturbing activities inherent to the development of trail systems.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is kept within existing roadbeds. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Alder or other brush management may be required at the time of the closure or in the years that follow to keep the road passable. Consider this when designing the type of closure. Generally, a gate is preferred over a large berm or other structure that limits access for maintenance and future silvicultural activities.

Timber

To the extent practicable, limit the activity to roads that are not needed for administrative use or resource management activities.

Transportation

Undertake access and travel management planning based on Forest Plan goals, objectives, and desired conditions. If motorized access is appropriate designate the class of vehicles and if appropriate time of year for allowable use. Roads determined as not needed may be converted to trails. Maintenance Level 1 roads may be dual designated as off-highway vehicle trails during their storage cycle. Appropriately designed trail structures may need to be implemented.

Before converting unneeded NFS roads to NFS trails or establishing coincidental NFS roads and NFS trails, consider:

1. Whether the route would provide a recreation experience consistent with desired Trail Management Objectives (FSM 2353.12);
2. Environmental effects of the continued existence of the route;
3. The need for mitigation, removal, repair, or alteration of structures along the route; and
4. Long-term trail maintenance and available funding.

See FSM 2309.18, section 21.2, for additional direction on converting unneeded NFS roads to NFS trails. See FSM 7731.11, on traffic management strategies and for further direction that may assist in deciding whether to convert NFS roads to NFS trails or establish coincidental routes.

Wildlife

Calculate road density at the WAA scale. The Forest Plan says that road densities of 0.7-1.0 miles per square mile may be necessary where wolf mortality issues have been identified. The Wildlife Biologist may recommend converting roads to trails in WAAs that exceed these levels. The Wildlife Biologist may recommend or require seasonal road closures in WAAs that exceed recommended road densities.

National Bald Eagle Management Guidelines state that off-road vehicle use (including snowmobiles) is a Category D activity. See the Introduction for more information.

Where feasible locate recreation infrastructure outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

The conversion of roads to trails could result in a change in access to subsistence resources for subsistence users.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. If these recreational trails are going to continue to be accessible to motorized use (OHV less than 50 inches), fish streams must be protected (*e.g.*, trail segments within 300 feet of Class I or Class II streams will be minimized);

consult a Fish Biologist for site-specific protections. Stream crossings requiring fish passage must be designed to current passage standards.

Any cut trees or slash that inadvertently enters a stream shall be pulled back out of the stream course. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Rec-4, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 14.5, 16.4, 16.5

National BMPs: Road-10

Soils/Wetlands

Avoid placement of fill in wetlands. Minimize soil disturbance beyond the road prism. If the road was fully designated a trail and fully converted from a road, and crosses a wetland, it may no longer meet the 404 Silvicultural Exemption. The entire "new trail" may require a wetland delineation by a Tongass Soil Scientist and a 404 permit from the U.S. Army Corps of Engineers upon implementation.

R10 BMPs: 12.5, 14.5, 14.7, 14.8, 16.4, and 16.5

National Core BMPs: AqEco-2, Rec-2, Rec-4, Rec-5, and Rec-7

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

If roads are being decommissioned to become trails, follow WBMPs for roads in Krosse 2017 7-13 on pages 7-9.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (WBMP 14.1)

Increase weed awareness and prevention efforts among forest users. Post prevention practices at all NFS trailheads, roads, boat launches, and forest portals (WBMP 15.2).

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

For all road or trail related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic roads and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

None

Wild, Scenic and Recreational Rivers

Roads are not allowed in wild river corridors and should not be available for conversion to trails. Manage wild river corridors for Primitive and Semi-Primitive ROS settings and activities that emphasize existing opportunities. For scenic river corridors, the converted roadbed should not be evident to a traveler on the river, except for short segments or at occasional bridge crossings. In recreational river corridors, converted roads may parallel the river bank and be conspicuous when viewed from the river. For wild, scenic, and recreational rivers, ensure trails located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Determining if and when the designation of a new trail from an old road might be implemented would be based on whether the project meets long-term recreation objectives, and/or public safety considerations. The intent of the Forest Service on POW is to sustain or develop recreation opportunities that meet the long-term needs of the public, and are maintainable by district staff.

Public input would contribute to the trail selection process.

Funding will be an important consideration when developing proposals for the development of new trails and long-term maintenance. Trails are a fee-free activity; therefore, there may be a need to gain full or partial funding through grants, collaborative resources, or other outside sources.

Integration Opportunities: The conversion of old roads to trails may be integrated with the development of proposed recreation facilities and structures, as well as with the establishment of new trails. When roads have been identified for storage, decommissioning, or obliteration, integration opportunities could be evaluated by recreation planners and roads managers to determine the viability of making the conversion to trail.

Card 38
Activity: Trails

Description: Includes walking, hiking, biking, OHV (less than 50 inches wide), winter recreation (*e.g.*, snowmobile, snowshoe, and cross-country skiing), interpretive trails, and spur trails for kayak and canoe water access.

Objectives: To maintain or expand recreation opportunities on Prince of Wales Island by providing the public with a range of access activities on NFS lands to include trails of varying levels of development (*i.e.*, classes) and uses. Trails provide the means for the public to experience the forest away from concentrated recreation activities and roads. Trails also allow the public to avoid "bushwhacking" through heavily vegetated areas to reach points of interest and destinations, and mitigate damage to forest resources by providing designated routes for travel.

Related Actions: Access roads to trailhead parking areas, parking areas, informative and interpretive signage (Activity Card 36), sea kayak and canoe access points (Activity Card 40), cabins and three-sided shelters (Activity Card 45), campgrounds and campsites (Activity Card 44).

Methods: Trails will be designed and built to current regional Forest Service structural specifications and meet current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications may be guided by Forest Plan LUD Management Prescriptions (Chapter 3). Construction of a trail will include: site layout and preparation, to include if necessary, select tree removal, brushing and grubbing, boulder removal, etc. Layout and preparation will consider standard design parameters (*i.e.*, tread width, surface, grade, cross slope, clearing, and turns), which in turn allow for site-specific deviations based on site conditions, topography, intended use, and development level (*i.e.*, trail class). In most cases slash, brush, felled timber, rocks, and disturbed soils will be used in trail construction or dispersed in the immediate vicinity to blend in with the local landscape. In cases where debris must be removed consideration must be given to Forest Plan direction, on the means of removal (*e.g.*, manual versus motorized). Trail width and easement will be determined based on the primary intended use and will be specified in the Trail Management Objectives (TMO) and design. Along the full extent of a trail, segments may use varying tread types dependent on the ecosystem, topography, and accessibility considerations; therefore, trail segments could include, but are not limited to, the use of bridges, fords, elevated boardwalks, puncheons, gravel, and staircases. In cases of developed or structural tread it may be anticipated that there will be a need for excavation work to establish post foundations and abutments, and to cut and fill terrain to allow for structural limitations. Additional features of a trail may include the installation of interpretive signs at points of interest, informative signs that indicate the trailhead, as well as directional signs at trial junctions.

Certain trails may be designated for over-snow travel, which would give access to sub-alpine and alpine areas to winter recreationists. Consideration of trail design and TMO would need to consider the appropriate trail attributes to facilitate this use.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of small-scale earth moving equipment (*e.g.*, "bobcat" with attachments, excavator, OHV with dump) in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the trail tread and establish the requisite easement for the intended trail use. In some case the use of explosives may be used to remove large obstacles or expedite grading. Helicopters may also be used to provide logistical support with delivery of materials. Dependent on the required level of clearing there may be a need to haul off excess material such as soils, rocks, brush, and slash. Felled timber will be left on site to decompose naturally; slash and brush could be left on site to decompose naturally. Hauling soils or organic material from the site may require either the use of manpower with wheelbarrows or small-scale hauling equipment such as an OHV with dump bed, dependent on the LUD. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Regardless, in the planning phase of the project efforts will be made to minimize the need for hauling natural materials from the site. Construction of developed or structural tread will require the use of a variety of hand tools and, if permitted in the LUD, power and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials will be transported as close to the site as possible, to include concrete, based on authorized available routes. Transportation of materials to and from the job-site may require either the use of short-haul equipment such as an OHV, or will need to be transported manually. For remote areas the use of helicopter lifts could be more efficient for the transportation of materials and equipment.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation actives within a specific use area. LUD-specific Standards and Guidelines for recreation and trails are found in

Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation and trails are listed in Chapter 4 of the Forest Plan.

Reference FSM 2350 - Recreation, Wilderness, and Related Resource Management for guidance and direction related to trail development and management.

Consideration should be given to directly impacted and adjacent resources due to the ground disturbing activities inherent to the development of trail systems.

For trails that will be used for winter travel reference will need to be made to 36CFR212 Subpart C. This rule requires designation of roads, trails, and areas where over-snow vehicle use is allowed.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance for the trail is generally kept to less than 15 feet wide. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Evaluate trail locations for existing hazard trees and address during site development.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction. Stage merchantable material for removal in areas conducive for log salvage when possible.

Transportation

Trailheads are typically accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.

Wildlife

Trails are listed in the National Bald Eagle Management Guidelines as being a Category A activity. Management Guidelines state that off-road vehicle use (including snowmobiles) is a Category D activity. See the Introduction for more information.

Where feasible locate recreation infrastructure outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. If any recreational trails are going to be accessible to motorized use (OHV less than 50 inches), fish streams must be protected (*e.g.*, minimize trail construction, especially OHV, within 300 feet of a Class I or Class II stream); consult a Fish Biologist for site-specific protections. Stream crossings requiring fish passage must be designed to current passage standards.

Any cut trees or slash that inadvertently enters a stream shall be pulled back out of the stream course. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22, 16.1, 16.4, 16.5

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Rec-4, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3

Appendix 1

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8,12.9, 14.5, 16.4, 16.5

National BMPs: Road-10

Soils/Wetlands

The proposed areas would need an on-site field review by a Tongass Soil Scientist to determine extent of proposed soil disturbance, landslide risk, and presence of wetlands prior to implementation. A wetland delineation may be required.

R10 BMPs: 12.4, 12.5, 12.13, 12.17, 13.5, 14.5, 14.7, 14.25, 16.1, 16.4, and 16.5

National BMPs: AqEco-2, Rec-1, Rec-2, Rec-4, Rec-5, Rec-7, Road-9, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (WBMP 14.1). Motorized trail users should inspect and clean their vehicles prior to using on NFS lands. Provide educational materials to outfitters and guides, ATV and snowmobile groups alerting them of this need (WBMP 14.2).

Increase weed awareness and prevention efforts among forest users. Post prevention practices at all NFS trailheads, roads, boat launches, and forest portals (WBMP 15.2).

See Introduction for additional WBMPs that apply to all activities 1-6. Also see Roads pages 7-9 for WBMPs 7-13 if roads or parking areas are created or maintained, Recreation, Wilderness and Roadless page 9 for WBMPs 14-15 and Forest Management on page 9 for WBMPs 17-18 if trees or other vegetation are being removed.

Geology/Karst

For all road or trail related issues on low and moderate vulnerability karst see Appendix H, 4, a. ii. and 4, b, ii., 1(1), (2), and (3). For high vulnerability karst, roads are considered inappropriate with the exceptions listed in Appendix H, 4, c. ii., if no other route or option is available and karst resource values would not be compromised.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties

exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic trails and associated infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

Trail construction and maintenance activities are not authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if trail construction and maintenance activities are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wild, Scenic and Recreational Rivers

Manage wild river corridors for Primitive and Semi-Primitive ROS settings and activities that emphasize existing opportunities. For scenic and recreational river corridors, manage recreation settings and opportunities consistent with the management objectives of the associated LUD. For wild, scenic, and recreational rivers, ensure trails located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Determining if and when the construction of a new trail might be implemented would be based on whether the need exists or if it is feasible for recreation opportunities, and/or safety considerations. The intent of the Forest Service on POW is to develop recreation opportunities that meet the long-term needs of the public and are maintainable by district staff.

Public input would contribute to the site selection process.

Funding will be an important consideration when developing proposals for the development of new trails. Trails are a fee-free activity; therefore, there may be a need to gain full or partial funding through grants, collaborative resources, or outside entities.

Integration Opportunities: Development of trails may be integrated with the development of proposed recreation facilities and structures, as well as with the establishment of sea kayak and canoe access points and routes, and boat launches. In addition, trails may be associated with improvements to the POW road network to allow the public access to points of interest.

In addition, integration opportunities may be sought out with other resource activities to provide recreation and trail opportunities on the district, per Forest Plan REC2 (II). Examples of this may include providing possible winter travel opportunities at higher elevation harvest areas, or identifying new trail segments in old- or young-growth stands that could be developed in conjunction with non-recreation resource activities.

Card 39
Activity: Winter Sport Access Improvements for Over-the-snow Vehicle Use

Description: Improvements to winter sport areas that may require: The cutting of trees and vegetation for corridors up to 40 feet wide, sub-grading of trails up to 8 feet wide, construction of access roads with expanded parking areas and permanent loading ramps, grooming of roads and trails during winter months, and construction of emergency shelters (a.k.a. warming huts). Development of an over-the-snow vehicle use map**.**

Objectives: Address requirements of 36 CFR 212 Subpart C and ANILCA 811(b) and 1110(a). Provide access to the snowline in winter and improve over-snow access between parking areas and alpine areas to facilitate and promote winter snow sports. Opening wider trail corridors to promote additional snow accumulation in timbered areas, which allows snow machine trails to be more resilient through the winter season. Sub grading of trail sections to reduce obstacles provides easier over-snow access, is safer, and reduces potential for resource damage. Higher elevation roads that access the snow line allow for a longer snow recreation season and opens areas for a wide range of users.

Related Actions: Rotational Harvest of Young Growth Using Even-aged Management (Activity Card 01), Rotational Harvest of Young Growth using Two-aged Management (Activity Card (02), Harvest of Young Growth Using Uneven-aged Management (Activity Card 03), Commercial Thinning of Young Growth (Activity Card 04), Rotational Harvest of Old Growth using Even-aged Management (Activity Card 13), Harvest of Old Growth using Uneven-aged Management (Activity Card 14), Salvage of Dead, Dying, and Damaged Timber (Activity Card 15), Wood Energy Product Salvage (Activity Card 16), NFS Road Construction (Activity Card 18), and Cabins and Three-sided Shelters (Recreation Structures) (Activity Card 45).

Methods: Trail clearing, road pullouts, excavation to sub-grade using tracked equipment; in some cases with puncheon. Trail grooming during winter.

Equipment Used: Chainsaws, tracked equipment, hand tools, groomers for access management.

What are the general guidelines constraining this activity?

36 CFR 212 Subpart C and management prescriptions in the Forest Plan describe the guidelines for transportation activities by LUD. Forest Plan LUD-specific and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation actives within a specific use area. LUD-specific Standards and Guidelines for recreation and trails are found in Chapter 3 of the Forest Plan. Best Management Practices, both Region 10 specific and National Core provide performance and accountability standards in relation to construction activities.

What are the resource-specific guidelines?

Silviculture

The District Silviculturist should be consulted to determine if a prescription is necessary. This will be dependent on the scale of the development. Clearing of corridors along roads and trimming of trees and vegetation along winter trails would not typically require a silvicultural prescription. Where openings are desired to improve snow conditions on winter trails or trail development is planned, develop a silvicultural prescription that uses uneven-age management where appropriate and coordinate with timber sale activities if possible.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Follow requirements of 36 CFR 212 Subpart C. Trailheads are typically accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.

Wildlife

National Bald Eagle Management Guidelines state that off-road vehicle use (including snowmobiles) is a Category D activity. See the Introduction for more information.

Where feasible locate recreation infrastructure outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Any fish stream crossings will provide adequate fish passage. Minimize trail construction within 300 feet of Class I and Class II streams.

R10 BMPs: 12.8, 12.9, 14.5, 16.4, 16.5

National Core BMPs: AqEco-2, Rec-1, Rec-2, Rec-4, Rec-5, Rec-7, Road-1, Road-2, Road-3, Road-4, Road-7, Road-9, Road-10 and Veg-2

Hydrology

Design and maintain trails and parking areas to provide proper drainage such that increases of sediment delivery to streams will be minimized.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 14.5, 16.4, 16.5

National Core BMPs: AqEco-2, Rec-1, Rec-2, Rec-4, Rec-5, Rec-7, Road-1, Road-2, Road-3, Road-4, Road-7, Road-9, Road-10 and Veg-2

Soils/Wetlands

The proposed areas would need a review by a Tongass Soil Scientist to determine extent of proposed soil disturbance, landslide risk, and presence of wetlands prior to implementation. A wetland delineation may be required.

R10 BMPs: 12.4, 12.5, 12.13, 12.17, 13.5, 14.5, 14.7, 14.25, 16.1, 16.4, and 16.5

National BMPs: AqEco-2, Rec-1, Rec-2, Rec-4, Rec-5, Rec-7, Road-9, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management BMP 1). Additional site specific design features may be recommended to reduce the spread and introduction of invasive plants.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (Invasive Plant Management BMP 14.1). Motorized trail users should inspect and clean their vehicles prior to use on NFS lands. Provide educational materials to outfitters and guides, ATV and snowmobile groups alerting them of this need (Invasive Plant Management WBMP 14.2).

Increase weed awareness and prevention efforts among forest users. Post prevention practices at all NFS trailheads, roads, boat launches and forest portals (Invasive Plant Management WBMP 15.2).

See Introduction for additional WBMPs that apply to all activities 1-6. Also see WBMPs under Roads, Forest Management, and Recreation, Wilderness and Roadless pages 7-10 in Krosse 2017.

Geology/Karst

If on karst lands, the proposed areas would need a review by the Forest Geologist to determine potential effects to karst resources.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialist during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

The construction and clearing activities associated with this card are prohibited within designated Wilderness areas. No winter sport access improvements for over-the-snow vehicle use are authorized within designated Wilderness areas with this project.

The wilderness manager should be consulted if winter sport access improvements are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as timing restrictions, will be considered.

Wild, Scenic and Recreational Rivers

The construction and clearing activities associated with this card are not allowed in designated or recommended wild river corridors. Manage wild river corridors for Primitive and Semi-Primitive ROS settings and activities that emphasize existing opportunities. Ensure any winter sport access improvements located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their

tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Trail clearing and other minor developments may be undertaken by volunteer user groups as interest allows. Larger developments may require coordination with timber sales and road construction activities to be economically feasible and would be timed to occur with those activities. Ideally timber harvests would be designed to meet access objectives where possible.

Integration Opportunities: Integrate with timber sale opportunities; particularly those where helicopter yarding or road construction is necessary.

Card 40
Activity: Access Points for Kayak and Canoe Launches

Description: Identify and develop access points to launch kayaks and canoes at saltwater and freshwater locations.

Objectives: To maintain or enhance recreation opportunities on POW. Establishing access points for paddle craft could enhance recreation opportunities by providing established points of entrance onto, and egress points off of, the water bodies in and around POW. These points could be established as part of an informal coastal "trail" network or be placed strategically as put-ins and take-outs on lakes, bays, and the coast. In some instances these access points may be established in conjunction with trail development. Providing established access points could provide the added benefit of mitigating damage to immediate forest resources from the public "blazing" trails. Furthermore, readily identifiable coastal access points connected to mainland roads and trails may serve a safety need by providing egress points for paddlers and boaters when weather conditions deteriorate or an emergency arises.

Related Actions: Establishment of trails (Activity Card 38), construction of three-sided shelters (Recreation Structures) (Activity Card 45), construction of pit or vault outhouses (Activity Card: 43), development of public and or administrative ground access to the site from a designated access point (*e.g.*, parking area, roads).

Methods: Access points for paddlers would consist of trails (spur or longer) providing access to the mean high-tide line on saltwater or freshwater banks. These trails may provide access from a parking area, road, recreation facility, or system trail. Access trails will be designed and built to current regional Forest Service structural specifications and meet current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications may be guided by LUD Standards and Guidelines (Forest Plan, Chapter 3 and Appendix I). Construction of a trail would involve: site layout and preparation, to include, if necessary, select tree removal, brushing and grubbing, boulder removal, etc. Layout and preparation will consider standard design parameters (*i.e.*, tread width, surface, grade, cross slope, clearing, and turns), which in turn allow for site-specific deviations based on site conditions, topography, intended use, and development level (*i.e.*, trail class). In most cases, slash, brush, felled timber, rocks, and disturbed soils would be used in trail construction or dispersed in the immediate vicinity to blend in with the landscape. In cases where debris must be removed Forest Plan direction will be followed on the means of removal (*i.e.*, manual versus motorized). Trail width and easement would be determined based on the primary intended use and will be specified in the Trail Management Objectives (TMO) and trail design. Along the full extent of a trail, segments may use varying tread types dependent on forest resource considerations, topography, and user accessibility; therefore, trail segments could include, but are not limited to, the use of bridges, fords, elevated boardwalks, puncheons, gravel, and staircases. In cases of developed or structural tread, there could be a need for excavation work to establish foundations or abutments, or to cut and fill terrain to meet structural specifications. Additional features of a trail may include the installation of interpretive signs at points of interest, informative signs indicating the trailhead, and directional signs at trail junctions. Consideration will be given to the integrity of the shoreline, and the impact users may have on bank stability and riparian areas on fresh water bodies. To mitigate bank damage it may necessary to construct access structures (*e.g.*, stairs, boardwalks) The same considerations to methods mentioned above may apply, along with additional attention given to mitigating sedimentation from construction activities.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of small-scale earth moving equipment (*e.g.*, "bobcat" with attachments, OHV with dump) in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the trail tread and establish the requisite easement for the intended trail use. In some cases explosives may be used to remove large obstacles or expedite grading. Helicopters may also be used to provide logistical support (*i.e.*, delivery of materials). Hauling soils or organic material from the site may require either the use of manpower with wheelbarrows or small-scale hauling equipment such as an OHV with a dump bed, dependent on the LUD. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Hauling natural materials from the site will be minimized. Construction of developed or structural tread, or structural water access, will require the use of a variety of hand tools and, if permitted in the LUD, power and or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials will be transported as close to the site as possible, including concrete, based on authorized available routes. Transportation of materials to and from the job site may require either the use of short-haul equipment such as an OHV, or will need to be transported manually. In remote areas it could be more efficient to move materials and equipment with helicopter lifts.

Appendix 1

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation actives within a specific use area. LUD-specific Standards and Guidelines for recreation and trails are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation and trails are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 – Recreation, Wilderness, and Related Resource Management for guidance and direction regarding trails and recreation development and management.

Consideration should be given to directly impacted and adjacent resources due to the ground disturbing activities inherent to the development of trail systems.

Recreation planners will work with Forest Service hydrologists and aquatics specialists to identify adequate sites for riparian access points, and develop design measures to protect hydrologic and aquatic resources.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Evaluate the site for existing hazard trees and address during site development.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Recreation sites are often accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.

Wildlife

Where feasible locate recreation infrastructure outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Trails are listed in the National Bald Eagle Management Guidelines as being a Category A activity. See the Introduction for more information.

Fisheries

A site-specific review by a Fish Biologist is required to ensure proposed access points do not excessively impact fish spawning and rearing habitat. Any instream work in a fish stream needs to occur during species specific timing windows, and must receive concurrence with the State of Alaska. If any recreational trails are going to be accessible to motorized use, fish streams must be protected; consult a Fish Biologist for site-specific protections.

When considering blasting near fish streams consult a Fish Biologist for site-specific protections. Any cut trees or slash that inadvertently enters a stream shall be pulled back out of the stream course. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22, 16.1, 16.4, 16.5

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Rec-1, Rec-2, Rec-4, Rec-8, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8,12.9, 14.5,14.6

National BMPs: Rec-2, Rec-3, Road-10

Soils/Wetlands

The proposed areas would need an on-site field review by a Tongass Soil Scientist upon implementation to determine extent of proposed soil disturbance and presence of wetlands. A wetland delineation may be required. Blasting operations should be designed to reduce risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. Minimize soil disturbance to the extent practicable.

R10 BMPs: 12.4, 12.5, 12.17, 14.5, 16.1, and 16.4

National Core BMPs: AqEco-2, Rec-2, Rec-3, Rec-8, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management BMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (Invasive Plant Management BMP 14.1). Motorized trail users should inspect and clean their vehicles prior to using on NFS lands. Provide educational materials to outfitters and guides, ATV and snowmobile groups alerting them of this need (Invasive Plant Management BMP 14.2).

Increase weed awareness and prevention efforts among forest users. Post prevention practices at all NFS trailheads, roads, boat launches and forest portals (Invasive Plant Management BMP 15.2).

See Introduction for additional WBMPs 1-6 that apply to all activities. See WBMPs on page 9 for Recreation, Wilderness, Roadless Areas WBMPs 14 and 15 in Krosse 2017.

Geology/Karst

Conduct a Karst Vulnerability Assessment if the proposed facility is on karst to determine appropriateness of the project and/or to propose any mitigation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential

Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites and historic recreation infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during design and project planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

Developed sites, access trails, and shoreline improvements within designated Wilderness are primarily for resource protection and must be designed to meet the Primitive ROS setting. No new access points for kayak and canoe launches are authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

For wild, scenic, and recreational rivers, ensure developed sites, access trails, and shoreline improvements located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

New canoe or kayak access points may be implemented based on if the need exists, it is feasible for recreation opportunities, or it addresses safety considerations. The intent of the Forest Service on POW is to develop recreation opportunities that meet the long-term needs of the public and are maintainable by district staff.

Public input would contribute to the site selection process.

Funding will be an important consideration when developing new canoe or kayak access points. Access points are a fee-free activity; therefore, there may be a need to gain full or partial funding through grants, or collaborative or outside sources.

Integration Opportunities: Kayak and canoe access points could be integrated with the development of proposed recreation facilities and structures located in proximity to bodies of water, as well as with the establishment or revival of trails. Access points could also be consider when new roads or reopened roads are in relative proximity to water bodies that could provide paddling opportunities. Recreation planners could work with other specialists to identify potential access points.

Card 41
Activity: Marine Access Facilities (MAF)

Description: An area used by humans to transfer items from land to saltwater or vice versa, that contains structure(s) such as a mooring buoy, dock, log transfer facility, boat ramp, or a combination of these. Information on log transfer facilities is found on a separate activity card.

Objectives: Support commercial, subsistence and recreation access in remote areas.

Related Actions: Log Transfer Facility (Activity card 17), Quarry development (Activity Card 23), Cabins and Three-sided Shelters (Activity Card 45), Trails (Activity Card 38)

Methods: Methods depend on the type of facility constructed. Activities vary from pile driving for docks, rockwork for boat launches, to setting anchors for mooring buoys. Blasting may be required to remove bedrock and create sufficient space.

Equipment Used: Heavy equipment, boats, barges

What are the general guidelines constraining this activity?

The Alaska Department of Transportation & Public Facilities and Alaska Department of Natural Resources entered into a Memorandum of Understanding (MOU) with the Forest Service that established a framework and process for granting the reciprocal rights-of-way and easements. In the MOU, the State agreed that the United States, as an upland landowner, may, without written authorization from the State, construct, operate, and maintain 70 marine access points identified through the MOU map numbered 92337. Marine access points may include facilities such as docks, boat ramps, floats, buoys, anchors, breakwaters, boat haulouts, and similar improvements and facilities. Other sites not shown on map 92337 may be considered if a need is demonstrated and construction is feasible.

Required permits and authorizations will be obtained prior to implementation.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Evaluate the site for existing hazard trees and address during site development. Assess the need for silvicultural treatments in surrounding areas to reduce windthrow hazards.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Appropriate surveys and designs are required depending on type of MAF.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Roads, docks, and trails are listed in the National Bald Eagle Management Guidelines as being a Category A activity.

See the Introduction for more information.

Fisheries

A site-specific review by a Fish Biologist is required so that any streams in the affected areas are identified and protected, and to apply mitigations to lessen impacts to fish habitat from proposed access points. Any instream work in a fish stream needs to occur

during species specific timing windows, and must receive concurrence with the State of Alaska. Any new fish crossing structures must provide fish passage.

Design, construct, and operate facilities to minimize the risk to marine fish habitat from surface water runoff which can carry sediments, woody debris, and hydrocarbons. This can be accomplished by keeping overland flow from entering the MAF or adjacent facilities, collecting runoff from the facility in settling basins, or retaining vegetative buffer strips.

Time in-water construction to limit adverse impacts to marine and estuarine fishery resources. Generally, avoid in-water construction from mid-March to mid-June to protect juvenile salmon and spawning herring, but the actual timing windows will depend on specific locations.

Following the 2013 Blasting Standard (Timothy 2013) to minimize and mitigate the impacts of blasting on fish.

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 13.16, 14.1, 14.5, 14.6, 14.7, 14.8, 14.9, 14.11, 14.12, 14.14, 14.20, 14.22, 16.1, 16.4, 16.5

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-2, Fac-6, Plan-2, Plan-3, Rec-1, Rec-2, Rec-4, Rec-8, Road-1, Road-4, Road-6, Road-7, Road-10, Veg-2, Veg-3

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9

National Core BMPs AqEco-2, Rec-2, Rec-3, Rec-8, Road-9, and Veg-2

Soils/Wetlands

The proposed areas would need an on-site field review by a Tongass Soil Scientist upon implementation to determine extent of proposed soil disturbance and presence of wetlands. A wetland delineation may be required.

R10 BMPs: 12.4, 12.5, 12.17, 14.5, 14.25, 16.1, and 16.4

National Core BMPs: AqEco-2, Rec-2, Rec-3, Rec-8, Road-9, and Veg-2

Botany

Prior to implementation, a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants. Follow all WBMPs for all activities in the Introduction 1-6, as well as for Roads WBMPs 7-13 on pages 7-9 and Recreation, Wilderness, Roadless areas WBMPs 14-15 on page 9 in Krosse 2017 .

Geology/Karst

Conduct a Karst Vulnerability Assessment if the proposed facility is on karst to determine appropriateness of the project and/or to propose any mitigation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Archaeological sites may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Scenery specialists should be involved during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

No new marine access facilities are authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

For wild, scenic, and recreational rivers, ensure any access routes or MAF-associated facilities located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Marine access facilities would be constructed when analysis demonstrates the need and funding is available.

Integration Opportunities: MAFs are often associated with developed recreation sites.

Card 42
Activity: View Improvements

Description: Removing, trimming and/or pruning trees around new or existing recreation sites, or at a road turnouts, to improve landscape views.

Objectives: Improvements of views around recreation sites or at potential vistas to enhance recreation experiences.

Related Actions: Precommercial thinning (Activity Card 5), pruning (Activity Card 9), slash management (Activity Card 10), commercial thinning (Activity Card 4), and salvage of dead and dying timber or hazard tree removal (Activity Card 15), old-growth uneven-aged management (Activity Card 14), brush cutting, and mowing.

Methods: Removal of vegetation and trees that hide features of interest and the general landscape around recreation assets, particularly structures, but may include campgrounds, day-use and interpretive areas, and trails, as well as at turnouts along roadways. Trees and vegetation would be felled and usually left on site; trees may be bucked for firewood at recreation sites. The extent of removal would be limited to providing views but would not greatly impact the natural characteristics of the surroundings.

Equipment Used: Chainsaws, weed whackers, mowers, hand tools, chippers, excavators, explosives.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation activities within a specific use area and defines considerations and determinations that must be evaluated before a proposed project may be implemented. LUD-specific Standards and Guidelines for recreation are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 – Recreation, Wilderness, and Related Resource Management for guidance and direction regarding the development and management of recreation assets.

Consideration should be given to directly impacted and adjacent resources (*e.g.*, hydrology, aquatics, and soils).

What are the resource-specific guidelines?

Silviculture

Review the proposed activity with the District Silviculturist to determine if a silvicultural prescription is necessary. Follow the guidelines for the related action(s) listed above that fit the needs of the site. Plan large-scale viewshed improvements to occur at the time of new site development to reduce overall impacts to recreation users when possible. Cut stumps and brush close to ground level to reduce hazards and reduce impacts to the viewshed. Consider the impacts of wind on the site. If thinning is planned and the windthrow potential is expected to be moderate or high following the treatment, plan for the improvement to occur in a series of light treatments spaced over time to gradually increase windfirmness.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

Timber removal is considered a Category C activity in the National Bald Eagle Management Guidelines**.** See Introduction for more information.

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Appendix 1

Fisheries

Prior to removing vegetation to improve landscape views, stream reaches in and around the site should be identified and protected in the following manner:

Merchantable timber removed for viewshed improvement can be commercially salvaged if it is outside a no-harvest RMA buffer. Under the TTRA no commercial timber harvest can occur within 100 feet of a Class I stream or any Class II stream that flows into a Class I stream. Additional no-harvest buffers required by the Forest Plan and the Aquatic Habitat Management Handbook (AHMU) may apply. Merchantable timber removed for viewshed improvement that is within a no-harvest RMA buffer may be used for administrative purposes only.

Avoid cutting trees within 10ft of Class I, II, and III streams as practicable. Evaluate steep side-slopes to determine if trees outside the 10-foot no-cut buffer will be prone to falling into the stream course. In this case, a no-cut buffer within the stream's v-notch may be appropriate.

Cut trees shall be felled away from any Class I, II, III, or IV streams. Any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course and out of the no-cut buffer.

Any instream work or equipment crossings in a fish stream need to occur during species specific timing windows, and must receive concurrence with the State of Alaska. When considering blasting near fish streams consult a fish biologist for site-specific protections. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.17, 14.19

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-6, Plan-2, Plan-3, Road-10, Veg-1, Veg-2, Veg-3, Veg-8

Hydrology

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 14.5

National Core BMPs: Road-10

Soils/Wetlands

Soil disturbance should be minimized to the extent practicable. Cover exposed mineral soil areas with slash or grass seed. A Tongass Soil Scientist would need to review if blasting is considered. Blasting operations should be designed to reduce risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. Adhere to R10 Soil Quality Standards.

R10 BMPs: 12.5, 12.17, 14.5, 14.25, 16.1, and 16.4

National Core BMPs: AqEco-2, Fac-1, Rec-2, and Veg-8

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

With all thinning or other slash creating activities, it is recommended that the woody material be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi- purpose for enhancing the creation of wildlife travel ways and conditions that allow more light to penetrate to the forest floor that encourages vascular plant growth. See Forest Monitoring Plan Biodiversity #5.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

See Introduction for additional WBMPs that apply to all activities. See Roads WBMPs on pages 7-9; also see Administrative/General WBMP on page 11: Apply weed treatment and prevention on all Forest Service administrative sites, including Ranger Stations, trailheads, cabins, campgrounds, interpretive and historic sites (see Krosse 2017).

Geology/Karst

Conduct a Karst Vulnerability Assessment if the proposed facility is on karst to determine appropriateness of the project and/or to propose any mitigation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic recreation infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3, 4, and 5). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is generally prohibited within designated Wilderness areas. Developed sites within designated Wilderness are primarily for resource protection and must be designed to meet the Primitive ROS setting. No view improvements are authorized within designated Wilderness areas with this project.

Appendix 1

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Conduct the activity when roadside vistas or the views from recreation sites are obstructed by tree growth or brush. Time the activity to occur during normal maintenance or when new construction occurs.

Integration Opportunities: Use the activity to manage windthrow and hazard tree risk around developed sites, and where new sites are being developed.

Card 43
Activity: Outhouses (Burn, Pit, and Vault)

Description: Vault, burn, or pit outhouses could be constructed in proximity to recreation structures and facilities (cabins or three-sided shelters, campgrounds, boat launches, and day-use areas) for user convenience (typically within 500 feet). Burn toilets would be used as a last resort for remote sites with relatively high use.

Objectives: Outhouse installation at recreation sites will maintain sanitary conditions and protect immediate and adjacent resources by providing a facility for the deposit of human waste.

Related Actions: Campground (Activity Card 44), Recreation Structures (Activity Card 45), Sea Kayak or Canoe Access points (Activity Card 40), Trails (Activity Card 38), Marine Access Facilities (Activity Card 41), parking, access trail from the recreation structure or facility to the outhouse, administrative access to the site for regular vault maintenance, and maintenance (*e.g.*, pumping or burning).

Methods: Structures will be built to current regional Forest Service structural specifications and meet current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications would be guided by LUD Management Prescriptions (Forest Plan, Chapter 3). Construction of a structure could include: site layout and preparation, to include if necessary, select tree removal, grubbing, and leveling; establishment of structural foundation, which may include ground boring or excavation for concrete footings; in the case of vault outhouses excavation will be required for the sub-grade placement of the vault; erection of the structure, which would be determined by the project specifications, may include building elevated or grade floor systems such as a concrete slab, erection of exterior walls, and a dried in roof; in some cases the design of the outhouse may call for the use of pre-cast synthetic or concrete components. Construction of the structure may also include installation of any specified doors or windows, and other specified finish components dependent on the type and design of the structure. All waste construction materials will be removed from the site and hauled away when construction activities are completed. Toilets should be placed in proximity (*i.e.*, 500 feet) to the primary recreation resource they serve, and should be easily accessible to the public.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of earth moving equipment (backhoe with bucket, excavator, or bobcat) in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the site for the structure. Hauling soils or organic material from the site may require either the use of manpower with wheelbarrows or small-scale hauling equipment such as an OHV with a dump bed, dependent on the LUD, or be dispersed to blend in with the landscape. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Efforts will be made to minimize the need for hauling natural materials from the site. Erection of the structure will require the use of a variety of hand tools and, if permitted in the LUD, power and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. In the case of structures built of pre-cast concrete components there may be a requirement for lifting equipment on site such as a crane. In these cases, sufficient lateral and overhead clearance will be required for safe operations. Building materials will be transported as close to the site as possible, to include concrete, based on authorized available routes. Transportation to and from the job site may require either the use of short-haul equipment such as an OHV, or will need to be transported manually. Remote locations may require the use of helicopter lifts to move materials and equipment onto the site.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation structures within a specific use area and defines considerations and determinations that must be evaluated before a proposed project may be implemented. LUD-specific Standards and Guidelines for recreation are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 – Recreation, Wilderness, and Related Resource Management for guidance and direction regarding the development and management of recreation assets.

Consideration should be given to directly impacted and adjacent resources (*e.g.*, hydrology, aquatics, and soils) due to the ground disturbing activities inherent to the development of an outhouse, and the nature of the facility.

Appendix 1

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Evaluate the site for existing hazard trees and address during site development. Assess the need for silvicultural treatments in surrounding areas to reduce windthrow hazards.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Recreation sites are often accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic. Outhouses requiring pumping will need roaded access for pumper truck to outhouse.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

Fisheries

Where feasible, locate sanitation facilities outside the RMAs to avoid adverse effects on water quality and riparian function.

Cut trees shall be felled away from any Class I, II, III, or IV streams, and any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course.

Any equipment crossings in a fish stream need to occur during species specific timing windows, and must receive concurrence with the State of Alaska. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.15, 12.16, 16.1, 16.4

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-4, Fac-5, Fac-6, Plan-2, Plan-3, Rec-1, Rec-2, Road-10, Veg-3

Hydrology

Locate facilities on high ground when possible, and away from water bodies.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.6,12.8,12.9, 14.5,14.6

National BMPs: Rec-2, Road-10

Soils/Wetlands

Avoid locating outhouses in wetlands, poorly drained soils, or in areas with overland water flow.

R10 BMPs: 12.4, 12.5, 12.13, 12.15, 12.17, 14.25, and 16.1

National Core BMPs: AqEco-2, Fac-1, Fac-4, and Rec-1

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants. See WBMPs in Krosse 2017 for Recreation, Wilderness and Roadless Areas 14, 15 on page 9, as well as Land and Special Uses 23 and 24 page 10.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

No surface-disturbing activity shall occur within a minimum of 100 feet of the edge of a cave, sinkhole, collapse channel, doline field, or other collapse karst feature. No construction on high vulnerability karst lands. Construction on moderate vulnerability karst lands will be assessed by a karst management specialist. Appropriate protection measures for minor features should be designed on a case-by-case basis as field assessed by a karst management specialist.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic recreation infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

No new outhouses are authorized to be constructed within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Facilities within a wild river corridor should be necessary for the management of river resources and users, be kept to a minimum, and be rustic. Facilities in both wild and scenic river corridors should not be readily visible as viewed from the water or its banks. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Outhouse construction could coincide with the development of recreation structures, campgrounds, or select day-use facilities. Due to the concentration of user activity at these types of sites it is important that facilities are provided for the disposal of human waste, to protect resources and prevent unsanitary conditions.

Funding will be a consideration for the development of outhouses. Cabins and campgrounds are fee sites; therefore, an outhouse associated with a cabin or campground may be at least partially funded through fee collection. Three-sided shelters and day-use facilities have historically been non-fee sites; therefore, there may be a need to gain funding from collaborative or outside sources for outhouses there.

Integration Opportunities: Development of outhouses associated with recreation structures may be integrated with proposed sea kayak routes and point-to-point island trails. In addition to trails and routes, outhouses may be associated with the development of boat launches and spur trails accessing the median high water line for beach kayak access.

Card 44
Activity: Campground or Campsites

Description: New campground development or expanding existing recreation areas to include campsites. Campground development could include a range of structures and infrastructure that would be defined in the design narrative for the project.

Objectives: To maintain, improve on, or expand recreation opportunities on POW. Campgrounds, which are fee sites, provide multi-day recreation opportunities for the public.

Related Actions: Construction of pit or vault outhouses (Activity Card 43), Sea Kayak or Canoe Access (Activity Card 40), Signage (Activity Card 36), development of public and administrative ground access to the site from a designated access point and parking.

Methods: Campgrounds will be designed and built to current regional Forest Service specifications and meet current regional Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications may be guided by Land Use Designation (LUD) Management Prescriptions (Forest Plan, Chapter 3). Development of a campground could include: site layout and preparation, which could include select tree removal, grubbing, and leveling (leveling may require the use of retaining systems to avoid excessive site excavation); establishment of an internal road for site access; campsite parking; laying out signage (interpretive and or informative); installation of fire rings; placement of picnic tables; campgrounds could include RV pads, which may include the laying of a concrete pads; and establishment of infrastructure (power and water), which may require ground trenching, boring, and drilling. For campground designs with three-sided shelters see Activity Card 45 for methods, outhouses are discussed in Activity Card 43. Slash, brush, felled timber, rocks, and disturbed soils may be used in site development or dispersed in the immediate vicinity to blend in with the landscape. Where debris must be removed, LUD and Forest-wide Standards and Guidelines, as defined in the Forest Plan Chapters 3 and 4, would define the appropriate means of removal (manual versus motorized). All waste construction materials will be removed from the site and hauled away when construction activities are completed.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of earth moving equipment (front-end loader, grader, backhoe, excavator, or "bobcat") in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the site. Dependent on the required level of clearing there may be a need to haul off excess material such as timber, soils, rocks, brush, and slash using mechanical or manual methods (dump truck, OHV with dump trailer, wheelbarrows). Felled timber may be sold, left on site as future firewood for the campground, or left to decompose naturally; slash and brush could left on site to decompose. Hauling soils or organic material from the site will require the use of hauling equipment (dump truck, OHV with dump trailer, wheelbarrows). In the planning phase of the project, design features will be incorporated to minimize the need for hauling natural materials from the site. Erection of structures, signage, and infrastructure will require the use of a variety of hand, power, and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials, to include concrete, will be transported as close to the site as possible to minimize damage to the site and adjacent resources.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation activities within specified use areas. LUD-specific Standards and Guidelines for recreation are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 – Recreation, Wilderness, and Related Resource Management for guidance and direction regarding the development and management of recreation assets.

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain which could create future hazards. Evaluate the site for existing hazard trees and address during site development. Assess the need for silvicultural treatments in surrounding areas to improve viewshed, and reduce windthrow hazards. To avoid conflicts with future timber harvests, locate facilities so that timber development lands are not in the viewshed.

Appendix 1

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Recreation sites are often accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.

Wildlife

Where feasible locate activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

This activity is listed in the National Bald Eagle Management Guidelines as being a Category C activity. See the Introduction for more information.

Fisheries

Where feasible, locate parking, campgrounds, sanitation, and other recreation facilities outside the RMAs to avoid adverse effects on water quality and riparian function.

Cut trees shall be felled away from any Class I, II, III, or IV streams, and any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course.

Any equipment crossings in a fish stream need to occur during species specific timing windows, and must receive concurrence with the State of Alaska. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.15, 12.16, 16.1, 16.4

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-4, Fac-5, Fac-6, Plan-2, Plan-3, Rec-1, Rec-2, Road-10, Veg-3

Hydrology

When possible locate structures and related parking and sanitation facilities on high ground and away from water bodies and alluvial fans or other unstable terrain. Location and design of facilities near streams will consider 100-year flood recurrence elevation and risk of flood hazard.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8,12.9, 14.5,14.6

National BMPs: Rec-2, Rec-3, Road-10

Soils/Wetlands

The proposed areas would need an on-site field review by a Tongass Soil Scientist to determine extent of proposed soil disturbance and presence of wetlands prior to implementation. A wetland delineation may be required.

R10 BMPs: 12.4, 12.5, 12.13, 12.15, 12.16, 12.17, 14.5, 14.25, 16.1, and 16.4

National Core BMPs: AqEco-2, Fac-1, Fac-2, Fac-3, Fac-4, Fac-5, Rec-2, Road-9, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical

survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (Invasive Plant Management BMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (Invasive Plant Management WBMP 14.1, page 9 in Krosse 2017).

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

No surface-disturbing activity shall occur within a minimum of 100 feet of the edge of a cave, sinkhole, collapse channel, doline field, or other collapse karst feature. No construction on high vulnerability karst lands. Construction on moderate vulnerability karst lands will be assessed by a karst management specialist. Appropriate protection measures for minor features should be designed on a case-by-case basis as field assessed by a karst management specialist.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic recreation infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

This activity is prohibited within designated Wilderness areas.

Wild, Scenic and Recreational Rivers

For wild, scenic, and recreational rivers, ensure any developed sites and associated access routes or facilities located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Campgrounds could be developed to increase recreation opportunities on POW. Determining if and when the construction of a new campground, or addition of new campsites, might be implemented would be based on whether there is an existing or anticipated need. The intent of the Forest Service on POW is to develop recreation facilities that meet the long-term needs of the public and are maintainable by district staff.

The Forest Service would identify proposed sites for campgrounds and determine their capacity based on prospective use, ease of accessibility, and maintainability. Public input would contribute to the site selection process.

Funding will be a consideration for the development of campgrounds or campsites. Campgrounds are fee sites, which may be at least partially funded through fee collection. Additional funding may need to be sourced through grants, collaborative, or other outside sources.

Integration Opportunities: Development of campgrounds and campsites may be integrated into improvements on existing sites, or associated with POW infrastructure improvements such as road paving that could create reasonable accessibility for campground access.

Card 45
Activity: Cabins and Three-sided Shelters (Recreation Structures)

Description: Construction of public use cabins or three-sided shelters.

Objectives: To maintain or expand recreation opportunities on POW. Cabins, which are fee sites, provide multi-day recreation opportunities for the public. Three-sided shelters are non-fee sites that provide single-night/multi-day stopovers for campers on NFS lands, often accessed from watercraft or hiking trails. When confronted with extreme weather conditions or emergency situations recreation structures provide recreationists with safe havens in remote locations.

Related Actions: Construction of pit or vault outhouses (Activity Card 43), Cabin Decommission (Activity Card 46), Trails (Activity Cards 37 and 38), Sea Kayak and Canoe Access (Activity Card 40), Timber thinning and hazard tree removal (Activity Card 15), development of public and or administrative ground access to the site from a designated access point (median high water mark or a parking area), and parking.

Methods: Structures will be built to Forest Service structural specifications and meet current Forest Service aesthetic standards applicable to the LUD and Recreation Opportunity Spectrum (ROS) setting. General specifications may be guided by LUD Management Prescriptions (Forest Plan, Chapter 3). The site for a structure may be selected based on accessibility/location, topography, vegetation, and consideration of impacts to direct or adjacent resources. Construction of a structure will include: site layout and preparation, to include if necessary, select tree removal, grubbing, and leveling; establishment of structural foundation, which may include ground boring or excavation for concrete footings or wood pilings; construction of the structure, which would be determined by the project specifications; erection of the structure, which will include building elevated or grade floor systems, 3 to 4 sheathed walls, and a dried in roof. Construction of the structure could also include installation of specified doors or windows, wood stove or heater, and other finish components. All waste construction materials will be removed from the site and hauled away when construction activities are completed. Additional structures may include a wood shed for firewood and an outhouse (Activity Card 43), as well as boardwalk approaches and elevated platforms. These structures will be sited in reasonable proximity to, or be components of, the primary structure.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of earth moving equipment (*e.g.*, backhoe with bucket, excavator, or "bobcat") in conjunction with chainsaws and other power, pneumatic, and/or hand tools to clear the site for the structure. Explosives may be used to expedite removal of obstacles to construction when convention methods are ineffective. Dependent on the required level of clearing there may be a need to haul off excess material such as soils, rocks, brush, and slash. Felled timber may be left on site as future firewood for the structure, or to decompose naturally; slash and brush could be left on site to decompose. Hauling soils or organic material from the site may require either the use of manpower with wheelbarrows or small-scale hauling equipment such as an OHV with a dump bed, dependent on the LUD. Locations in proximity to direct road access may benefit from being able to directly load onto dump trucks. Efforts will be made to minimize the need for hauling natural materials from the site. Erection of the structure will require the use of a variety of hand tools and, if allowable in the LUD, power and/or pneumatic tools, including the use of generators for power and compressors for pneumatics. Building materials will be transported as close to the site as possible, to include concrete, based on authorized available routes. Transportation of materials to and from the job site may require either the use of hauling equipment (*e.g.*, OHV, truck), airlift, or will need to be transported manually.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of recreation structures within a specific use area. LUD-specific Standards and Guidelines for recreation are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines for recreation are listed in Chapter 4 of the Forest Plan.

Reference FSM 2300 – Recreation, Wilderness, and Related Resource Management for guidance and direction regarding development and management of recreation assets. Within wilderness areas, notification of the intent to construct a structure will need to be given to the House Committee on Interior and Insular Affairs and Senate Committee on Energy and Natural Resources; per Section 1315 of ANILCA.

Appendix 1

What are the resource-specific guidelines?

Silviculture

This activity would not require a silvicultural prescription or the input from the District Silviculturist if the area of disturbance is generally kept to less than ¼ acre. If the activity is expected to require the cutting of live trees or vegetative disturbance beyond that, the District Silviculturist should be consulted to determine if a prescription is necessary. Avoid cutting tree roots and damaging the boles of trees that will remain, which could create future hazards. Evaluate the site for existing hazard trees and address during site development. Assess the need for silvicultural treatments in surrounding areas to improve viewshed, and reduce windthrow hazards. To avoid conflicts with future timber harvests, locate recreation structures so that timber development lands are not in the viewshed.

Timber

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use if it is feasible and consistent with Forest Plan direction.

Transportation

Cabins and shelters are often accessed by roads. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.

Wildlife

Where feasible locate structures and conduct activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Where feasible, locate recreation facilities and parking areas outside the RMAs to avoid adverse effects on water quality and riparian function.

Cut trees shall be felled away from any Class I, II, III, or IV streams, and any cut trees or slash that inadvertently enter a stream shall be pulled back out of the stream course.

Any equipment crossings in a fish stream need to occur during species specific timing windows, and must receive concurrence with the State of Alaska. When considering blasting near fish streams consult a Fish Biologist for site-specific protections. Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks.

R10 BMPs: 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.15, 12.16, 16.1, 16.4

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-4, Fac-5, Fac-6, Plan-2, Plan-3, Rec-1, Rec-2, Road-10, Veg-3

Hydrology

Locate recreation structures and related parking on high ground away from water bodies and alluvial fans or other unstable terrain. Location and design of facilities near streams will consider 100-year flood recurrence elevation and risk of flood hazard.

Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8, 12.9, 14.5, 14.6

National Core BMPs: Rec-2, Rec-3, Road-10

Soils/Wetlands

An on-site evaluation by a Tongass Soil Scientist is required to determine soil disturbance, potential landslide or erosion risk, and presence of wetlands prior to implementation. A wetland delineation may be required. Heavy equipment should avoid creating ruts greater than 12 inches in depth. Avoid operating the machinery on slopes greater than 25 percent.

R10 BMPs: 12.4, 12.5, 12.13, 12.17, 14.25, and 16.1

National Core BMPs: AqEco-2, Fac-1, Fac-2, Rec-1, Rec-2, and Rec-3

Botany

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

Minimize transport and establishment of weeds on NFS lands. Treat weeds as needed at trailheads, boat launches, outfitter and guide and public camps, airstrips, and roads leading to trailheads (WBMP 14.1).

See Introduction for additional WBMPs that apply to all activities. See Krosse 2017 for specific activities and additional WBMPs pages 5-11. If road construction equipment is used see WBMPs 7-13 to reduce risk of weed spread.

Geology/Karst

No surface-disturbing activity shall occur within a minimum of 100 feet of the edge of a cave, sinkhole, collapse channel, doline field, or other collapse karst feature. No construction on high vulnerability karst lands. Construction on moderate vulnerability karst lands will be assessed by a karst management specialist. Appropriate protection measures for minor features should be designed on a case-by-case basis as field assessed by a karst management specialist.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of

Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs. Involve scenery specialists during project design and planning to ensure SIOs will be met and project is consistent with all applicable scenery plan components.

Wilderness

No new public use shelters or cabins are authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

For wild, scenic, and recreational rivers, ensure any developed sites and associated access routes or facilities located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Determining if and when the construction of a new cabin or shelter might be implemented would be based on whether there is a recognized need, it is a feasible recreation opportunity, and/or it addresses safety considerations. The intent of the Forest Service on POW is to sustain and develop recreation facilities that meet the long-term needs of the public and are maintainable by district staff.

Public input would contribute to the site selection process. Sites would be limited to those that are easily accessible from the road system or by boat, and are anticipated to have high use levels.

Three-sided shelters would be developed to increase recreation opportunities on POW. Shelters could be built for: 1) coastal recreationists and would be accessible via kayak or boat; 2) on extended trail systems for overnight stays; or 3) for winter recreation at sub-alpine and alpine elevations. These structures would expand recreation opportunities on POW, and would serve as emergency shelters.

Funding will be a consideration for the development of cabins and three-sided shelters. Cabins are pay sites, so they may be at least partially funded through fee collection. Three-sided shelters have historically been non-fee first-come-first-served sites; therefore, there may be a need to gain funding from collaborative or outside sources.

Integration Opportunities: Development of recreation structures may be integrated with the development of access points for proposed sea kayak routes and along point-to-point island trails. In addition to trails and routes, structures may be associated with the development of boat launches and improvements/expansion to the road system.

Card 46
Activity: Cabin Decommissioning

Description: Permanent removal of cabins, and their ancillary structures, from the landscape.

Objectives: To remove recreation structures, and their ancillary buildings (such as outhouses and wood sheds), that are difficult to maintain due to staffing, funding, accessibility, and/or are seldom used by the public.

Related Actions: Cabins and Three-sided Shelters (Activity Card 45)

Methods: Decommissioning of cabins, and their ancillary structures, could be done through one of three methods. The first method could be to disassemble and relocate structures. The second could be to relocate structures intact. The third may be the initiation of a controlled burn for on-site eradication of the structure and its ancillary buildings. The first two methods could require an array of construction equipment, logistical coordination, and possibly airlift resources to facilitate the relocation process.

Disassembly of structure(s) may entail the removal of all doors, windows, and building accessories (*e.g.*, wood stove, heater); disassembly of the roof, walls, and floors; and pulling of any concrete footings or slabs. Removal of an outhouse vault or pit would also require the containment or removal of all black water waste. All components would need to be staged and removed from the site either by ground equipment or by helicopter lift.

In some cases a structure could be relocated intact to a new site, which would involve special rigging for ground or air transport. Consideration would need to be given to whether vegetation would need to be pruned or felled to provide adequate clearance for the removal of the structure; particularly for vertical lifts. After a structure is removed, concrete footings or slabs and other debris would need to be removed from the site. If practicable ancillary buildings could be relocated with the primary structure.

The third method of removal, by controlled burn, would require a burn plan and the presence of qualified fire personnel for burn management.

The end state of any of these three methods would return the site to its natural state. This may require hand or mechanized ground work to contour the site to a natural state.

Equipment Used: Use of equipment may be constrained by Forest Plan LUD Management Prescriptions (Chapter 3). Construction equipment may include the use of earth moving equipment (front-end loader, backhoe with bucket, excavator, "bobcat", etc.) in conjunction with chainsaws and other power, pneumatic, and/or hand tools for structure disassembly or eradication. Disassembly of the structures could require the use of a variety of hand tools and, if permitted in the LUD, power and or pneumatic tools, including the use of generators for power and compressors for pneumatics. Locations in proximity to direct road access may benefit from being able to directly load components on trucks. Efforts would be made to minimize damage to immediate and adjacent resources. Materials would be transported off-site on authorized available routes. Materials and debris could also be removed by helicopter airlift. Transportation of debris and components to and from the job site may require the use of short-haul equipment such as an OHV, or may need to be transported manually to vehicles (dump trucks, flatbed trucks) on authorized routes. Sites with direct road access may load directly onto dump trucks and or flatbed trucks to remove material. In cases of structure eradication by controlled burn, equipment will be defined in the burn plan and could include any of the aforementioned considerations.

What are the general guidelines constraining this activity?

Forest Plan LUD and Forest-wide Standards and Guidelines (Chapters 3 and 4) provide general outlines on the permissible types of activities within a specific use area. LUD-specific Standards and Guidelines are found in Chapter 3 of the Forest Plan. Forest-wide Standards and Guidelines are listed in Chapter 4 of the Forest Plan.

Within wilderness areas, notification of the intent to remove a cabin will need to be given to the House Committee on Interior and Insular Affairs and Senate Committee on Energy and Natural Resources; per Section 1315 of ANILCA.

What are the resource-specific guidelines?

Silviculture

This activity would generally not require a silvicultural prescription or the input from the District Silviculturist. If the activity is expected to require the cutting of trees or vegetative disturbance, the District Silviculturist should be consulted to determine if a prescription is necessary. If the removal is to be accomplished by burning, review the burning plan with the District Silviculturist prior to implementation.

Timber

None

Transportation

Cabins are often accessed by roads. Decommissioning the structure may negate the access needs. Ensure road maintenance objectives are current and suitable for anticipated traffic.

Wildlife

Where feasible implement activities outside of required nest/den buffers.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

All applicable laws, BMPs, and Forest Plan direction must be followed.

Fisheries

Prohibit equipment storage, maintenance, and re-fueling within riparian areas (see the Aquatics section in the Introduction to Activity Cards for riparian area definitions), and frequently inspect equipment for leaks. Store fuel for ignition devices away from water bodies.

R10 BMPs: 12.3, 12.4, 12.5, 12.6, 12.6a, 12.8, 12.9, 12.16, 12.17, 14.24, 14.7, 14.8, 19.1, 19.2

National Core BMPs: AqEco-2, AqEco-3, AqEco-4, Fac-5, Fac-6, Fac-10, Fire-2, Plan-2, Plan-3, Rec-1, Rec-2, Road-6, Road-10

Hydrology

Review project areas for site-specific hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

R10 BMPs: 12.8,12.9,14.6

National BMPs: Road-10

Soils/Wetlands

Consult with a Tongass Soil Scientist on all potential cabin burn sites. By burning in low fire danger and on mineral soils, the risk of spreading the fire on the soil surface should be low. In areas of dry organic soils over rock, use a barrier between the duff layer and the fire while burning. In the event of ground disturbance and exposing bare mineral soils, use slash, native mosses, and seeding with Tongass approved seed mix to rehabilitate the site to prevent erosion and sedimentation. Avoid disturbing and filling on wetlands. A Tongass Soil Scientist may be needed for site rehabilitation on sloping wetlands and burnt areas. If heavy equipment is used, avoid operating on slopes greater than 25 percent and creating ruts greater than 12 inches in depth. It may be necessary to operate the equipment on a puncheon mat.

R10 BMPs: 12.5, 12.8, 12.9, 12.13, 12.17, 14.6, 14.8, 14.11, 14.14, 14.25, 16.1, 16.5, and 19.1

National Core BMPs: AquEco-2, Fac-2, Fac-6, Fac-10, Rec-2, and Veg-2

Botany

Prior to implementation a qualified Botanist/Ecologist must review the activity location to determine if the habitat requires botanical surveys. Based on the review, a field survey may be required during the appropriate growing season to identify any suspected Region 10 Sensitive Plants or Tongass National Forest Rare Plant. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants. Land and Special Uses WBMPs 23.1 and 24.1 on page 10 and WBMP 271. For Administrative/General sites to ensure all Forest Service administrative sites are weed free in Krosse 2017.

See Introduction for additional WBMPs 1-6 that apply to all activities.

Geology/Karst

Consult the Forest Geologist on cabin burning sites if on karst lands. No surface-disturbing activity shall occur within a minimum of 100 feet of the edge of a cave, sinkhole, collapse channel, doline field, or other collapse karst feature.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Historic recreation infrastructure may be present within proposed activity areas. Cultural resources 50 years and older will be evaluated for their eligibility to the National Register by the Heritage Professional or treated as if eligible under the terms of the PA (USFS 2017).

Recreation

Consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

No cabin decommissioning is authorized within designated Wilderness areas with this project.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the Wild and Scenic Rivers Act applies to projects affecting the beds or banks of designated rivers and their tributaries. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?
There are remote cabins on POW that are seldom used and/or are difficult to maintain. A structure would be decommissioned based on safety, maintenance, use, and accessibility. The intent of the Forest Service on POW is to sustain or enhance recreation opportunities that meet the long-term needs of the public, and are maintainable by district staff. A proposal for a new cabin may initiate an analysis of existing cabins for decommissioning.
Integration Opportunities: The Forest Service would work with the public to identify proposed sites for replacement cabins; consideration would be based on prospective use, ease of accessibility, and maintainability.