



Forest Service  
U.S. DEPARTMENT OF AGRICULTURE

Alaska Region, Tongass National Forest, Petersburg Ranger District

R10-MB-880c February 2024

# Thomas Bay Young-Growth Timber Sale

## Environmental Assessment, Finding of No Significant Impact, and Decision Notice



Cover photo: Aerial view of the Thomas Bay project area

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# Thomas Bay Young-Growth Timber Sale



## Project Information

**Project Initiation Date:** 8/19/2021

**Interdisciplinary Team Leader:** Ben Case,  
Petersburg Ranger District Silviculturist

**Responsible Official:** Vernon (Ray) Born, District  
Ranger

**Unit:** Petersburg Ranger District

**Anticipated Implementation:** April 2024

**Project Webpage:**

<https://www.fs.usda.gov/project/?project=60639>

**General Location:** On the mainland, approximately 18 miles northeast of Petersburg, Alaska by boat, or 16 miles by plane ([Figure 1](#)).

**Management Areas:** Modified Landscape, Old-Growth Habitat, Semi-Remote Recreation and Scenic Viewshed land use designations (LUDs) ([Figure 2](#))

**Watersheds:** Muddy River and Patterson

## Environmental Assessment

### Purpose and Need: Why do we need to act?

The purpose of this project is to provide an economic supply of young-growth timber while also addressing restoration needs in the area. This timber supply is intended to increase the viability of young-growth harvest and processing capacity to support the transition from predominantly harvesting old-growth timber to predominantly managing young-growth as directed by the Tongass Land and Resource Management Plan Record of Decision<sup>1</sup> and outlined in the 2016 Tongass National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service 2016<sup>2</sup>, pp. 2-5, 5-2, 5-3, 5-4, 5-13, and 5-14).

These actions are intended to provide local economic benefits (employment and revenue) and an opportunity for industry to develop new skills and increase local knowledge of harvesting and manufacturing young-growth timber. These actions also align with the OneUSDA [Southeast Alaska Sustainability Strategy](#)<sup>3</sup> (SASS) by refocusing resources on the Tongass National Forest to implement an integrated forest management program that includes watershed and wildlife habitat restoration and sustainable young-growth timber harvest.

This project serves as one component of an integrated program of work intended to increase capacity for accomplishing multiple forest management and restoration activities that promote healthy forest stands. For instance, implementation of the Thomas Bay Young-Growth Timber Sale project could be integrated with aquatic organism passage improvements along NFS roads and already approved actions to control invasive species and thin young-growth stands to improve riparian area function within the project area (see the Actions Common to All Alternatives section below).

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<sup>1</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Record of Decision. R10-MB-769I. USDA Forest Service, Alaska Region, Juneau.

<sup>2</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769J. USDA Forest Service, Alaska Region, Juneau.

<sup>3</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd1060642.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1060642.pdf)



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## What are we proposing to do?

### Actions Common to All Alternatives

The following terrestrial and aquatic restoration and improvement activities within or near the project area are intended to address additional resource objectives as part of an integrated forest management program. These projects could be implemented in conjunction with any of the alternatives or completed on their own.

**Table 1. Summary of integrated resource opportunities within the Thomas Bay Young Growth Timber Sale project area. Site locations are noted on the Thomas Bay Young Growth Timber Sale EA alternative maps.**

| Location within the Project Area                   | Projected Time to Implement                  | Description of Integrated Resource Opportunity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit 18                                            | While heavy equipment is in the project area | <b><u>Restore Fish Habitat</u></b><br>Currently, when stream flow is high in proposed harvest Unit 18, water flows down the decommissioned road prism. To restore historic fish habitat, use onsite heavy equipment to remove the dike that is diverting water so downstream flow will stay within the stream banks at high water.                                                                                                                                                                                                |
| NFS Road 6256                                      | While heavy equipment is in the project area | <b><u>Unplug Culvert</u></b><br>At milepost 5.52 on NFS Road 6256, use onsite, heavy equipment to unplug a blocked culvert caused by beaver activity.                                                                                                                                                                                                                                                                                                                                                                             |
| SE portion of the project area along NFS Road 6256 | Over the next 5 to 10 years                  | <b><u>Thin to benefit wildlife and riparian habitat</u></b><br>This activity is authorized in the decision signed for the <a href="#">Petersburg and Wrangell Districts Young-Growth Treatment</a> project.                                                                                                                                                                                                                                                                                                                       |
| Unit 14                                            | When unit is harvested                       | <b><u>Clean Up Hunting Camp</u></b><br>Clean up abandoned hunting camps in Unit 14.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| NFS Road 6252                                      | Annually before seed set                     | <b><u>Treat Invasive Plants</u></b><br>Treat a small population of reed canarygrass (approximately 10 plants) on NFS Road 6252 near the junction of NFS Road 6256. The Forest Service is currently treating the population via hand-pulling. If the population begins to spread and herbicide is considered a more-effective treatment strategy, glyphosate will be used. Invasive plant treatments within the project area are authorized in the <a href="#">Wrangell-Petersburg Invasive Plant Management Decision Notice</a> . |

### Alternative 2

Alternative 2, the action scoped in August 2021, was designed to meet the project's purpose and need in the most efficient and economical manner by proposing even-aged management for timber harvest.

Alternative 2 proposes harvesting 841 acres of young-growth using even-aged management in one or more sales over 5 to 10 years, resulting in 19.3 million board feet (MMBF) of timber. To access the





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timber, the proposal includes constructing approximately 0.51 mile of new temporary road<sup>4</sup> and reconstructing about 6.23 miles of temporary road on decommissioned road prism<sup>5</sup> (Figure 3).

For all action alternatives, existing rock quarries would provide material for road maintenance, reconstruction, and construction. The volume harvested from this project would be transported off the mainland by barge using the Thomas Bay log transfer facility (LTF).

## **Alternatives to the Initial Proposed Action: Are there other ways to meet the purpose and need?**

In response to public scoping comments on the initial proposed action (Alternative 2), Alternatives 3 and 4 were developed. These alternatives do not include any even-aged management, and two units (16 and 19) that would require road building through an Old-Growth Habitat LUD were dropped from consideration. The goal of Alternatives 3 and 4 is to configure units that are operational and economic for a variety of operators, while maintaining wildlife connectivity (in addition to the adjacent Old-Growth Habitat LUD) and creating early seral habitat distributed throughout the project area over time. To accomplish this, silvicultural prescriptions are proposed that allow:

- multiple future entries into the same stand to create multiple age classes and more diverse structural stages across the project area,
- varying retention levels (50 to 75 percent), and
- smaller opening sizes.

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### **Alternative 3 (Preferred Alternative)**

Alternative 3 was developed to balance wildlife objectives while maintaining timber sale feasibility. Wildlife objectives include maintaining habitat connectivity through retention of mature young-growth trees and creating smaller opening sizes than those created through even-aged management. The majority of units would be harvested using two-aged management, retaining roughly 50 percent of the unit area, with harvest openings (clearcuts) up to 30 acres. The harvest of two units surrounded by or adjacent to the Old-Growth Habitat LUD (Units 15 and 20) would use uneven-aged management where up to 33 percent of the units would be harvested through group selection creating openings up to 2 acres and yarding corridors, where needed, for access. No roads would be constructed through the Old-Growth Habitat LUD, and wildlife connectivity would be maintained through all units.

Alternative 3 proposes 561 acres of young-growth timber harvest with 519 acres harvested using two-aged management, and 42 acres harvested with uneven-aged management, resulting in about 12.6 MMBF of timber. Implementation of this alternative would require about 0.9 mile of new temporary road construction, and about 5.9 miles of temporary road construction on decommissioned road prism (Table 2). See Figure 4 for a map of Alternative 3.

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<sup>4</sup> A temporary road is defined in 36 CFR 212.1 as a road authorized by contract, permit, lease, or other authorized written notice that is not a forest road and is not included in a forest transportation atlas. These roads are not intended to be part of the forest transportation system or necessary for long term resource management. Temporary roads are not to be constructed where specifications are needed to control road location and design standards necessary to minimize impacts on resources (FSH 2409.18, Ch. 23.41).

<sup>5</sup> New temporary road construction built over decommissioned roadbeds (referred to in this document as "reconstruction") will likely require clearing and grubbing, ditching, re-establishing roadbed grades to direct water away from the road surface, removing waterbars, and installing culverts, as needed. New construction over decommissioned roadbeds requires less rock and generally has fewer impacts than an entirely new road.



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## Alternative 4

Alternative 4 was developed to incorporate wildlife objectives to the greatest degree while providing some timber volume. Approximately 50 percent of the acres harvested would use two-aged management, retaining roughly 75 percent of the unit area, with harvest openings up to 10 acres. Harvest of units adjacent to the Old-Growth Habitat LUD would use uneven-aged management, group selection, removing up to 33 percent of the units in openings up to 2 acres in size. Yarding corridors would be created, as needed, to facilitate harvest. No roads would be constructed through the Old-Growth Habitat LUD, and wildlife connectivity would be maintained through all units.

Alternative 4 proposes young-growth timber harvest on approximately 351 acres, with 189 acres harvested using uneven-aged management, and 162 acres harvested using two-aged management, resulting in about 7.9 MMBF of timber. Implementation of this alternative would require about 0.7 mile of new temporary road construction, and 6 miles of temporary road construction on decommissioned road prism (Table 2). See Figure 5 for a map of Alternative 4.

## Summary of Action Alternatives

**Table 2. Summary of the harvest activities proposed in the action alternatives. Yarding corridors are included in the uneven-aged management acres in Alternatives 3 and 4.**

| Alt | Total Harvest (acres) | Even-aged Mgmt (acres) | Two-aged Mgmt (acres) | Uneven-aged Mgmt (acres) | Unit Pool Retention (acres) | Volume <sup>1</sup> (MMBF) | New Temporary Rd (miles) | Existing Prism Temporary Rd (miles) | Total Proposed Temporary Rd (miles) |
|-----|-----------------------|------------------------|-----------------------|--------------------------|-----------------------------|----------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 2   | 841                   | 841                    | 0                     | 0                        | 532                         | 19.3                       | 0.51                     | 6.23                                | 6.74                                |
| 3   | 561                   | 0                      | 519                   | 42                       | 819                         | 12.6                       | 0.9                      | 5.93                                | 6.83                                |
| 4   | 351                   | 0                      | 162                   | 189                      | 1,027                       | 7.9                        | 0.73                     | 6.04                                | 6.78                                |

<sup>1</sup> Unit volumes were projected to 2024 using the Tongass calibrated growth and yield model known as the Forest Planning and Projection System database (FPS).

## No Action Alternative

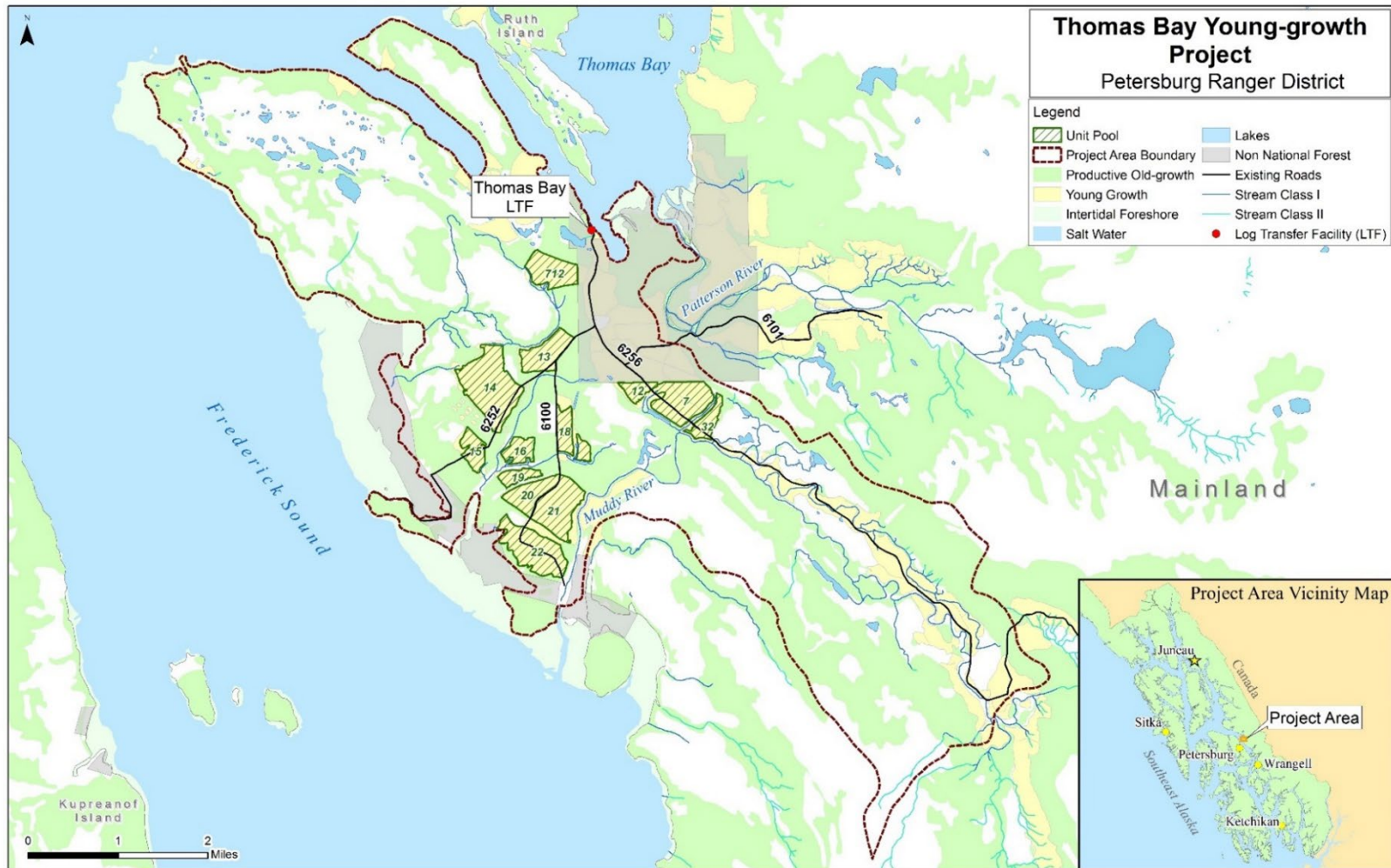
Under the no action alternative, the Forest Service would not implement activities described in the proposed action alternatives at this time. In the future, however, new roads and the harvest of additional young-growth stands may be proposed as outlined in the Scenic Viewshed and Modified Landscape LUD direction (USDA Forest Service 2016<sup>6</sup>, pp. 5-2 to 5-8) as more stands in the project area reach economic maturity. All other ongoing authorized activities in the project area such as personal use firewood collection, commercial firewood or individual tree sales and special use permit activities would continue.

At a critical time in the development of a young-growth based timber industry in Southeast Alaska, the no action alternative would not provide an opportunity to supply young-growth wood fiber to the market and local operators or support the transition from a predominantly old-growth timber industry to one that is predominately young-growth based. Additionally, local economic benefits (employment and revenue) and the opportunity for industry to develop new skills and increase local knowledge of harvesting and manufacturing young-growth timber would be missed.

<sup>6</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

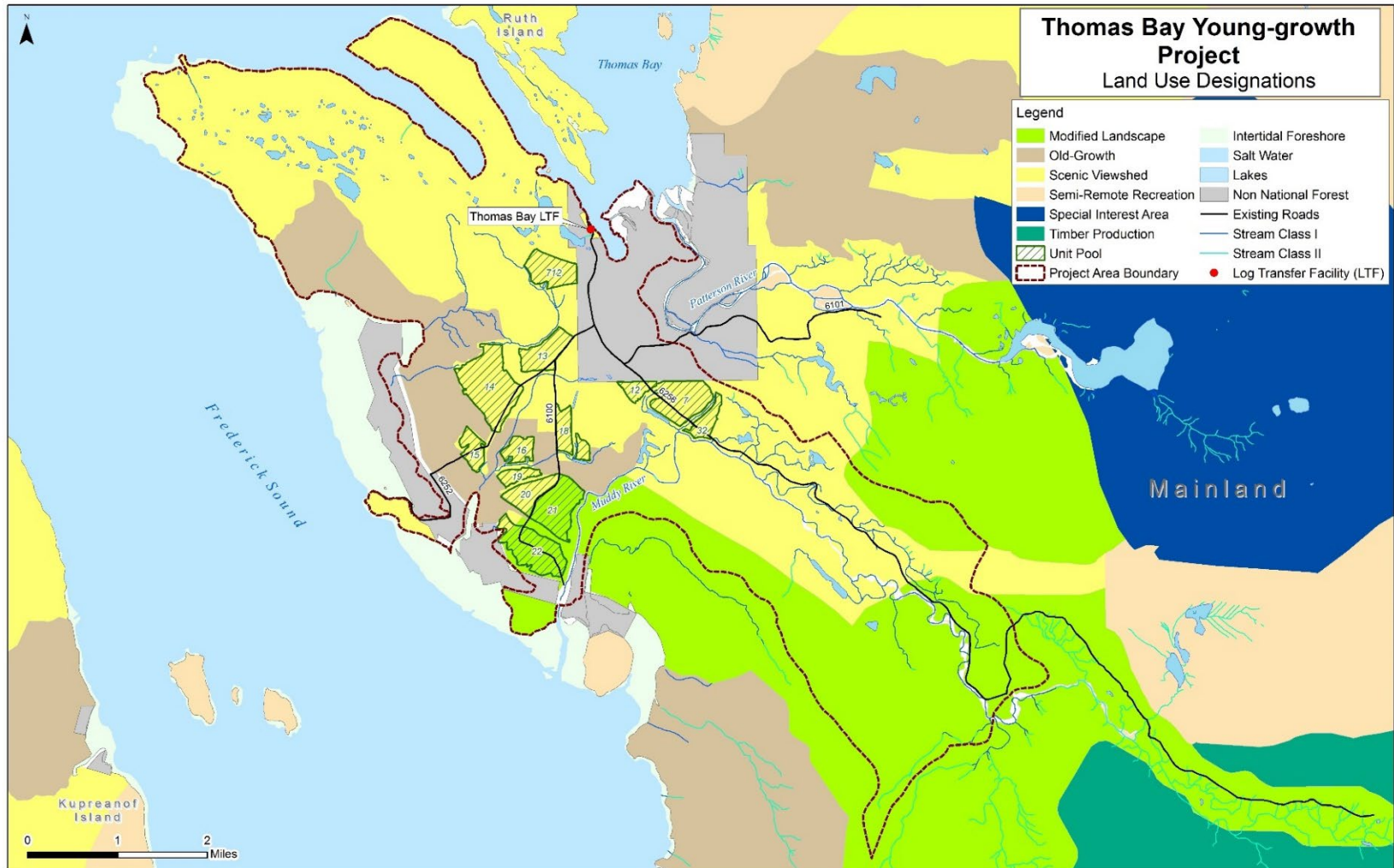


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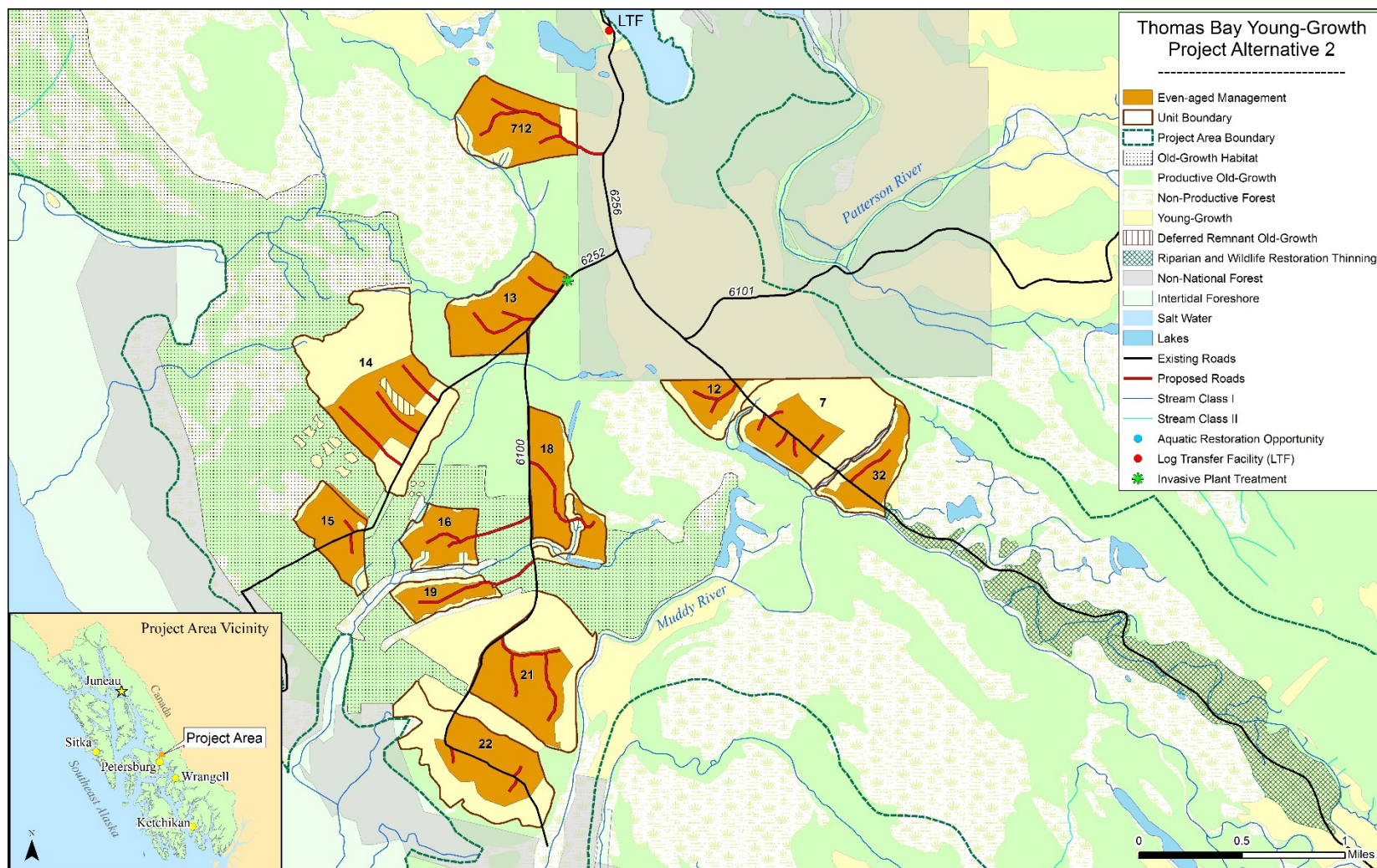
**Figure 1. Thomas Bay Young-Growth Timber Sale project area. The project area is within the Muddy River and Patterson Watersheds, approximately 16,602 acres in size with about 1,500 of those acres on non-National Forest System lands. The Forest Service retains a right-of-way easement along NFS road 6256 to access the Thomas Bay log transfer facility.**





**Figure 2. Land use designations for the Thomas Bay project area. All proposed activities are within the Modified Landscape (lime green) and Scenic Viewshed (yellow) LUDs.**

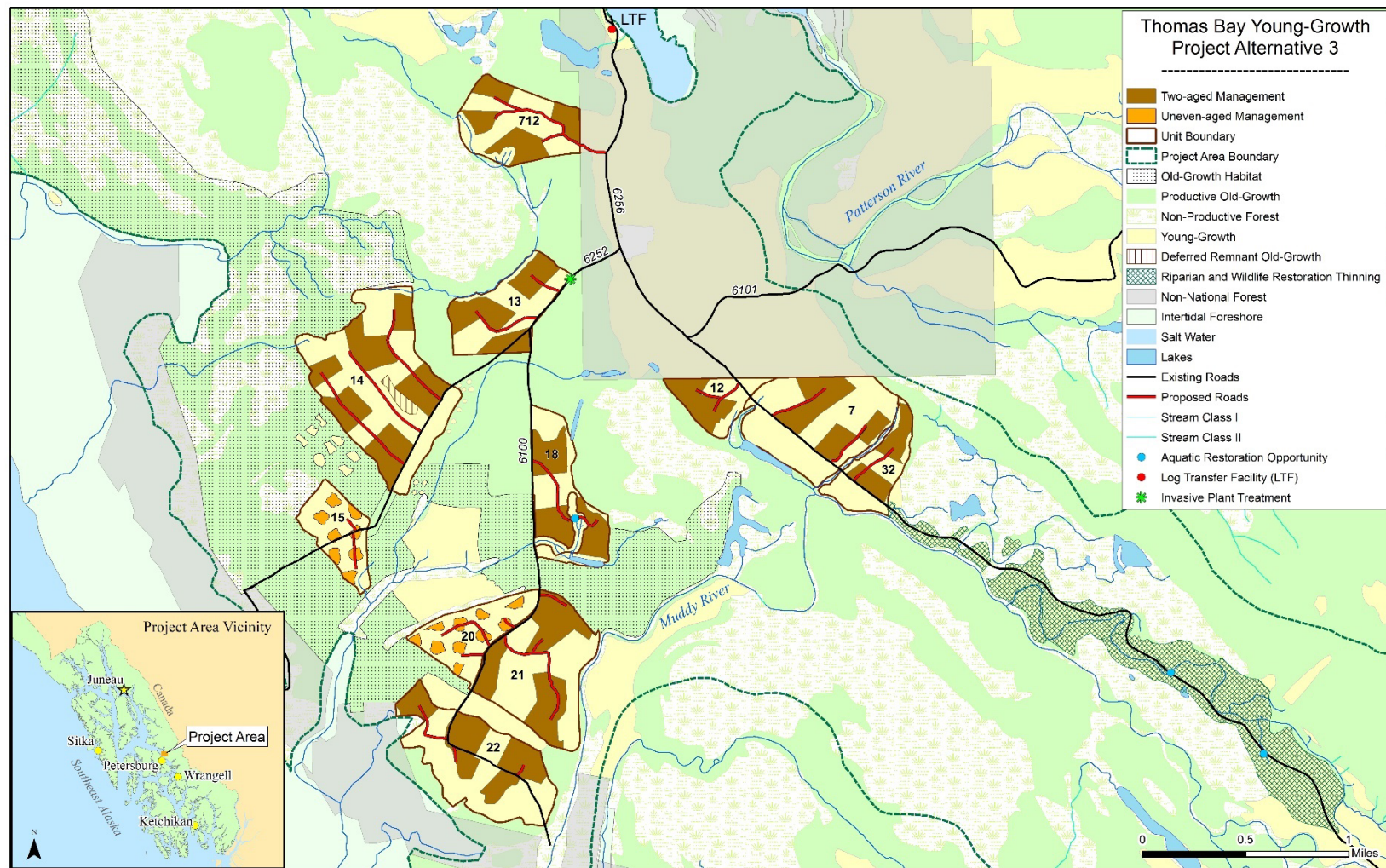
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**Figure 3. Alternative 2 proposes harvesting 841 acres of young-growth using even-aged management, resulting in 19.3 MMBF of timber.**

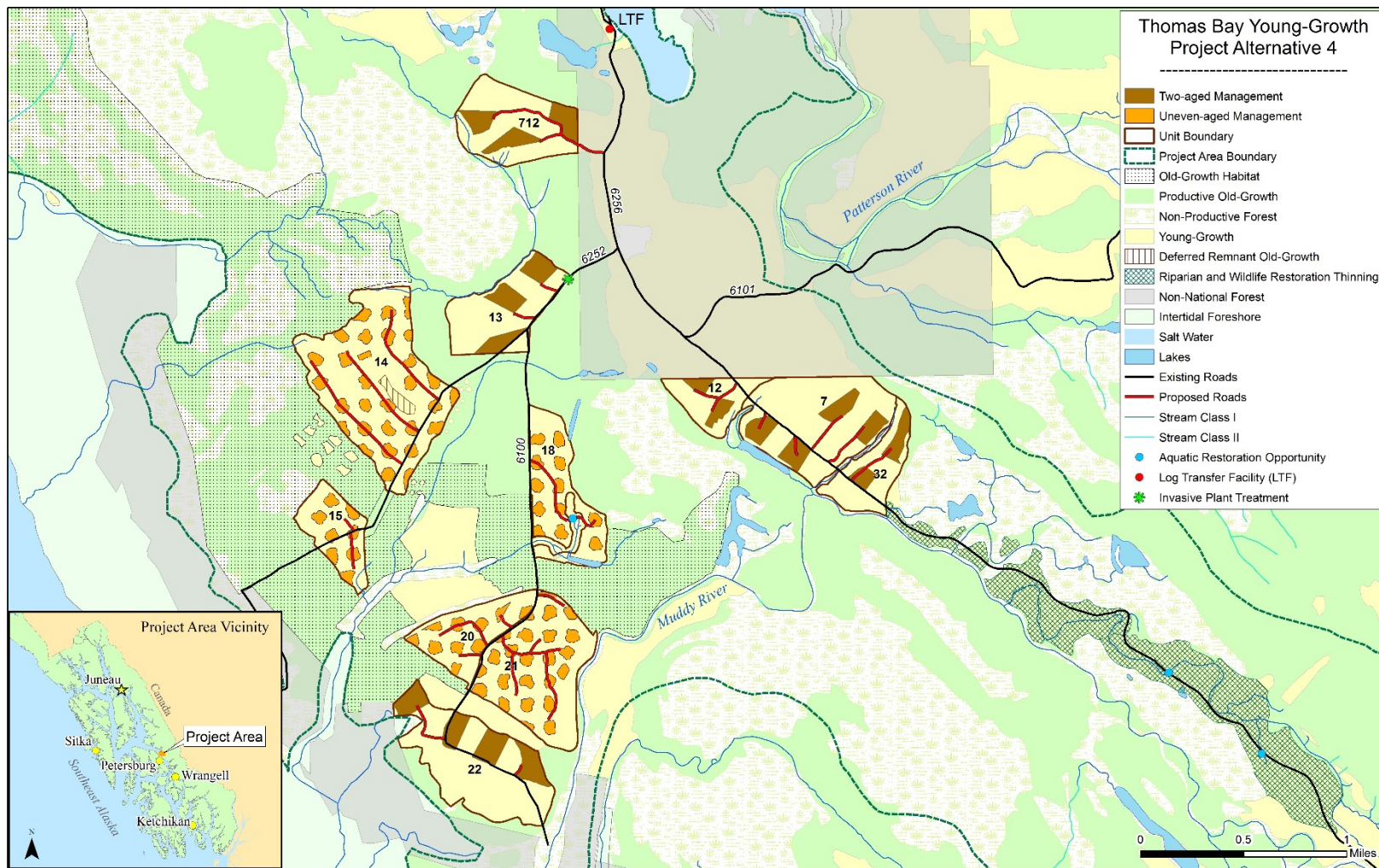


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**Figure 4. Alternative 3 proposes young-growth timber harvest on approximately 561 acres, with 519 acres harvested using two-aged management, and 42 acres harvested with uneven-aged management, resulting in about 12.6 MMBF of timber.**





**Figure 5. Alternative 4 proposes young-growth timber harvest on approximately 351 acres, with 189 acres harvested using uneven-aged management, and 162 acres harvested using two-aged management, resulting in about 7.9 MMBF of timber.**



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## Design Features Included in All Action Alternatives

### Aquatics and Essential Fish Habitat

Potential adverse effects to aquatic resources freshwater Essential Fish Habitat (EFH) will be minimized due to the following:

- All Class I and II streams within the project area will be protected by a no-harvest buffer of 100 feet or more (see [Unit Cards](#) for site-specific activities).
- No Class I or II stream crossings are proposed on new temporary road construction. Temporary roads will be decommissioned after timber harvest is complete.
- Best Management Practices and Forest Plan direction will be implemented to protect water quality and aquatic habitat for all freshwater streams within the project area as described below and in the unit cards.

[National BMPs](#) (USDA Forest Service 2012<sup>7</sup>), include:

- Veg-1: Evaluate and field verify site conditions in the project area to design mechanical vegetation treatment prescriptions that avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources.
- Veg-2: Develop an erosion control and sediment plan that covers all disturbed areas including skid trails and roads, landings, cable corridors, temporary road fills, or other areas disturbed during mechanical vegetation treatments.
- Veg-3: Modify vegetation treatment prescriptions and operations in the Aquatic Management Zones as needed to maintain ecosystem structure, function, and processes.

Regional BMPs (USDA Forest Service 2006<sup>8</sup>), include:

- 12.6: Riparian area designation and protection - Manage riparian areas to provide for long-term conservation, productivity, biological diversity, and ecosystem integrity.
- 12.6a: Buffer design and layout - Design streamside buffers to meet objectives defined during implementation of Regional BMP 12.6.
- 12.8: Oil pollution prevention and servicing/refueling operations - The Forest Service will designate the location, size, and allowable uses of service and refueling areas. The operator will develop Spill Prevention Control and Countermeasure (SPCC) plans as needed by specific site conditions.
- 13.16: Stream channel protection (implementation and enforcement) - In addition to BMPs 12.6 and 12.6a, protection measures may include: leaving an unmanaged streamside buffer, selective harvest of merchantable trees, or other silvicultural prescription designed to meet water quality and riparian objectives.

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<sup>7</sup> USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. USDA Forest Service. Washington, D.C. 165 pp.

<sup>8</sup> USDA Forest Service. 2006. Soil and Water Conservation Handbook. US Forest Service Alaska Region 10: R10-2509.22-2006-2. Chapter 10, Section 14.26. Juneau, Alaska. 117 pp.



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- 14.9: Drainage control to minimize erosion and sedimentation - To minimize erosive effects of concentrated water flows from transportation facilities and the resulting degradation of water quality through proper design and construction of drainage control systems.
- 14.12: Control of excavation and sidecast material - To minimize sedimentation from unconsolidated excavated and sidecast material caused by road construction, reconstruction, or maintenance activities.
- 14.26: Daily LTF cleanup - Assure cleanup of bark, debris, or other solid materials daily when accumulations are present. Dispose of the materials in an acceptable manner to prevent water quality degradation.
- 14.27 (Log Storage/Sort Yard Erosion Control) - To avoid generation of fine particles and control the overland flow of particles carrying hazardous materials into waterways.

Forest Plan Standards and Guidelines (USDA Forest Service 2016<sup>9</sup>, pp. D5 to D18)

- Per Tongass Timber Reform Act (TTRA) requirements, no commercial harvest within 100 feet of Class I streams and Class II streams flowing directly into Class I streams.
  - After field review, no timber harvest is proposed within the Riparian Management Areas (RMA); the channel-specific stream buffers range from 100 to 140 feet from stream bank.
- An interdisciplinary Reasonable Assurance of Windthrow (RAW) review will be conducted prior to implementation and additional buffer width may be prescribed for stream buffer protection.

Additionally, potential adverse effects to coho salmon and freshwater EFH when removing the dike in Unit 18 will be minimized due to the following:

- Timing windows for in-water work will be incorporated into the construction schedule to avoid in-water work during critical life stages for EFH species and other salmonids to minimize potential adverse effects. For example, in-water work will be timed to avoid juvenile salmon out-migration. In Southeast Alaska, in-water construction is generally restricted from June 15 to August 1, although this timing window may be adjusted based on ADF&G Concurrence stipulations.
- Where required, a fish barrier net may be used upstream and downstream of the crossing to prevent fish from entering the work area.
- Prior to removing the dike, personnel experienced in fish removal/transport will isolate and remove fish from the stream in the vicinity of the work area in accordance with an ADF&G fish resource permit and project plans and specifications.
- Any stream bank affected by the work will be restored to natural dimensions and flow capacity.
- Temporarily disturbed areas, including slopes, will be re-contoured to match existing contours and stabilized within 7 days post-construction.

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## Botany

If any previously undiscovered sensitive or rare plant species are encountered in the project area at any point in time prior to or during the implementation of this project, a botanist will be notified immediately to

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<sup>9</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau, AK.





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evaluate the population and immediately recommend avoidance and/or protection measures consistent with Forest Plan standard PLA1(II)(III) (USDA Forest Service 2016<sup>10</sup>, p. 4-39).

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## Cultural Resources

A 100-foot protective buffer was established to ensure protection of an Alaska Heritage Resources Survey (AHRs) site within the project area that is eligible for listing on the National Register of Historic Places (NRHP). There is an additional 256 feet between the buffer and the nearest proposed project activities.

In the unlikely event that additional cultural resources are discovered with project implementation, work in the area will cease until the resource is assessed.

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## Invasive Plant Control

Thomas Bay is nearly weed-free; therefore, it is a high priority to prevent introduction and establishment of invasive species. If any previously undiscovered invasive plant species are encountered at any point in time prior to or during the implementation of this project, a botanist or ecologist will be consulted, and appropriate measures will be taken.

Weed BMPs 2, 3, 7 and 17 for weed prevention practices (Krosse 2019<sup>11</sup>) will be followed.

- BMP 2 - Use contract and permit clauses, provisions, and/or specifications to require that the activities of contractors and permittees are conducted to prevent the introduction 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).
  - Equipment moved between islands and the Thomas Bay mainland will be cleaned following Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance (Krosse 2019, Exhibit 4)
- BMP 7 - Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds.
- BMP 17 - Ensure that weed prevention is considered in all timber projects.

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## Soils and Wetlands

Slopes are less than 35 percent and suitable for harvest with shovel yarding. Forested and non-forested wetlands lie in areas surrounding the harvest units, but none within the proposed units in any alternative. The following site-specific BMPs should be implemented during harvest activities to minimize soil disturbance:

- Reuse existing landings, roads, equipment trails, and yarding corridors when possible. Do not reuse landings in riparian management areas. (National BMP Veg-4, Veg-6, R10 BMP 13.10)

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<sup>10</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau, AK.

<sup>11</sup> Krosse, P. 2019. Guidance for Invasive Plant Management Program, Tongass National Forest. Internal Document. USDA Forest Service, Tongass National Forest, Ketchikan, AK.



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- Retain existing topsoil and surface soil in the unit where possible. Where blading of topsoil is required to meet project objectives, restore the site by stockpiling topsoil and replacing when activities are completed. This activity does not apply to existing temporary roads and landings. (National BMP Veg-4, Veg-6, R10 BMP 14.24)
- Avoid operating equipment when ground conditions are such that excessive rutting, soil puddling, or runoff of sediments directly into waterbodies will result. (National BMP Veg-2, Veg-4, R10 BMP 14.6)
- Use puncheon or a slash mattress to provide adequate bearing strength and prevent rutting from heavy equipment used in felling and yarding operations. Fluff or scatter the puncheon/slash trail upon completion. Do not leave thick, dense slash or woody debris accumulations that could inhibit revegetation. (National BMP Veg-4, R10 BMP 13.9, R10 Soil Quality Standards)
- Avoid creating ruts greater than 12 inches deep. Avoid operating heavy machinery in relict channels, sloughs, or non-forested wetlands to prevent rutting. Where these areas cannot be avoided, use adequate slash or puncheon to support the weight of equipment. (Forest Plan, R10 Soil Quality Standards)
- A minimum of partial suspension is required for yarding operations. (R10 BMP 13.9)
- To minimize surface erosion, maintain vegetation or litter cover on the soil across at least 85 percent of each unit's surface. (National BMP Veg-2, R10 BMP 12.17, R10 Soil Quality Standards)
- Large piles of slash at landings reduce soil productivity by burying productive soils. Minimize density and area of slash and non-merchantable material at landings. Scatter slash through unit, haul slash away or treat at the landing to maintain soil productivity. (R10 Soil Quality Standards)

Further resources to protect soil resources can be found in National BMPs (FS-990a) and Region 10 BMPs (FSH 2509.22).

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### Wildlife

If any previously undiscovered endangered, threatened, candidate, sensitive species, or species which require application of Forest Plan Standards and Guidelines or other restrictions are encountered in the project area at any point in time prior to or during the implementation of this project, appropriate measures will be enacted in accordance with management standards and guidelines, laws, regulation, and policy.

Listed below are the Forest Plan Standards and Guidelines and other requirements most applicable to this project.

Heron and Raptor Nests: If an active nest is identified, protect 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. Refer to Forest Plan Standard and Guideline WILD1 XIII (USDA Forest Service 2016<sup>12</sup>, p. 4-90).

Bald Eagle Nests or Communal Roost Sites: If a bald eagle nest or communal roost site is identified near project activities, follow the National Bald Eagle Management Guidelines, or attain an incidental take

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<sup>12</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



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permit prior to implementation. Refer to Forest Plan Standards and Guidelines WILD1 VIII (p. 4-88), G-WILD-02 (p. 5-15), and the National Bald Eagle Management Guidelines<sup>13</sup>.

Goshawk Nests: Preserve nesting habitat around all goshawk nest sites. Maintain an area of not less than 100 acres of productive old-growth (POG) forest if it exists, or the largest diameter young-growth forest if sufficient POG is not adjacent to the nest. Permit no commercial timber harvest in the protective buffer. Existing roads may be maintained. New road construction is permitted if no other reasonable roading alternatives outside the mapped nesting habitat exist. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Seasonal restrictions are removed for active nests that become inactive or unsuccessful. Refer to Forest Plan Standard and Guideline WILD4 II A (USDA Forest Service 2016<sup>14</sup>, pp. 4-95 to 4-96).

Osprey Nests: Establish a minimum 330-foot radius habitat management zone around each existing osprey nest tree. Maintain the osprey nest zone even if the nest or nest tree becomes inactive. Refer to Forest Plan Standard and Guideline WILD4 II E (USDA Forest Service 2016, p. 4-96).

Marbled Murrelet Nests: If nests are found during activity 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. Refer to Forest Plan Standard and Guideline WILD1 XVI (USDA Forest Service 2016, p. 4-92).

Wolf Dens: Design management activities to avoid abandonment of wolf dens. Maintain a 1,200-foot forested buffer, where available, around known active wolf dens. Road construction within the buffer is discouraged and alternative routes should be identified where feasible. No road construction is permitted within 600 feet of a den unless activity review indicates that local landform or other factors will alleviate potential adverse disturbance. Refer to Forest Plan Standard and Guideline WILD1 XIV (USDA Forest Service 2016, p. 4-91).

Marine Mammals: Ensure Forest Service permitted, or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, Endangered Species Act, and NMFS regulations for approaching marine mammals.

### Vessels

1. Vessel operators will:
  - a. maintain a watch for marine mammals at all times while underway;
  - b. stay at least 100 yds away from listed marine mammals;
  - c. travel at less than 5 knots when within 300 yards of a whale;
  - d. avoid changes in direction and speed when within 300 yds of whales, unless doing so is necessary for maritime safety;
  - e. not position vessel(s) in the path of whales, and will not cut in front of whales in a way or at a distance that causes the whales to change their direction of travel or behavior (including breathing/surfacing pattern);

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<sup>13</sup> U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines.

<sup>14</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.





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- f. check the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged; and
  - g. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1 mi or less.
2. Adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b)) (note: these regulations apply to all humpback whales). Specifically, pilot and crew will not:
  - a. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
  - b. cause a vessel or other object to approach within 100 yards of a humpback whale; or
  - c. disrupt the normal behavior or prior activity of a whale by any other act or omission.
3. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 100 yds of the vessel, and if maritime conditions safely allow, the engine will be put in neutral, and the whale will be allowed to pass beyond the vessel.
4. Vessels will take reasonable steps to alert other vessels in the vicinity of whale(s).
5. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear. No materials capable of becoming entangled around marine mammals will be discarded into marine waters.

### Vessel Transit, Western DPS Stellar Sea Lions, and their Critical Habitat

6. Vessels will not approach within 3 nautical miles of Stellar sea lion rookery sites listed in (50 CFR § 224.103(d)).
7. Vessels will avoid approaching within 3,000 ft of any Steller sea lion haulout or rookery.

### Reporting

#### Unauthorized Take

8. If a listed marine mammal is determined by personnel to have been disturbed, harassed, harmed, injured, or killed as a direct or indirect result of barging activities, the unauthorized take will be reported to NMFS within one business day, with information submitted to [akr.section7@noaa.gov](mailto:akr.section7@noaa.gov). Information will include:
  - a. number of animals of each threatened and endangered species affected;
  - b. the date, time, and location of each event (provide geographic coordinates);
  - c. description of the event;
  - d. the time the animal(s) were observed being disturbed, harassed, injured, or killed;
  - e. mitigation measures implemented prior to and after the animal was taken; and
  - f. if a vessel struck a marine mammal, the contact information for the individual piloting the vessel; and
  - g. photographs or video footage of the animal(s) (if available).

#### Stranded, Injured, Sick or Dead Marine Mammal (not associated with the project)

9. If personnel observe an injured, sick, or dead marine mammal (i.e., stranded marine mammal), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773. The observer will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded marine mammals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.



# Thomas Bay Young-Growth Timber Sale



## Illegal Activities

10. If personnel observe marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding, or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (1-800-853-1964).
11. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

## Annual Report

12. An annual report will be submitted to NMFS within 90 calendar days of the completion of the annual barging activities, summarizing the data recorded and submitted to [akr.section7@noaa.gov](mailto:akr.section7@noaa.gov).
13. The final report will include:
  - a. summary of barging activities, including travel routes and dates of barging activities
  - b. date, time, and estimated geographic coordinates of marine mammals seen within 1 nautical mile of barging activities.

## Alternatives Considered but Not Analyzed in Detail

During the 30-day scoping comment period, the public requested an alternative that avoids clearcutting, and requested the Forest Service use uneven-aged management, prescribe higher retention levels in harvest units, spread harvest out over a longer period of time, and focus on providing volume to small local mills. In response, the Responsible Official and IDT considered limiting the project annual harvest volume so it extends harvest for approximately 60 to 80 years and considered the possibility of breaking the project into a number of “smaller offerings or micro-sales that would be more attractive to small mills.”

Although neither of these concepts were carried forward exclusively as part of a stand-alone action alternative, Alternatives 3 and 4 incorporate the suggestions by prescribing uneven-aged and two-aged management with higher retention levels, which extends the harvest period to approximately 60 years through multiple entries. The Forest Service anticipates packaging potential timber offerings in a variety of sizes (including small sale offerings) to appeal to a range of operators under all action alternatives to meet market conditions and a portion of local and regional industry demand, which is a part of the project’s purpose and need.

Addressing commenters’ requests with a stand-alone alternative would limit the proposed volume on a yearly basis, limiting offers that only provide for “small” sales or mills, or only allowing microsales (dead, and down trees under 50 MBF). Additionally, these limitations would not provide opportunities to operators of different capacities and business models to foster the development of a diverse young-growth timber program and economy (a central element of the project’s purpose and need). For these reasons, a separate small sale/microsale alternative was not analyzed in detail.

## Issues Considered for Analysis

The interdisciplinary team identified two issues: (1) how to design the most economical young growth timber sale(s) possible given the value of the timber and the costs associated with obtaining and processing it, and (2) how to maintain wildlife habitat and connectivity through and around potential harvest units. Alternative 2 best addresses the first issue by providing timber in the most efficient and economical manner (even-aged management), and Alternatives 3 and 4 aim to better meet wildlife objectives through two-aged management with higher retention levels while also providing economic timber sale opportunities.



# Thomas Bay Young-Growth Timber Sale



## Environmental Effects:

### How would our management actions affect the environment?

This project has been designed to be consistent with relevant laws, regulations, policies, and Tongass Forest Plan direction. This ensures that the action alternatives reduce or eliminate effects to resources. Significance is determined through the consideration of the potentially affected environment and the degree of effects. This section contains and references supporting analysis and rationale to reach a finding of no significant impact (FONSI), detailed in the [FONSI section](#). See specialist reports in the project record for more detailed analysis and additional scientific literature citations.

### Potentially Affected Environment

The project area is about 16,602 acres in size with 1,500 of those acres on non-National Forest System lands (mostly managed by State of Alaska with about 345 acres of private land). It is approximately 16 miles northeast of Petersburg, Alaska, on the mainland and can be accessed by saltwater or air (Figure 1). Forest Plan Land Use Designations (LUDs) guide the management of National Forest System lands within the Tongass. The actions proposed with this project would occur within the Scenic Viewshed and Modified Landscape LUDs (Figure 2).

### Forest Vegetation

The natural vegetation of the project area is a mosaic of coniferous forest intermixed with fen, muskeg, riparian, and shrubland plant communities. Western hemlock and Sitka spruce forests occur on well-drained sites. Mixed conifer forest types occupy areas with restricted drainage. Open shrubby bogs and fens occur on the wettest sites. The transition zones between well-drained western hemlock - Sitka spruce sites and restricted drainage mixed conifer sites are commonly occupied with a mix of Western hemlock, Sitka spruce, lodgepole pine and Alaska yellow-cedar. The internal drainage of the underlying soils greatly affects the current forest structure and developmental patterns.

Roughly 11,192 acres or 62 percent of all land ownerships within the project area are considered productive forest lands. Approximately 3,478 of these productive forest acres, or 31 percent, are young growth that originated from clearcutting and are now comprised mostly of even-aged, single-storied Sitka spruce and Western hemlock stands with red alder found on disturbed sites and along actively changing stream courses. The remaining 69 percent of these acres are productive old-growth forest. Stand productivity of the young growth is generally high and consistent given the well-drained soil conditions. While past damage from weather events is evident throughout the project area, the main canopy trees are healthy and vigorous. Windthrow risk, from strong, easterly out-flow winds associated with the mainland or southerly storm-force winds is moderate-to-high throughout much of the project area. Mistletoe is common where young, hemlock trees are near infected old-growth stands. Unevenly distributed understory vegetation can be found throughout, and areas of lower productivity typically contain a greater variety and abundance of species.

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### Project Area Young Growth

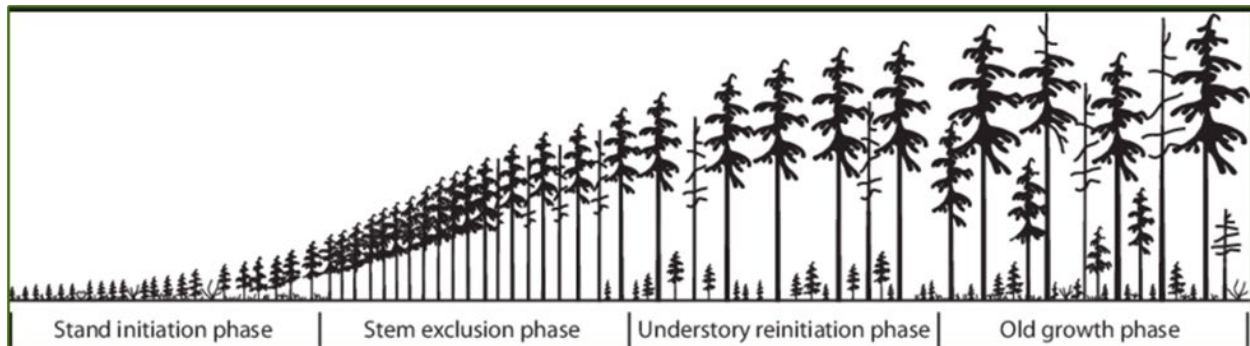
In the project area on National Forest System lands, young growth totals approximately 2,851 acres. The past harvest is grouped and mapped by age into stands. Units are those stands proposed for harvest. Project area stands of young growth range from a few acres to approximately 272 acres. Young-growth stands adjacent to proposed harvest units, along the Muddy River to the estuary of the Patterson River form larger tracts of young-growth, totaling roughly 1,850 acres. Other stands in the project area, including several proposed for harvest, are separated by stands of old-growth forest.

The first commercial harvest on record in the project area occurred in 1936 within a remote area along the shore. The most recent harvest was in 1986. Young-growth stands adjacent to and surrounding proposed harvest units, form larger tracts of contiguous young-growth of similar age, totaling roughly 1,850 acres along the Muddy River to the Patterson River with another approximately 700 acres nearer Point Agassiz. Other stands in the project area, including several proposed for harvest, are separated by

stands of old-growth forest. The stand structure in most young growth throughout the project area is predominantly trending toward understory re-initiation as trees grow older and taller and the base of the overstory canopy increases in height. All stands on National Forest System lands have been precommercially thinned, some two or three times. Roughly 317 acres have been pruned to a 17-foot lift at various intensities. These past management activities have positively influenced stand development by moving stands from the stem exclusion stage toward the understory re-initiation stage of development sooner, creating varying understory conditions.

Stand development after clearcutting is well documented and follows a general pattern (Oliver and Larson 1996<sup>15</sup>):

- **Stand Initiation** - A new cohort with thousands of newly germinated trees, as well as advanced regeneration, occupies the site. Residual shrubs and herbaceous plants respond to the increased light for 8 to 10 years, when the conifers begin to overtop the shrubs and herbs. Stand species richness is greatest at this stage of development.
- **Stem Exclusion** - By age 15 to 25 years, the new cohort of trees begins competing for light and few, if any, new trees are added to the cohort. Out-competed trees begin to die. Understory plants decline rapidly and can be completely eliminated in 35 years unless openings are created in the overstory.
- **Understory Re-initiation** - The new cohort continues to suppress the understory shrubs and herbs for up to 100 years with understory plants potentially not re-appearing until age 120 to 150 when overstory trees begin to die and allow enough light to reach the canopy floor for understory plants to become established again.
- **Old Growth** - Overstory trees die and trees from the forest floor stratum of the understory re-initiation stage grow slowly into the overstory where understory plants flourish, and a diversity of tree sizes and canopy layers persist.



**Figure 6. Phases of stand development as presented by Oliver and Larson (1990)<sup>16</sup>**

Young-growth stands in the project area are relatively wind and weather resistant; however, storm events, particularly those involving a combination of wind, snow, or ice can cause substantial damage mainly through bole and top breakage.

<sup>15</sup> Oliver, C.D., and B.A. Larson. 1996. Forest Stand Dynamics, Updated Edition. FES Other Publications. [https://elischolar.library.yale.edu/fes\\_pubs/1/?utm\\_source=elischolar.library.yale.edu%2Ffes\\_pubs%2F1&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](https://elischolar.library.yale.edu/fes_pubs/1/?utm_source=elischolar.library.yale.edu%2Ffes_pubs%2F1&utm_medium=PDF&utm_campaign=PDFCoverPages)

<sup>16</sup> Oliver, C.D., Larson, B.C., 1990. Forest Stand Dynamics. Wiley, New York.





# Thomas Bay Young-Growth Timber Sale



Approximately 2,484 acres or 87 percent of the young growth on NFS lands in the project area is classified as suitable for commercial timber harvest. Suitable timber lands are those productive forest lands that fall within the Forest Plan assigned LUDs where timber production is compatible with achieving the desired conditions and objectives established by the plan for these lands (Forest Plan, Appendix A). However, approximately 1,051 acres of suitable young growth are considered infeasible for future young-growth harvest opportunities due to Forest Plan Standards and Guidelines such as riparian area protection measures, or no feasible road access. The remaining suitable and feasible young growth in the project area is estimated at 1,433 acres or 50 percent of the young growth on National Forest System lands. The estimated suitable and feasible acres are expected to change in the future as further field verification and resource surveys occur.

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## Lands

In June 2023, Alaska Senators Lisa Murkowski and Dan Sullivan reintroduced the Unrecognized Southeast Alaska Native Communities Recognition and Compensation Act which proposes to transfer approximately 115,202 acres of National Forest System lands to private ownership. This legislation has been introduced in previous Congresses. Of the total proposed acreage for transfer, approximately 4,709 acres are within the Thomas Bay Young Growth Timber Sale project area. The Forest Service estimates that 10 of 13 harvest units may overlap with parcels selected for transfer out of public ownership.

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## Environmental Effects by Resource

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### Aquatics and Fisheries

The analysis that follows focuses on potential effects to fish species, the aquatic ecosystem and water quality (assessed by estimated risk of increased sediment delivery to streams based on the number of proposed road/stream crossings and miles of road located within 300 feet of streams, and potential detectable peak flow increases), and Essential Fish Habitat (EFH).

Direct, indirect, and cumulative effects of proposed activities were analyzed spatially and temporally at the 6<sup>th</sup> and 7<sup>th</sup> level Hydrologic Unit Code (HUC). HUCs are unique identifiers used in a standardized watershed classification system developed by the U.S. Geological Survey (USGS).

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### Environmental Consequences of No Action

In the no action alternative, no commercial timber harvest would occur, and no temporary roads would be built. Selection of this alternative, however, would not preclude maintenance of existing roads, including erosion control measures and removal or replacement of culverts, as well as removing the dike and restoring hydrologic connectivity in Unit 18.

The current number of stream crossings, proximity of streams to roads, and existing 30-year cumulative harvest levels are summarized in the Aquatics resource report in the project record. Since the number of stream crossings increases by a maximum of one in any of the action alternatives, and that crossing occurs on a reconstructed temporary road already accounted for in the existing condition, the no action alternative would not differ meaningfully from the action alternatives regarding road/stream interactions.

Under the no action alternative, 30-year cumulative harvest levels would continue to decrease. Currently, potential increases in peak flow are below detectable levels.

Sediment delivery to streams from periodic road maintenance is expected to be minor and within water quality standards set by the State of Alaska.

The primary effect of the no action alternative would be beneficial since cumulative harvest levels would continue to decrease and the potential for peak flow increases related to timber harvest would effectively be non-existent.

Past activities relevant to this project are documented within the [Catalog of Events](#) in the project record and were considered in this analysis. Foreseeable future activities within project area watersheds are the same in all alternatives and include silvicultural thinning and pruning treatments (pre-commercial and



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wildlife habitat enhancements), microsales, road and trail maintenance, and invasive plant treatments. Road and trail maintenance activities, such as removing the dike in Unit 18 and red culvert remediation on NFS road 6256, are expected to improve watershed hydrology and fish passage in the long-term by maintaining hydrologic connectivity and drainage efficiency through crossing structures, thereby reducing potential sources of stream sedimentation. The 2014 Climate Change Vulnerability Assessment for Aquatic Resources was reviewed to ensure consistency with project activities on management strategies for snow, ice, and water features; riparian vegetation; and fish species (EcoAdapt 2014<sup>17</sup>). Effects of activities associated with the above-described projects are expected to be negligible although they may have short-term increases in sedimentation and turbidity but are not expected to have a long-term negative effect on fish populations.

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## ***Environmental Consequences of the Action Alternatives***

### ***Aquatic Ecosystem and Water Quality***

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Effects of timber harvest and temporary road building activities are similar among the action alternatives and would occur to the greatest extent in Alternative 2 due to the highest levels of proposed harvest acres and other factors described in the Aquatics Resource report in the project record. Ground disturbance and erosion resulting in sedimentation of project area fish bearing streams would be minor and short-term (weeks to months) occurring primarily during times of active temporary road construction. The effects are minimized through application of stream buffers (100-foot minimum) and BMPs. Additionally, only one new stream crossing is proposed (Class I, PA fish stream in Unit 18 for Alternatives 2, 3, and 4), further limiting potential effects, which would be localized to a few hundred feet downstream due to the low transport capacity of most streams in the low-gradient setting of the project area. The Class I and II (fish bearing) streams located within, and outside unit boundaries would receive no-harvest buffers according to TTRA and RMA standards as detailed in the [Unit Cards](#) and Riparian Standards and Guidelines (USDA Forest Service 2016<sup>18</sup>, pp. D-1 through D-20). These no-harvest buffers would also help maintain shade, minimizing potential effects to stream temperature and ensure a future wood source for habitat formation.

Maintenance of water quality standards within the project area are expected, regardless of action alternative implemented. The potential effects of proposed harvest and temporary road building activities would be avoided or minimized with the application of site-specific BMPs such as streamside buffers (Veg-3, 12.16a, minimum 100 feet), erosion control measures for timber planning and road construction (Veg-2, 13.14, Road-3, 14.5, 14.6, 14.8), and site-specific stream channel protection consistent with and in addition to streamside buffers where applicable (Veg-3, 13.16) Harvest prescriptions that minimize disturbance would also minimize potential downstream effects and help to maintain State water quality standards (ADEC 2020<sup>19</sup>).

The cumulative effects of the proposed actions on streamflow, water quality, fish and other aquatic organisms, and the physical stream and floodplain habitat that supports them would be minor to undetectable in four of five project area watersheds for all action alternatives. In Alternative 2, increased peak flows may be detectable within the HUC #19010208030205 watershed since harvest levels result in 19.5 percent cumulative harvest in the past 30 years, with 2.4 percent of the watershed area comprised of

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<sup>17</sup> EcoAdapt. 2014. A Climate Change Vulnerability Assessment for Aquatic Resources in the Tongass National Forest. EcoAdapt, Bainbridge Island, WA.

<sup>18</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

<sup>19</sup> Alaska Department of Environmental Conservation. 2020. Alaska's Nonpoint Source Water Pollution Control Strategy. <https://dec.alaska.gov/water/water-quality/nonpoint-source-control/>.



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roads. Peak flows may increase up to 20 percent according to Grant and others (2008<sup>20</sup>) when 30-year cumulative harvest levels reach 20 percent or greater. According to threshold conditions established in Grant and others (2008), peak flow increases would likely remain undetectable in this alternative. If peak flows increase, overbank flooding would be the primary effect, which occurs regularly in these channels. Changes in channel habitat are not anticipated due to the low transport capacity of these pond-like, low-energy streams. Additionally, many of the roads included in cumulative harvest calculations have grown closed since last used for timber harvest over 40 years ago and are no longer hydrologically connected to streams, diminishing the likelihood of potential peak flow increases (see Aquatics resource report; Grant et al. 2008).

Implementation of the proposed actions, when considered in combination with projects identified in the [Catalog of Events](#), would not increase cumulative impacts to aquatic resources more than those described above since hydrologic recovery from previously harvested stands has occurred (see Aquatics resource report, Table 3). Similarly, all roads ever constructed were included in the analysis of cumulative harvest levels, regardless of when they were built. Cumulative impacts associated with these roads are therefore reflected in this analysis. Removal of the dike on the one stream crossing in Unit 18 after 40 years of being in place will improve road-related hydrologic condition and fish passage following harvest activity.

## Essential Fish Habitat

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No direct, indirect, or cumulative impacts to fish species are anticipated.

Approximately 80.9 miles of streams considered EFH exist within the project area. Populations of federally managed species of pink, chum, coho, and sockeye salmon, as well as populations of Dolly Varden char, cutthroat and steelhead trout are expected to occur within the project area; however, only rearing coho salmon and Dolly Varden char, both Management Indicator Species (MIS), have been documented. Cutthroat trout is also an MIS. MIS are species whose population changes are believed to indicate the effects of land management activities (USDA Forest Service 2016<sup>21</sup>, p. 3-118).

The risk of road-related sedimentation from timber harvest activities within the project area is low due to the flat topography and low transport capacity of most streams in the area. Potential sedimentation to EFH from timber harvest activities, primarily from temporary road construction activities, would be minimized and short term with the implementation of BMPs and the application of no harvest buffers (100 feet or more) to Class I streams (see [Unit Cards](#)). The no-harvest buffers would also protect stream shade and potential effects to stream temperature. Potential long-term adverse effects to freshwater EFH and MIS are not anticipated because temporary roads would be decommissioned, and no new permanent roads would be built. Water quality and aquatic habitat within the project area would be protected by following BMPs, project design features and Forest Plan direction (USDA Forest Service 2016).

In addition to timber harvest activities, stream habitat work is proposed to improve fish passage. One of the fish passage restoration activities is on EFH stream Anadromous Waters Catalog (AWC) 108-60-10030-2011-3020. The proposal includes clearing a culvert of woody debris that originated from a beaver dam. The second restoration activity would remove a dike on AWC 108-60-10025 that blocks coho salmon and Dolly Varden char from upstream migration during low flows for approximately 400 feet. To ensure fish passage during timber harvest activities, a temporary culvert would be installed at the stream

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<sup>20</sup> Grant, G.E., S.L. Lewis, F.J. Swanson, J.H. Cissel, and J.J. McDonnell. 2008. Effects of forest practices on peak flows and consequent channel response: A state-of-science report for western Oregon and Washington. Gen. Tech. Rep. PNW-GTR-760. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 76 p.

<sup>21</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



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intersection before removing the dike. It would be filled at the bottom with streambed material, placed to match the natural slope of the stream (less than 1 percent) and designed for a 100-year flood event. After harvest activities are complete, the culvert and dike would be removed to restore fish access, and the slopes would be recontoured to reestablish hydrologic and drainage efficiency.

While the risk of road-related sedimentation is low within the project area, the proposed use of heavy equipment to restore historic fish passage of coho salmon and Dolly Varden char at low flows on the two streams mentioned above and clearing a culvert of woody debris that originated from a beaver dam have the potential to increase sedimentation in the short term. As a result, the Forest Service has determined the Thomas Bay Young Growth Timber Sale project “may adversely affect” freshwater Essential Fish Habitat or MIS<sup>22</sup>. The Forest Service, however, does not anticipate the change in EFH determination to affect the conclusion of no direct, indirect, or cumulative effects because the negative effects would be short-term (one to two hours) and minimized by following Regional and National BMPs. Additionally, removing the dike would increase coho habitat by approximately 400 feet and removing the debris from the culvert would provide long-term benefits to aquatics and EFH by restoring salmonid connectivity to upstream habitat.

The volume harvested from this project would be transported off the mainland by barge at the Thomas Bay log transfer facility (LTF). The Forest Service has chosen to require barging to avoid potential impacts to the marine environment associated with rafting logs. To minimize wake energy, vessels would be operated at sufficiently low speeds. The potential for fuel spills in the marine environment is unlikely because activities associated with hazardous materials such as fuel are primarily on shore and would follow Spill Prevention, Control, and Countermeasure plans. With these measures and the limited likelihood of contamination, barging logs at the Thomas Bay LTF is not anticipated to adversely affect the marine environment or EFH. Additionally, while aquatic marine EFH species may occasionally occur in the marine habitat downstream of the project area, project activities would not affect nearshore or marine habitat for any of the listed salmonid or sturgeon species.

Dive surveys conducted in Thomas Bay in 2000 resulted in 0 acres of continuous and discontinuous bark accumulation. These results suggest Thomas Bay has good tidal flushing and that bark debris is not accumulating or having an adverse effect on fish and marine invertebrates in the area. Disturbance of eelgrass, an important seagrass species that provides habitat for salmonid and other marine species, is not expected since there are no known eelgrass beds in project area.

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## Botany

The analysis area for effects to botany resources includes areas directly impacted by proposed harvest and adjacent habitat on the Point Agassiz peninsula. These areas encompass young-growth and old-growth Sitka spruce, western hemlock, and western hemlock - Sitka spruce forests, in addition to fen, muskeg, riparian and shrubland communities.

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## Environmental Consequences of No Action

Under the no action alternative, there would be no direct or indirect impacts to plants and associated habitat from timber harvest and road construction related to harvest ([Table 2](#)). There are no cumulative effects associated with the no action alternative because there are no direct or indirect impacts. The cumulative impacts to plants and habitat from current commercial use of roads, silvicultural treatments, and recreation and subsistence use would be negligible.

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<sup>22</sup> This is an update to the “would not adversely affect” freshwater EFH determination in the EFH report submitted to the Habitat Conservation Division of the National Marine Fisheries Service (NMFS) for concurrence on April 6, 2023.





# Thomas Bay Young-Growth Timber Sale



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## Environmental Consequences of the Action Alternatives

The environmental consequences of Alternatives 2, 3, and 4 are reviewed together because all the alternatives propose the same types of activities, including timber harvest, and temporary road reconstruction and construction. The footprint of effects varies by alternative (Table 2). The likelihood of impacts to plants or habitats increases in proportion to the size of the area affected; therefore, considering the action alternatives, Alternative 2 would have the greatest impact on plants for habitats and Alternative 4 would have the least.

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### Threatened and Endangered Plants

The action alternatives would not affect any known threatened, endangered, proposed or candidate plant species because none occur on the Tongass.

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### Sensitive Plants

No Alaska Region Sensitive plants are known to occur in the project area, but three are suspected to occur. Alaska rein orchid (*Platanthera unalascensis*) occurs in open forest, riparian areas, and bogs; lesser round-leaved orchid (*Platanthera orbiculata*) occurs in young growth forest, forest edge and bogs; and mountain lady's slipper (*Cypripedium montanum*) occurs in open forest, forest edge, wet meadows, and bogs.

Proposed timber harvest and road maintenance and temporary road construction could directly affect plants through crushing, burial, or uprooting. Activities could also directly and indirectly affect habitat through soil disturbance and altered light and hydrologic regimes. Additionally, increased traffic in the project area could impact habitat or introduce invasive species that outcompete Sensitive species.

While the action alternatives could impact Alaska Region Sensitive plants or habitat, no plants were found during surveys conducted throughout the project area. For all three suspected Sensitive species, the project "may affect individuals but is not likely to result in a loss of viability in the planning area." Young growth vegetation is considered low probability habitat for Alaska rein orchid or mountain lady's slipper. In contrast, lesser round-leaved orchid has been found in young-growth forest on Prince of Wales and Revillagigedo Islands. Probable habitat occurs within all action alternatives; however, the likelihood of occurrence is low given that the northernmost population is found on Wrangell Island. The low probability of occurrence combined with non-forested and woodland habitat present in non-development Land Use Designations leads to the 'may affect' determination.

Cumulative effects may occur in the project area as a result of increased recreational and subsistence use due to road maintenance and improved wildlife habitat associated with the action alternatives. The increased use would be dispersed and therefore represents a low risk to individual Alaska Region Sensitive plants or habitat.

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### Rare Plants

Pacific bristly-stalked sedge (*Carex leptalea* ssp. *pacifica*) occurs in the project area outside the harvest units in open canopy forested wetland. The preferred habitat for Pacific bristly-stalked sedge is bogs, wet meadows, and subalpine often in calcareous areas. Inland sedge (*Carex interior*) occurs along a stream within a riparian management area buffer. The preferred habitat for inland sedge is wet meadows and fens.

Other activities in the project area, such as fish habitat restoration, culvert maintenance or thinning could also affect rare plants through crushing, uprooting or burial. Units were not intensively surveyed, so it is possible rare plants could be impacted but the likelihood of their presence is low because proposed activities would not occur in preferred habitat for either species. Overall, the risk to the two rare plant species known in the project area is low due to Forest Plan Standards and Guidelines that protect probable habitat and the low likelihood of disturbance activities (harvest and roads) occurring in known habitat. While the consequences of adverse impacts are considered moderate due to the disjunct populations found in the project area and barriers to gene flow/dispersal, the likelihood of adverse effects is low. Potential indirect effects related to altered hydrology or light would be small in area, and habitat is



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largely undisturbed. The known rare plant populations found during surveys conducted in the project area will not be impacted. The likelihood of adverse impacts to unknown populations of either species is low because they are typically found in wetland and riparian habitat less likely to support harvestable timber or road construction. Additionally, habitat is protected by riparian management area no-harvest stream buffers.

Future cumulative effects may occur in the project area as a result of increased recreational and subsistence use due to road maintenance performed by timber purchasers. The increased use would be dispersed and therefore represents a low risk to rare plant individuals or habitat.

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## **Forest Vegetation including Young Growth Timber Supply**

The analysis area for direct, indirect, and cumulative effects on forest vegetation including young growth is the project area. Forest vegetation was sampled during the summer of 2012 and 2017. Sample point data collected from young-growth stands were compiled and averaged, and stand attributes were projected to 2024 using the Tongass calibrated growth and yield model known as the Forest Planning and Projection System database (FPS).

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### ***Environmental Consequences of No Action to Forest Vegetation and Young-Growth Timber Supply***

Under the no action alternative, there would be no direct effects to forest vegetation and stand development. Homogenous forests of even-aged stem exclusion to understory-re-initiation stand structure would persist across the project area. These stands would continue to grow and progress through stand development stages for the next 40 to 90 years (see [Figure 6](#)). The time it takes for these stands to move through this process is contingent on a number of factors like species composition, site index, natural events, and past treatments.

A supply of young-growth timber would not be provided from the project area at this critical time during the Tongass' transition to a predominantly young-growth management program. Consistent with Forest Plan goals and objectives for the lands in the project, it is assumed these stands would be re-considered for harvest at some point in the future.

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### ***Environmental Consequences of the Action Alternatives to Forest Vegetation and Young-Growth Timber Supply***

Using even-aged management, Alternative 2 would produce the greatest volume of timber for the Tongass transition to young growth timber harvest. Regenerated stands would meet Forest Plan LUD objectives and minimize concern for insect and disease issues that could detrimentally affect future timber production. Windthrow risk would be greatest along edges created from harvest openings.

Due to the time it takes harvested areas to regrow and mature, modeling indicates Alternative 2 could result in a future deficiency of mature, commercially available young growth after 2063, likely interrupting the potential for a consistent flow of volume from the project area after that time (see the section [Environmental Consequences of all Alternatives to Future Young-growth Harvest](#) below for more information).

Two-aged and uneven-aged management under Alternatives 3 and 4 would produce less volume for harvest in the short term but would allow for a more consistent supply of volume for future harvest after 2053. All the alternatives would provide for more diverse stand structure across the landscape over time.

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## **Alternative 2**

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### ***Even-aged Management***

Forest vegetation within harvested areas would be directly affected by 841 acres of even-aged management using clearcutting which would result in stand development changing from a



## Thomas Bay Young-Growth Timber Sale



transition to understory re-initiation back to stand initiation (USDA Forest Service 2016<sup>23</sup>, p. 3-192).

Clearcutting would increase sunlight to the forest floor and result in the establishment of new trees, shrubs, forbs, and other vegetation. Tree species composition post-harvest is expected to be similar to the existing condition as there is a viable seed source surrounding the stand, as well as a seed bank in the soil (USDA Forest Service 2016, pp. 3-337 and 3-338). Conifer establishment within 5 years of harvest is expected to meet restocking requirements (USDA Forest Service 2016).

The proposed harvest in Alternative 2 allows for openings up to 100 acres. Alternative 2 is designed for smaller openings for those stands where the original harvest exceeded 100 acres to meet NFMA requirements; however, proposed units were designed to be as large as possible given this constraint with leave strips at least 10 acres in size between openings and of composition to be managed as separate stands. Harvest adjacent to the proposed openings cannot occur until regeneration from the first harvest has reached about 5 feet tall, attaining an adequately stocked condition. For stands in the project area, that stocking level is estimated to be reached at about 10 years post-harvest. The proposed harvest under Alternative 2 would occur on approximately 29 percent of the project area's young growth. This harvest would result in new younger age-class stands within areas of contiguous older, similar aged young growth.

New trees are expected to grow at current site potential. Similar to the existing condition, trees are expected to be vigorous and mostly insect and disease free. Trunk wounding and root damage can occur along harvest edges but would be minimal compared to other harvest methods. The abundance and diversity of understory vegetation would increase for about 15 to 20 years before trees occupy most of the growing space. To maintain and promote understory vegetation, precommercial thinning would be planned approximately 20 to 30 years after harvest.

Indirectly, unharvested young-growth areas, riparian area buffers, and areas of lower productivity would continue to develop while benefitting from increased growing space and increases in sunlight from the adjacent harvested areas. The increased chance of windthrow in adjacent unharvested areas is also a potential indirect effect from proposed harvest.

However, with the relatively flat topography in the project area and improved windfirmness from past precommercial thinning, potential windthrow would be limited to a half tree length into the adjacent unharvested areas.

The proposed activities, in combination with other activities throughout the project area along existing roads, such as the implementation of free-use timber permits and firewood cutting, would not increase cumulative effects to a level of concern due to the characteristics and limited scale of these activities. Precommercial thinning of young-growth stands in riparian areas to improve riparian area function and wildlife habitat, already approved under separate environmental analysis decisions, would improve understory conditions on about 70 to 100 acres over the next 10 years.

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<sup>23</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-769e. USDA Forest Service, Alaska Region, Juneau.



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## Alternatives 3 and 4

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### *Two-aged Management*

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Forest vegetation would be directly affected by harvesting roughly 519 acres from approximately 1,158 total stand acres under Alternative 3. In Alternative 4, roughly 162 acres would be harvested from approximately 631 total stand acres. Two-aged management would be implemented using the patch clearcut regeneration method. The smaller openings created by patch clearcuts under two-aged management would follow a similar pattern of stand development as the larger clearcuts in Alternative 2. The openings would be large enough to promote abundant understory and natural regeneration of all tree species.

Two-aged management is designed to produce timber products while maintaining better wildlife connectivity and increasing the distribution of early seral vegetation over the landscape compared to even-aged management proposed in Alternative 2.

Two-aged management results in stands with two distinct cohorts, separated in age by more than 20 percent of the stand rotation age (approximately 60 years). This stand structure results naturally when stands are replaced after two distinct disturbance events. 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. Harvest openings would be located to balance wildlife connectivity and distribution of early seral habitat while creating an economical sale opportunity. Openings must also be planned so opportunities for the next harvest entry are not forfeited. The retention level prescribed is area-based. Harvesting would occur on up to 50 percent of the stand area in Alternative 3 and up to 25 percent in Alternative 4. Patch clearcuts would be limited to 30 acres in size in Alternative 3 and 10 acres in size in Alternative 4. To the extent feasible, patches would be located so the residual stand is not isolated from harvest in the future. A second entry in roughly 30 years could harvest the remaining stand area. The second entry would be timed assuming PCT occurred in the first age classes about 20 to 30 years after harvest. This would be followed by a 10-year rest period that allows for the slash from treatment to decompose to a point that it no longer inhibits wildlife movement.

Patch clearcutting under two-aged management would offer similar control of insects and diseases as even-aged management. Windthrow risk, however, would increase over even-aged due to the additional edge.

Indirectly, unharvested young-growth areas, including areas around streams and areas of lower productivity would continue to develop while benefitting from increased growing space and increased sunlight but to a lesser extent than the areas adjacent to even-aged management. The risk of windthrow would also increase in adjacent unharvested areas, but to a lesser extent than those areas adjacent to even-aged management.

Similar to even-aged management, cumulative effects are not anticipated with the implementation of two-aged management in Alternatives 3 and 4.

### *Uneven-aged Management*

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Forest vegetation would be directly affected by roughly 42 acres of harvest from approximately 132 total stand acres under Alternative 3 and roughly 189 acres from approximately 659 total stand acres under Alternative 4. This harvest would leave up to two-thirds of the acres in the stand untreated. The second entry would occur about 20 years after, similarly harvesting another third of the stand. A third entry would occur 40 years in the future. Harvest areas would be evenly distributed across the stand. Group selections would be designed so openings are 2 acres or less and connected by trails about 60 feet wide. This treatment would promote multi-aged, multi-layered stand structure with abundant understory in





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harvest openings (USDA Forest Service 2016<sup>24</sup>, p. 3-336). Trees retained following harvest are expected to respond to the additional growing space with increased diameter growth rates and increased branch and crown development (Altman and Hagar 2007<sup>25</sup>). Regeneration of new trees will occur, but growth rates are expected to be less than site potential due to competition with remaining overstory trees.

Indirectly, unharvested young-growth areas would continue to develop while benefitting from increased growing space and increases in sunlight but to a lesser extent than the areas adjacent to even-aged management. The risk of windthrow would also increase in adjacent unharvested areas but to a lesser extent than those areas adjacent to even-aged management.

Similar to even-aged and two-aged management, cumulative effects are not anticipated with the implementation of uneven-aged management in Alternatives 3 and 4.

## ***Environmental Consequences of all Alternatives to Future Young-growth Harvest***

The information below shows how much young-growth harvest would be suitable and feasible in the project area until 2093. [Table 3](#) depicts the young-growth projections under the no-action alternative, Alternative 1. Table 4 and Figure 7 compare the projected, available young growth under each of the action alternatives. This projection assumes that if an action alternative in this Thomas Bay project is selected, that same style of management would be applied in the future across all NFS young growth in the project area. Volumes are based on projections from the Forest Planning and Projection System database model. All alternatives have harvests scheduled to initially occur when the merchantability objectives of roughly 20 MBF per acre are reached by the beginning of that decade.

The acres reported below are based on currently known suitable and feasible acres. Deferred stands in Alternatives 3 and 4 (Units 16 and 19) are assumed available for future harvest. Areas deferred in the first decade, due to opening size restrictions associated with proposed even-aged harvest in Alternative 2, would not be available for at least a decade to allow the harvested stands to reach stocking requirements. Alternative 3 and 4 defer reentry into uneven-aged and two-aged stands 20 and 30 years out, respectively. Acreages shown are the total proposed for harvest. Where two-aged management is proposed, the stand average volume per acre is halved to represent that about half of the stand total acres are being harvested in that entry. Where uneven-aged management is proposed, the stand average volume used is one-third to represent since about one-third of the stand will be harvested in that entry. Maps showing the potential future harvest stands, and the timing of those harvests, are included in the project record.

**Table 3. Projected young-growth volume by decade for the no action alternative. Young growth included is suitable and feasible<sup>1</sup> and would meet current merchantability objectives.**

| Decade    | Suitable and Feasible Acres | Projected Volume (MMBF) |
|-----------|-----------------------------|-------------------------|
| 2024-2033 | 1,248                       | 29.2                    |
| 2034-2043 | 1,248                       | 38.3                    |
| 2044-2053 | 1,278                       | 53.6                    |
| 2054-2063 | 1,433                       | 67.8                    |

<sup>24</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-769e. USDA Forest Service, Alaska Region, Juneau.

<sup>25</sup> Altman, Bob, and Hagar, Joan, 2007, Rainforest Birds: A Land Manager's Guide to Breeding Bird Habitat in Young Conifer Forests in the Pacific Northwest, U.S. Geological Survey, Scientific Investigations Report 2006-5304, 60 pp.



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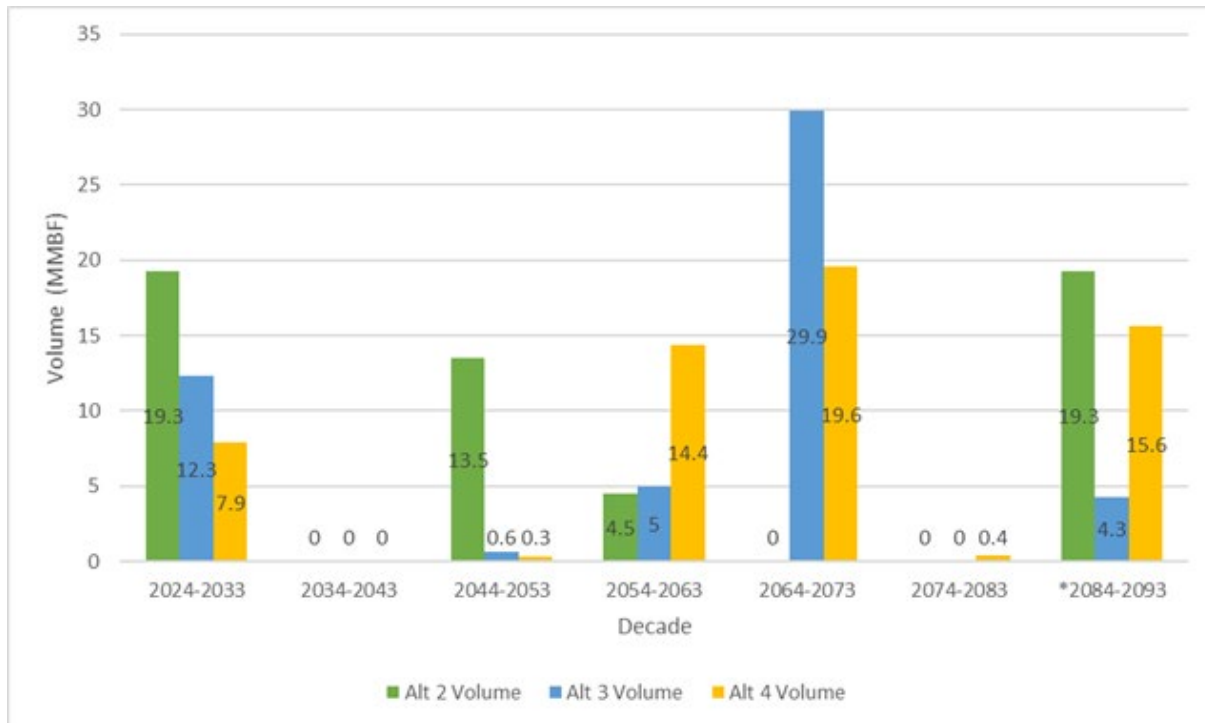
| Decade    | Suitable and Feasible Acres | Projected Volume (MMBF) |
|-----------|-----------------------------|-------------------------|
| 2064-2073 | 1,433                       | 73.8                    |
| 2074-2083 | 1,433                       | 79.5                    |
| 2084-2093 | 1,433                       | 83.4                    |

<sup>1</sup> Young-growth stands in the project area occur on lands both suitable and unsuitable for commercial timber harvest. Appendix A of the Forest Plan describes the process used to identify suitable forest land. Suitable timber lands are those productive forest lands within the Forest Plan-assigned LUDs that allow timber harvest. Other lands are removed from the suitable timber base due to other constraints. Also, some suitable young-growth stands are physically isolated due to riparian area protection measures or no feasible road access. The estimated suitable and feasible acres are expected to change in the future with further field verification and resource surveys occur or with a Forest Plan Revision.

**Table 4. Projected young-growth volume by decade and alternative. Young growth included is suitable and feasible under the current Forest Plan.**

| Decade       | Alternative 2 |               | Alternative 3 |               | Alternative 4 |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
|              | Acres         | Volume (MMBF) | Acres         | Volume (MMBF) | Acres         | Volume (MMBF) |
| 2024-2033    | 841           | 19.3          | 561           | 12.6          | 351           | 7.9           |
| 2034-2043    | 0             | 0.0           | 0             | 0.0           | 0             | 0.0           |
| 2044-2053    | 434           | 13.5          | 13            | 0.6           | 7             | 0.3           |
| 2054-2063    | 158           | 4.5           | 122           | 5.0           | 285           | 14.4          |
| 2064-2073    | 0             | 0.0           | 582           | 29.9          | 390           | 19.6          |
| 2074-2083    | 0             | 0.0           | 0             | 0.0           | 7             | 0.4           |
| *2084-2093   | 841           | 19.3          | 73            | 4.3           | 261           | 15.6          |
| <b>Total</b> | <b>2,274</b>  | <b>56.6</b>   | <b>1,351</b>  | <b>52.1</b>   | <b>1,300</b>  | <b>58.2</b>   |

\* Indicates the beginning of the third rotation for stands harvested using even-aged management



**Figure 7. Projected young-growth volume by decade and alternative. Young growth included is suitable and feasible and would meet current merchantability objectives.**

## Invasive Plants

The completed invasive plant risk assessment is filed in the project record. Because Thomas Bay is nearly weed-free, it is a high priority to prevent introduction and establishment of invasive species.

The Forest Service has documented one invasive species within the project area based on surveys conducted between 1996 to 2022. The species, *Phalaris arundinaceae* (reed canarygrass), is ranked as extremely invasive based on ecosystem impacts, dispersal ability, distribution, and feasibility of control (Carlson et.al 2008<sup>26</sup>). The infestation of 10 plants was found on the edge of a proposed timber harvest unit (Unit 13) along NFS road 6252. It was manually treated (hand pulled) in 2022.

## Environmental Consequences of No Action

The no action alternative would have no direct, indirect, or cumulative effects on invasive species establishment or spread, because no new ground would be disturbed, and current vehicle and foot traffic trends would not be altered.

## Environmental Consequences of the Action Alternatives

Timber harvest, temporary road construction and increased traffic in the project area have the potential to introduce and spread invasive species. However, since the Forest Service 1.) is actively controlling and

<sup>26</sup> Carlson M. L., I. V. Lapina, M. Shephard, J. S. Conn, R. Densmore, P. Spencer, J. Heys, J. Riley, J. Nielsen. 2008. Invasiveness Ranking System for Non-Native Plants of Alaska. R10-TP-143. USDA Forest Service. Alaska Region. 220p.



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monitoring the singular known infestation (minimizing the risk of its spread along the haul route and into natural settings), 2.) is planning to decommission temporary roads after project activities, and 3.) has access to weed free rock pits for road construction and reconstruction material, the overall risk of introducing or spreading invasive plants with the implementation of any action alternative is low with implementation of project design features.

Cumulative effects may occur in the project area as a result of increased recreational and subsistence use due to road maintenance and improved wildlife habitat associated with the proposed actions. Increased traffic increases the likelihood of introduction of invasive species; however, the dispersed use represents a low risk.

For more details on how weed prevention and presence in the project area is addressed see the [design features](#) included in all action alternatives.

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## Soils

The analysis area for direct, indirect, and cumulative effects on soil resources is the activity area (the 13 proposed harvest units).

Very little wetland is present in the project area or in any of the proposed units or proposed road locations.

Detrimental soil conditions are found in all proposed units from past road and yarding activities. Existing detrimental soil conditions currently range from just under 5 percent to just under 9 percent. All units currently meet Alaska Region Soil Quality Standards (R10 SQS, FSM 2550) which require that soils are maintained in a condition of acceptable productivity in 85 percent of the activity area.

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## *Environmental Consequences of No Action*

The no action alternative would have no effect to soils. Direct, indirect, and cumulative effects to soils are assessed at the activity area, and include past, proposed, and future activities. All units are expected to meet Alaska Region Soil Quality Standards. Detrimental soil conditions would be the same as the existing detrimental soil conditions noted above for direct, indirect, and cumulative effects.

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## *Environmental Consequences of the Action Alternatives*

Shovel yarding on slopes less than 35 percent gradient (Landwehr 2014<sup>27</sup>) typically cause less than 3 percent detrimental soil conditions. An estimated detrimental soil conditions following harvest would range from about 6 percent to just over 11 percent; therefore, all units are expected to meet Alaska Region Soil Quality Standards under all action alternatives if the proposed activities are completed following direction outlined in unit cards, Alaska Region Best management Practices (BMPs, FSH 2509.22), and the National Core BMPs (USDA Forest Service 2012<sup>28</sup>).

Alternatives 3 and 4 generally should result in lower estimated detrimental soil conditions than Alternative 2 because these alternatives harvest fewer acres overall. However, Alternatives 3 and 4 may have a higher than estimated rate of detrimental soil conditions due the creation of small openings within a larger activity area due to the reasons listed below.

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<sup>27</sup> Landwehr, D.J. 2014. Soil Quality on the Tongass National Forest. Use of ground-based Equipment on Slopes over 30 Percent Gradient. November 2014. Unpublished Report.

<sup>28</sup> USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. FS-990. April 12.





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1. These openings and yarding corridors do not align with existing skid trail network, limiting opportunity to minimize impacts to soils.
2. These small openings do not generate much slash. Slash is necessary for equipment operation that minimizes impacts to soils with the use of slash for punchon trails. A single pass without slash can cause rutting deep enough to divert groundwater or even stream flow. Adequately protecting soils during ground-based harvest operations is critical for long-term soil productivity.

Regardless, all units are still expected to meet Alaska Region Soil Quality Standards, even with the risk of higher than anticipated rates of detrimental soil conditions in Alternatives 3 and 4.

All action alternatives would have minor cumulative effects to soils within the proposed harvest units. The proposed harvest, combined with effects from the previous harvest would meet Region 10 Soil Quality Standards and soil productivity would be maintained.

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## Timber Economics

Interest in commercial young-growth volume from Southeast Alaska operators and recent young-growth timber sales indicate a growing demand for young-growth timber from the Tongass National Forest<sup>29</sup>. The intent of this project is to provide young-growth volume to aid in the transition away from old growth harvest and further opportunities that familiarize industry with the logging and milling of young-growth timber. The Forest Service plans to continue offering young-growth sales and contracts that range in size to allow purchasers with different capabilities to capitalize on a variety of opportunities.

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### *Economic Consequences of No Action*

The no action alternative would not provide an opportunity to supply young-growth wood fiber to the market and local operators or support the transition from a predominantly old-growth timber industry to one that is predominately young-growth based. Additionally, local economic benefits (employment and revenue) and the opportunity for industry to develop new skills and increase local knowledge of harvesting and manufacturing young-growth timber would be missed.

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### *Economic Consequences of the Action Alternatives*

Each action alternative is responsive to the need to manage the timber resource for production of sawtimber and other wood products from suitable lands made available for timber harvest. By meeting this need, each alternative has the potential to support timber industry employment and benefit local and regional economies. The extent to which each alternative meets this need is correlated directly to the total volume of timber harvest for that alternative. Under current conditions, Alternative 2 has the greatest potential to provide wood products in an economically efficient manner.

Changes in regional and global timber markets and other factors, such as fuel costs, can dramatically affect stumpage values and logging costs at the time of implementation and harvest. Conditions at the time of implementation are uncertain and the full economic benefits estimated for a given alternative may not be realized under more challenging conditions. Conversely, the recent passage of Alaska Senate Bill 87 establishing a local use lumber program may increase demand and selling price of locally milled young growth lumber, resulting in more favorable conditions. [Table 5](#) shows a summary of the units of measure used in the timber economic analysis with a range of values shown from 100 percent domestic

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<sup>29</sup> USDA Forest Service, Alaska Region, Forest Management Reports and Accomplishments webpage - [https://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2\\_038785](https://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785) (accessed July 17, 2023).



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processing to 100 percent export. Although each action alternative does incur temporary road costs, there would be no National Forest System Road (specified road) costs for any of the alternatives.

For all action alternatives, the volume offered for sale would be based on a statistically accurate cruise. At this time, it is not known how many sales would be offered for this project. The cruised volume may be offered as one sale or several small sales. To compare economic impacts among alternatives, the Forest Service completed a financial efficiency analysis using the Financial Analysis Spreadsheet Tool Residual Value (FASTR). FASTR was designed to:

1. Meet the minimum requirements for Gate 2 efficiency analyses.
2. Require minimum data input and training.
3. Be maintained locally.
4. Parallel the Region 10 RV appraisal process.

FASTR uses “preliminary” data to provide options at Gate 1 (preliminary project analysis) or a relative comparison of anticipated project costs and revenues by alternative at Gate 2 (NEPA analysis). Indicators include projected Tongass timber program administration costs, total local timber industry jobs, direct income and the indicated advertised value.

FASTR analyzes two scenarios that represent two extremes in utilization of harvested materials, one assumes 100 percent export and the other 100 percent domestic processing for all volume. These modeled scenarios do not commit or represent a commitment by the Forest Service that only one sale would be offered. Although multiple small sales may be offered during implementation, the FASTR analysis represents two contrasting possibilities to demonstrate a range of possible outcomes for the purpose of comparing alternatives. For both modelled scenarios, Klawock, Alaska on Prince of Wales Island was used as the destination because this is the closest mill and export point that can handle the total project volume for all alternatives (FSH 2409.18 45.11). There are no mills connected to the project area on the Thomas Bay road system.

Recent [mill surveys](#), federal [Wood Innovation Grant awards](#), and recent bids on Tongass National Forest timber sales demonstrate that multiple local producers are interested in purchasing young growth sales but may lack the capacity to process the total volume associated with the alternatives at this time (USDA Forest Service 2022<sup>30</sup>). Supply needs of local mills will be considered during the implementation phase when decisions are made about the number and size of sales offered, considering economic conditions at that time.

## Volume and Financial Efficiency

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[Table 5](#) provides a summary of proposed harvest volume and associated costs for each alternative. Note that although the values for maximum domestic Alaska manufacturing are negative, FASTR results are intended to provide a comparison of alternatives and are not intended to represent the full range of sale options for the project area. Timber sale contracts that do not appraise positive during implementation cannot be offered. However, vegetation management to promote healthy forest stands may be accomplished using alternative management authorities.

### Alternative 2

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The estimated net sawlog volume from Alternative 2 is 15.4 million board feet (MMBF) of Sitka spruce and 3.9 MMBF of hemlock for a total of approximately 19.3 MMBF. The resulting financial efficiency analysis resulted in negative value of \$23.32/thousand board feet (MBF) for domestic processing and a

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<sup>30</sup> USDA Forest Service. 2022. Tongass National Forest: Sawmill Capacity and Production Report. Alaska Region. [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd1056341.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1056341.pdf)



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positive value of \$65.11/MBF for export when analyzed as a single sale. Temporary road costs would be the same, \$420,932, for either domestic processing or export ([Table 5](#)).

## Alternative 3

The estimated net sawlog volume from Alternative 3 is 10.1 MMBF of Sitka spruce and 2.5 MMBF of hemlock for a total of approximately 12.6 MMBF. The resulting financial efficiency analysis resulted in negative value of \$40.86/MBF for domestic processing and a positive value of \$47.57/MBF for export when analyzed as a single sale. There would be no National Forest System Road (specified road) costs. Temporary road costs would be the same, \$455,050, for either domestic processing or export ([Table 5](#)).

## Alternative 4

The estimated net sawlog volume from Alternative 4 is 6.3 MMBF of Sitka spruce and 1.6 MMBF of hemlock for a total of approximately 7.9 MMBF. The resulting financial efficiency analysis resulted in negative value of \$63.31/MBF for domestic processing and a positive value of \$25.12/MBF for export when analyzed as a single sale. There would be no National Forest System Road (specified road) costs. Temporary road costs would be the same, \$426,493, for either domestic processing or export ([Table 5](#)).

**Table 5. Summary of proposed harvest volume and associated costs**

|                                                      | Alt 1 | Alt 2       | Alt 3       | Alt 4       |
|------------------------------------------------------|-------|-------------|-------------|-------------|
| <b>Volume - Sawlog<br/>(net MMBF)</b>                |       |             |             |             |
| Sitka Spruce                                         | 0     | 15.4        | 10.1        | 6.3         |
| Western Hemlock                                      | 0     | 3.9         | 2.5         | 1.6         |
| Total Sawlog Volume (net MMBF)                       | 0     | 19.3        | 12.6        | 7.9         |
| <b>COSTS</b>                                         |       |             |             |             |
| <b>Maximum<br/>Domestic Alaska<br/>Manufacturing</b> |       |             |             |             |
| Pond Log Value \$/MBF                                | \$0   | \$400.04    | \$400.04    | \$400.04    |
| Stump to Mill Cost \$/MBF                            | \$0   | \$328.16    | \$345.70    | \$368.15    |
| Manufacturing Costs                                  | \$0   | \$255.19    | \$255.19    | \$255.19    |
| Indicated Value <sup>1</sup>                         | \$0   | (\$450,026) | (\$514,146) | (\$500,501) |
| Indicated Rate \$/MBF <sup>1</sup>                   | \$0   | (\$23.32)   | (\$40.86)   | (\$63.31)   |
| <b>100% Export</b>                                   |       |             |             |             |
| Pond Log Value \$/MBF                                | \$0   | \$476.37    | \$476.37    | \$476.37    |
| Stump to Mill Cost \$/MBF                            | \$0   | \$328.16    | \$345.70    | \$368.15    |
| Manufacturing Costs                                  | \$0   | \$95.57     | \$95.57     | \$95.57     |
| Indicated Value 1                                    | \$0   | \$1,256,545 | \$598,476   | \$198,578   |
| Indicated Rate \$/MBF <sup>1</sup>                   | \$0   | \$65.11     | \$47.57     | \$25.12     |
| <b>Temporary Road<br/>Costs</b>                      |       |             |             |             |
| Total Temporary Roads Costs                          | \$0   | \$420,932   | \$455,050   | \$426,493   |
| Road Costs/MBF                                       | \$0   | \$21.81     | \$36.17     | \$53.95     |



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|                                        | Alt 1 | Alt 2     | Alt 3     | Alt 4     |
|----------------------------------------|-------|-----------|-----------|-----------|
| Comparison<br>Indicated Rate<br>\$/MBF |       |           |           |           |
| Maximum Domestic AK<br>Manufacturing   | \$0   | (\$23.32) | (\$40.86) | (\$63.31) |
| 100% Export                            | \$0   | \$65.11   | \$47.57   | \$25.12   |

Source: Official 2022Q3 R10 FASTR v11/10/22

<sup>1</sup> ( ) indicates negative value

## Projected Employment and Income

All action alternatives have positive effects on employment and income. Table 6 shows the FASTR estimates to compare logging, wood products manufacturing, and transportation employment and income generated by the project, using the sideboards of 100 percent export and 100 percent domestic manufacturing to compare alternatives. Employment and income estimates for logging and transportation would be the same for both domestic and export scenarios. Differences arise because export does not include jobs in wood product manufacturing facilities and does include services such as stevedoring and marine handling (Daniels 2019<sup>31</sup>). Estimates indicate between 39 and 94 annualized jobs related to domestic processing could be supported and an estimated 26 and 64 jobs supported if the volume is exported. Direct income from employment is estimated between \$2.1 million and \$5.0 million if the sale is domestically processed or between \$1.7 million and \$4.1 million for export.

Alternative 1 would not support timber-related jobs since no timber would be sold. Alternative 2 would generate the most employment and income overall, followed by Alternatives 3 and 4, respectively. For all action alternatives the domestic processing scenario estimates for employment and income are greater than the 100 percent export scenario. Because the FASTR model solely estimates employment and income for the timber industry, results likely underestimate the total economic impacts of the project because employment related to other resource activities are not accounted for in the model. The action alternatives would have indirect positive impacts to the economies of the local communities with the purchase of goods and services. Indirect effects were not estimated since they can be inaccurate and misleading for a project of this size (Robertson 2003<sup>32</sup>).

**Table 6. Estimated Project Employment and Income**

|                                                          | Alt 1        | Alt 2                          |                | Alt 3                          |                | Alt 4                          |                |
|----------------------------------------------------------|--------------|--------------------------------|----------------|--------------------------------|----------------|--------------------------------|----------------|
| Projected local<br>employment<br>and income <sup>1</sup> | No<br>Action | 100%<br>domestic<br>processing | 100%<br>export | 100%<br>domestic<br>processing | 100%<br>export | 100%<br>domestic<br>processing | 100%<br>export |
| SE Alaska jobs<br>in logging                             | 0            | 44.4                           | 44.4           | 28.9                           | 28.9           | 18.2                           | 18.2           |
| SE Alaska jobs<br>in sawmilling                          | 0            | 38.6                           | 0.0            | 25.2                           | 0.0            | 15.8                           | 0.0            |

<sup>31</sup> Daniels, J.M. 2019. Memo. Employment coefficients and direct income for Southeast Alaska timber industry updated for CY 2017.

<sup>32</sup> Robertson, G.C. 2003. A Test of the Economic Base Hypothesis in the Small Forest Communities of Southeast Alaska.





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|                                                                                            | Alt 1     | Alt 2                    |                   | Alt 3                    |                   | Alt 4                    |                  |
|--------------------------------------------------------------------------------------------|-----------|--------------------------|-------------------|--------------------------|-------------------|--------------------------|------------------|
| Projected local employment and income <sup>1</sup>                                         | No Action | 100% domestic processing | 100% export       | 100% domestic processing | 100% export       | 100% domestic processing | 100% export      |
| SE Alaska jobs in transportation & other services related to Alaska domestic manufacturing | 0         | 11.4                     | 0.0               | 7.4                      | 0.0               | 4.7                      | 0.0              |
| SE Alaska jobs in transportation & other services related to export                        | 0         | 0.0                      | 19.9 <sup>2</sup> | 0.0                      | 13.0 <sup>2</sup> | 0.0                      | 8.1 <sup>2</sup> |
| Total Jobs                                                                                 | 0         | 94.4                     | 64.3              | 61.5                     | 41.9              | 38.7                     | 26.3             |
| Direct Income                                                                              | 0         | \$5,032,746              | \$4,063,314       | \$3,281,166              | \$2,649,131       | \$2,061,612              | \$1,664,494      |

Source: Official 2022Q3 R10 FASTER v11/10/22

<sup>1</sup> Number of annualized jobs. Annualized jobs are employment estimates adjusted to be based on a full year even though the employment may be seasonal. Employment estimates may not all occur in one year.

<sup>2</sup> Export scenario supports jobs in transportation and related services due to stevedores and water handling activities.

## Forest Service Administrative Costs

Based on budget information from the Alaska Region, the Forest Service administrative project costs would be approximately \$1.8 million for Alternative 2, \$1.2 million for Alternative 3 and \$0.7 million for Alternative 4, which includes sale preparation and sale administration. Sale preparation costs include unit layout, cruising, appraisal, and contract development. Sale administration consists of administering the timber sale contract from the time the sale is awarded until the sale is completed. The cost of environmental analysis to comply with NEPA is not considered.

## Wildlife Habitat

This section summarizes the effects of the proposed activities to wildlife including federally listed threatened and endangered species under the regulatory jurisdiction of the U.S. Fish and Wildlife Service or National Marine Fisheries Service, species designated as sensitive species by the Regional Forester of the Alaska Region of the Forest Service, Management Indicator Species (MIS) as designated by the Tongass National Forest, and migratory birds. Subsistence resources are discussed in the [next section](#). Deer and moose are important for subsistence uses in the project area. Effects to wildlife and subsistence resources are addressed in more detail in the Wildlife Report / Biological Evaluation for Wildlife / Subsistence Assessment.

Productive old-growth habitat would not be affected by any of the project alternatives.

Direct, indirect, and cumulative effects of proposed activities on wildlife habitat were analyzed spatially and temporally. Spatially, the analysis area is at the project area and Wildlife Analysis Area (WAA) scales. The project area is a localized area and where effects would be most felt by wildlife populations. It is small enough to characterize the current wildlife habitat conditions in the general area and within units proposed for treatment while not so large as to potentially dilute the analysis of effects. Forest Plan Standards and Guidelines for deer habitat capability and road density use the WAA and biogeographic scale, therefore, the WAA is used as the spatial scale to analyze those measures. The time period considered extends well into the future and includes the stand initiation phase (generally 25 years post-



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harvest; Alaback 1984<sup>33</sup>) and into the stem exclusion stage. Approximately 20 to 30 years after harvest, as the stands begin to enter the stem exclusion stage, future precommercial thinning could promote understory forage for an additional 7 to 10 years (Alaback 1984, Cole et al. 2010<sup>34</sup>, Crotteau et al. 2020<sup>35</sup>). Unless otherwise discussed, the analysis of effects to wildlife habitat considers short-term as 25 to 35 years post-harvest, and long-term extending past that point.

Effects to wildlife could occur from habitat change and disturbance as a result of project activities. Project activities would occur 1) in the young-growth units proposed for harvest, 2) along the roads used to access the units, rock pits and integrated resource opportunities, and to transport logs, 3) within nearby rock pits where rock is extracted for road maintenance and building temporary roads, 4) at the Thomas Bay log transfer facility where logs are stockpiled before loading onto barges, and 5) along marine haul routes used to transport logs to sawmills in Petersburg or other parts of Southeast Alaska.

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## **Existing Condition**

In the project area, fragmentation of the historic productive old-growth habitat mostly occurred over a 20-year period of clearcut timber harvest between 1954 and 1974. Compared to the historic condition, NFS lands in the project area currently retain 71 percent of their productive old growth (69 percent when considering all land ownerships). At the WAA scale, NFS lands in the project area currently retain 84 percent of their productive old growth (82 percent when considering all land ownerships).

After clearcut timber harvest on the Tongass, regeneration of a productive forest stand follows a relatively predictable successional trajectory, providing different wildlife habitat values over time (Figure 8; Bennetsen 2020<sup>36</sup>, Perra and Brinkman 2021<sup>37</sup>). While the overall trajectory is predictable, certain habitat characteristics, such as understory forage, can be promoted within the stand through intermediate treatments such as precommercial thinning.

The proposed young-growth harvest units are within a largely contiguous young-growth forest with trees of similar age. The current age of the young growth in the proposed units ranges from 55 to 65 years old. While these older young-growth stands do not have productive old-growth characteristics, they provide some wildlife habitat values due to past management activities such as initial, second, or third intermediate treatments (i.e., precommercial thinning and pruning) that have positively influenced stand development by moving stands from the stem exclusion stage toward the understory re-initiation stage

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<sup>33</sup> Alaback, P.B. 1984. Plant succession following logging in Sitka spruce-western hemlock forests of southeast Alaska: implications for management. USDA Forest Service. Pacific Northwest Forest and Range Experiment Station, Portland, OR: Gen. Tech. Rep. PNW-GTR-173. 26 pp.

<sup>34</sup> Cole, E.C., T.A. Hanley, and M. Newton. 2010. Influence of precommercial thinning on understory vegetation of young-growth Sitka spruce forests in southeastern Alaska. *Can. J. For. Res.* 40: 619-628.

<sup>35</sup> Crotteau, J.S., M.H. McClellan, T.L. De Santo, S.R. Spores, and J.C. Barnard. 2020. Sharing the load to develop young-growth silviculture for forage and biodiversity in southeast Alaska. In: L.S. Pile, R.L. Deal, D.C. Dey, D. Gwaze, J.M. Kabrick, B.J. Palik, and T.M. Schuler, comps. *The 2019 National Silviculture Workshop: a focus on forest management-research partnerships*. Gen. Tech. Rep. NRS-P-193. Madison, WI: U.S. Department of Agriculture, Forest Service, Northern Research Station: 170-192.

<sup>36</sup> Bennetsen, B. M. B. 2020. Tongass National Forest young-growth management guidelines for stands with a wildlife management objective. Exhibit 3 of the Tongass Young-Growth Management Strategy, USDA Forest Service, Tongass National Forest, Juneau, Alaska. 86 pp.  
[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd976594.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd976594.pdf)

<sup>37</sup> Perra, M., and T. Brinkman. 2021. Seeing science: using graphics to communicate research. *Ecosphere* 12(10): e03786. 10.1002/ecs2.3786.



Megan Perre, Todd Brinkman: University of Alaska Fairbanks, 2019

Figure 8. Infographic displays the typical successional trajectory, along with habitat values for wildlife such as deer in summer and winter, within a clearcut over time. Vertical bars indicate canopy cover and snow cover, and horizontal bars indicate forage availability and hunting quality (Bennetsen 2020, Perre and Brinkman 2021).



sooner. Although it is variable within any particular stand, two of the units have moderate to good understory (Units 14 and 18), nine have a moderate understory (Units 7, 13, 15, 16, 19, 20, 21, 22, and 712), and two have a limited understory (Units 12 and 32) (see [Figure 9](#) for examples of understory variability). The stands also have relatively large trees which provide some thermal cover (e.g., tree canopies which intercept snow), hiding cover (reduced visibility through the stands for predators and hunters), and some ground-level structure (deteriorating cull logs from the initial harvest and pockets of larger diameter slash from prior precommercial thinning, which provides some microhabitat features and hiding cover for small mammals and some birds).

While the young-growth units proposed for harvest contain relatively large trees, the stands are far from exhibiting old-growth conditions. The young-growth units lack the coarse canopy structure and large tree canopies with highly developed large branch structures that intercept the most snow, and the large snags and logs that are also integral components of productive old-growth habitats on the Tongass. As a result, the proposed stands for harvest provide minimal benefits to wildlife in severe winters.



**Figure 9. Photographs in proposed units showing variable amounts of understory forage, cover, and ground-level structure.**

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## ***Environmental Consequences of All Alternatives***

### **General Discussion**

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No known nests or dens would be affected since none are known to occur within units or close to project activities. The project design features include protective measures that would be applied if nests or dens are found.

Marine mammals are the only federally listed threatened or endangered wildlife species within the action area of the project. If marine access facilities and marine haul routes are used to transport logs, the project may affect, but is not likely to adversely affect the Mexico DPS humpback whale, fin whale, sperm whale, and Western DPS Stellar sea lion. Project design features have been developed to minimize the potential for effects to these species. While these measures would not eliminate the potential for vessel

strike, vessel-based disturbance, or effects of noise, any effects would be either too small to detect or measure, or extremely unlikely to occur.

By taking no action, the young-growth stands proposed for harvest would continue to develop toward the full understory re-initiation stage. These stands currently provide some forage, thermal and hiding cover, and ground-level structure. The no action alternative would retain these attributes and allow continued development in the stands proposed for harvest. Implementing an action alternative would disrupt the trajectory towards full understory re-initiation in 12 to 30 percent of the stands, however, it would create different stages of young-growth stand development that produce a short-term increase in forage availability (25 to 35 years) while still allowing for wildlife movement and some snow interception.

Under the action alternatives, it is assumed harvest would occur within 5 to 10 years as follows:

- Alternative 2 would revert 29.5 percent of the existing young growth in the project area on NFS land to the stand initiation stage ([Table 7](#)). It would create openings between 34 and 100 acres within 12 units.
- Alternative 3 would revert 19.7 percent of the existing young growth in the project area on NFS land to the stand initiation stage ([Table 7](#)). It would create openings up to 30 acres in 9 two-aged units (up to 50 percent of the unit area harvested), and openings up to 2 acres in 2 uneven-aged units (up to 33 percent of the unit area harvested in this project).
- Alternative 4 would revert 12.3 percent of the existing young growth in the project area on NFS land to the stand initiation stage ([Table 7](#)). It would create openings up to 10 acres in 6 two-aged units (up to 25 percent of the unit area harvested), and openings up to 2 acres in 5 uneven-aged units (up to 33 percent of the unit area harvested).

**Table 7. Short-term comparison of young-growth stand conditions within the project area by alternative**

|                                                                                                                                       | No Action | Alt 2 | Alt 3 | Alt 4 |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|-------|-------|
| Existing acres of young growth on all land ownerships                                                                                 | 3,478     | 3,478 | 3,478 | 3,478 |
| Existing acres of young growth on NFS land                                                                                            | 2,851     | 2,851 | 2,851 | 2,851 |
| Existing acres of young growth on NFS land within Development LUDs (suitable for harvest)                                             | 2,484     | 2,484 | 2,484 | 2,484 |
| Estimated acres of young growth that is suitable and feasible for harvest on NFS land                                                 | 1,433     | 1,433 | 1,433 | 1,433 |
| Estimated acres of young growth that is unsuitable or infeasible for harvest on NFS land                                              | 1,418     | 1,418 | 1,418 | 1,418 |
| Estimated percent of young growth that is unsuitable or infeasible for harvest on NFS land                                            | 49.7%     | 49.7% | 49.7% | 49.7% |
| Acres that would be harvested by alternative. In the short-term these acres would be in the stand initiation stage (NFS land)         | 0         | 841   | 561   | 351   |
| Percent of young growth that would be in the stand initiation stage after harvest in the short-term (NFS land)                        | 0%        | 29.5% | 19.7% | 12.3% |
| Percent of young growth that would be in the stand initiation stage after harvest in the short-term (all land ownerships)             | 0%        | 24.2% | 16.1% | 10.1% |
| Acres of young growth that would remain unharvested and would remain trending to understory re-initiation stage (all land ownerships) | 3,478     | 2,637 | 2,921 | 3,150 |
| Acres of young growth that would remain trending to understory re-initiation stage <sup>1</sup> on NFS land                           | 2,851     | 2,010 | 2,294 | 2,523 |
| Estimated acres of young growth on NFS land that would be feasible and suitable for future harvest                                    | 1,433     | 592   | 872   | 1,082 |





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|                                                                                                                                                             | No Action | Alt 2 | Alt 3 | Alt 4 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|-------|-------|
| Estimated percent of young growth on NFS land that would remain trending to understory re-initiation stage that is feasible and suitable for future harvest | 100%      | 41.3% | 60.9% | 75.5% |

<sup>1</sup> See Figure 6

In openings created by harvest under the action alternatives, young-growth stand structure would be set back to the stand initiation stage which would result in:

- The biomass of understory vegetation would increase within three growing seasons (Alaback 1984<sup>38</sup>) and persist for 25 to 35 years (Alaback 1984, Hanley et al. 1989<sup>39</sup>). This would provide more forage in the short-term for deer, moose, bears, and some species of small mammals and birds during periods with no snow and during mild winters. Non-winter forage availability is important for deer reproduction and population recovery following severe winters and for building up pre-winter body reserves.
- Thermal cover provided by existing overstory trees would be removed and the increased forage would be more limited or unavailable to wildlife during severe winters with long durations of accumulated snow.
- Hiding cover would be removed, improving the visibility for predators and hunters. Low-level hiding cover for small mammals and birds would improve within approximately 3 years after dense shrubs proliferate. After approximately 10 years, dense conifers in the openings would overtop dense brush, and hiding cover would become abundant for large mammals, such as deer and moose, as the visibility through the young stands would substantially diminish.
- The ground-level structure would likely be reduced in openings and yarding corridors. For instance, heavy equipment would likely crush and scatter large deteriorating logs from the original harvest. Young-growth harvest would not leave as much larger diameter cull material as the original old-growth harvest. Ground-level structure can be important as thermal and hiding cover for small mammals and birds. If the structure on the ground is dense, however, it can also impede understory vegetation growth.

While harvest of young-growth stands would affect certain wildlife due to temporary alteration of habitat attributes (understory biomass, thermal cover, hiding cover, and ground level structure), these changes would occur within a relatively small percentage of the existing young growth stands in the project area (12 to 30 percent on NFS lands, and 10 to 24 percent when considering all land ownerships) ([Table 7](#)). The action alternatives would leave the remaining 70 to 88 percent of the young growth on NFS lands in the project area unharvested under this project. Additionally productive old growth in nearby non-development LUDs, including Old Growth Reserves, would remain, as well as old growth within riparian corridors. In summary, the action alternatives would provide a more heterogenous mix of young growth at varying stages of development across the project area and WAA. The resulting landscape would allow for wildlife movement (connectivity), more understory forage in the short-term, and nearby stands with tree canopies which would continue to provide for some snow interception. The resulting changes in habitat

<sup>38</sup> Alaback, P.B. 1984. Plant succession following logging in Sitka spruce-western hemlock forests of southeast Alaska: implications for management. USDA Forest Service. Pacific Northwest Forest and Range Experiment Station, Portland, OR: Gen. Tech. Rep. PNW-GTR-173. 26 pp.

<sup>39</sup> Hanley, T.A., C.T. Robbins, and D.E. Spalinger. 1989. Forest habitats and the nutritional ecology of Sitka black-tailed deer: a research synthesis with implications for forest management. Gen. Tech. Rep. PNW-GTR-230. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 52 pp.



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attributes within smaller openings created by Alternative 3, and especially Alternative 4, would be more beneficial than Alternative 2. Because openings would be smaller, Alternative 4 would also mitigate against the effects of severe winters better than Alternatives 2 and 3.

Alternative 4, with more uneven-aged management and less two-aged management would provide the most opportunity for future entries to create a more consistent supply of early seral forest (the stand initiation stage) across the landscape over the long term (next 60 years). The estimated percent of young growth on NFS land that would remain trending toward the understory re-initiation stage that would be suitable and feasible for future harvest would be 41 percent under Alternative 2, 61 percent under Alternative 3, and 76 percent under Alternative 4 ([Table 7](#)).

Under any alternative, it is estimated that 50 percent of the existing young growth on NFS land would remain unsuitable or infeasible for future timber harvest (see [Table 7](#) and the [Forest Vegetation](#) section above). Since old growth would not be harvested, 71 percent of the productive old growth that existed historically on NFS lands would remain in the project area (69 percent when considering all land ownerships), and 84 percent of the productive old growth that existed historically on NFS lands at the WAA scale (82 percent when considering all land ownerships).

Alternatives that create the smallest openings would mitigate the most against the effects of severe winters while openings created by harvest would provide for more forage in the short-term in the non-winter seasons and during mild winters. All alternatives would provide for wildlife movement (connectivity) through the landscape. Overall, harvest of 12 to 30 percent of the existing young growth on NFS lands, in consideration of the amount of existing wildlife habitat that would remain untreated and particularly the amount of productive old growth that exists in the project area and WAA, would have minimal effects to populations of wildlife including deer, moose, and wolves.

Noise from project activities may cause wildlife such as bears, wolves, marten, and goshawks to temporarily avoid localized areas. Disturbance to some individuals can be expected, but likely without interference to reproduction or other factors affecting population levels.

## Habitat Connectivity and Wildlife Corridors

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During alternative development, emphasis was placed on examining and promoting wildlife habitat connectivity through and around proposed harvest units. Landscape connectivity is defined as the degree to which the structure of a landscape helps or hinders the movement of wildlife species (Taylor et al. 1993<sup>40</sup>). A landscape with a high degree of connectivity is one in which wildlife move readily between habitat patches over the long-term (USDA Forest Service 2016<sup>41</sup>, p. 3-198). Forested corridors are particularly important during severe winters where high snow amounts could hinder deer, moose, and marten movement.

Maintaining forested corridors around and through harvested areas would provide for dispersal and movement of wildlife through older young-growth and between stands of residual productive old-growth forest. The topography of the area where harvest is proposed is fairly flat; elevational connectivity would not be a concern under any alternative.

There is a linear small OGR (Old-Growth Reserve) abutting private land at Point Agassiz which includes residual segments of productive old-growth. OGRs are an integral part of the Tongass Conservation

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<sup>40</sup> Taylor, P.D., L. Fahrig, K. Henein, and G. Merriam. 1993. Connectivity is a vital element of landscape structure. *Oikos* 68(3): 571-573.

<sup>41</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-769e. USDA Forest Service, Alaska Region, Juneau.



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Strategy (see Appendix N of the 1997 Forest Plan<sup>42</sup>, Appendix D of the 2008 Forest Plan<sup>43</sup>, and Appendix D of the 2016 Forest Plan<sup>44</sup>). The OGR maintains connectivity to the Muddy River corridor. To varying degrees, described in more detail below, especially during deep snow winters, the action alternatives would affect the ability of some wildlife, such as deer, moose, and marten, to move through the landscape and between residual patches of productive old growth in and adjacent to the small OGR and to other non-development LUDs (and other OGRs) further to the east and south of the project area. While the young growth does not have old-growth characteristics, it provides some thermal cover and hiding cover that facilitates movement by deer and other wildlife (e.g., marten, red squirrels, flying squirrels, some other small mammals).

The alternatives provide varying amounts of wildlife habitat connectivity, but all alternatives would allow for wildlife movement (connectivity) through the landscape particularly due to the amount of existing habitat that would remain unharvested:

- The no action alternative would provide the most wildlife habitat connectivity, particularly during deep snow winters. Winter is the most limiting season for many species, such as deer and marten in the project area. Most of the proposed harvest units have a moderate amount of understory vegetation, and the existing forage would be more available to species such as deer and moose due to more snow interception in the tree canopies as compared to openings created in the action alternatives. Over the long term, the overstory canopies and branches would continue to develop, providing for more snow interception, and the stands would continue to progress towards full understory re-initiation.
- Alternative 2 would provide the least wildlife habitat connectivity because even-aged management would create large openings up to 100 acres in 12 units, including adjacent to the Point Agassiz small OGR. These larger openings would provide more impediment to wildlife dispersal and movement compared to the other action alternatives, particularly for deer and moose during periods of high snow amounts. Alternative 2 would harvest units adjacent to the Point Agassiz small OGR with even-aged management and would construct two temporary roads on existing road prisms through the OGR to access young-growth for harvest.
- Alternative 3 would provide more wildlife habitat connectivity compared to Alternative 2 and less than Alternative 4. There would be 2 units with up to 2-acre openings created by uneven-aged management adjacent to the Point Agassiz small OGR, and 9 units with up to 30-acre openings created by two-aged management. In two-aged management units, up to 50 percent of the unit would be harvested.
- Of the action alternatives, Alternative 4 would provide the most wildlife habitat connectivity because it would create the smallest openings (5 units with up to 2-acre openings created by uneven-aged management, and 6 units with up to 10-acre openings created by two-aged management). Uneven-aged management would be used in the units around the Point Agassiz small OGR, facilitating the most connectivity through this part of the landscape and to the Muddy River drainage wildlife corridor. In units with two-aged management, up to 25 percent of the unit

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<sup>42</sup> USDA Forest Service. 1997. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-338dd. USDA Forest Service, Alaska Region, Juneau.

<sup>43</sup> USDA Forest Service. 2008. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-603b. USDA Forest Service, Alaska Region, Juneau.

<sup>44</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



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would be harvested as compared to 50 percent in Alternative 3. Compared to the no action alternative, there would be a slight reduction in habitat connectivity.

- Compared to Alternative 2, smaller openings in Alternatives 3 and more so in Alternative 4 would provide understory forage with thermal cover with canopies that intercept snow. Smaller openings would also provide hiding cover nearby that lowers visibility through the stand for predators and hunters and creates less impediment to wildlife dispersal and movement. Having a combination of smaller pockets of understory forage with cover and snow interception nearby would be particularly important to deer and moose in severe winters. While uneven-aged management of young growth in Alternatives 3 and 4 would not replicate productive old-growth conditions since it would continue to lack its integral components such as large snags and logs, it would provide more fine-scale habitat heterogeneity with a higher level of structural diversity throughout the stands over time.

### Management Indicator Species and Other Species of Interest (Moose)

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Thirteen Management Indicator Species were selected for the 1997 Forest Plan: Alexander Archipelago wolf, American marten, bald eagle, black bear, brown bear, brown creeper, hairy woodpecker, mountain goat, red-breasted sapsucker, red squirrel, river otter, Sitka black-tailed deer, and Vancouver Canada goose. Most of the Tongass wildlife MIS are associated with productive old-growth forests of Southeast Alaska directly or they rely on prey species associated with these habitats. Effects to wolves also consider access for hunting/trapping. MIS are used as indicators to predict the likely responses of other species with similar habitat requirements to land management activities.

Effects to moose are also discussed in this section. Moose are of public interest in the project area, particularly as a subsistence game animal. While there are differences in typical habitat associations across their range, moose populations on the Tongass are likely subject to very similar habitat constraints as deer, so these species are discussed together. Like deer, moose populations can be affected by severe winters and show strong selection for low elevations (i.e., valley bottoms) and habitats characterized by moderate to high biomass of deciduous shrubs (White et al. 2012<sup>45</sup>).

[Table 8](#) summarizes the intensity of effects and population viability determinations for wildlife MIS.

### *Sitka Black-tailed Deer and Moose*

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The Sitka black-tailed deer was chosen as a Management Indicator Species because it receives the highest hunting and subsistence use of all terrestrial species in Southeast Alaska, and it represents species that use lower elevation productive old-growth habitat (below 800 feet) during the winter period (USDA Forest Service 2008<sup>46</sup>, p. 3-230). The area where timber harvest would occur is low elevation deer and moose range, but productive old growth would not be harvested.

Openings created by harvest in the action alternatives would provide a short-term (25 to 35 years) increase in deer and moose forage. However, since thermal cover (tree canopies) would be removed, forage would likely be buried under snow in winter. Harvest would also remove hiding cover for deer and

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<sup>45</sup> White, K.S., D.P. Gregovich, N.L. Barten, and R. Scott. 2012. Moose population ecology and habitat use along the Juneau access road corridor, Alaska. Final wildlife research report. ADF&G/DWC/WRR-2012-03. Alaska Department of Fish and Game, Juneau, AK. USA.

<sup>46</sup> USDA Forest Service. 2008. Tongass Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-603c. USDA Forest Service, Alaska Region, Juneau.





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moose, increasing their susceptibility to predation and hunting. After approximately 10 years, dense conifers would become established, and hiding cover would be restored.

The Mule Deer Working Group recommends openings less than 50 acres on black-tailed deer summer range and between 2.5 to 7.4 acres on deer winter range where snow accumulation restricts deer foraging and movement (Nelson et al. 2008<sup>47</sup>). In larger openings during periods of deep snow, deer and moose movement would be hindered to a greater extent.

Alternative 2 would provide the most forage for deer and moose in the short term (25 to 35 years) but the least resiliency to severe winters because snow would bury forage across more acres and in larger openings.

Alternative 3 would provide less forage in the short term and more resiliency to severe winters than Alternative 2. The effects of Alternative 3 to deer and moose would fall between those of Alternatives 2 and 4. Alternative 3 would provide abundant forage in up to 2-acre openings (within two units in uneven-aged management) and in up to 30-acre openings (within nine units in two-aged management) in the short term, although within the two-aged units, the thermal and hiding cover would be less readily accessible when foraging away from the edge of the openings.

Alternative 4 is most closely aligned with The Mule Deer Working Group (Nelson et al. 2008) recommendations for deer winter range. Of the action alternatives, Alternative 4 would maintain the most thermal and hiding cover (i.e., where overstory trees capture more snow in the canopy and where predator visibility is reduced) that deer and moose could more readily move through during periods of deep snow. Alternative 4 would provide abundant forage in up to 2-acre openings (within five uneven-aged units) and up to 10-acre openings (within six units in two-aged management) in the short term and thermal and hiding cover that would be more readily accessed from the openings as compared to Alternatives 2 and 3.

The overall effects to deer winter range across the project area and WAA would be relatively minor because a relatively small percentage of the existing young growth would be harvested under any of the alternatives ([Table 7](#)), compared to the amount of productive old growth in nearby non-development LUDs including Old-Growth Reserves, within riparian corridors, and across the landscape. The remaining mature young growth would provide some thermal cover which would continue to increase as the canopy structure continues to develop.

Alternative 2 would have the lowest potential for providing a continual supply of early seral forest habitat (i.e., openings with abundant forage) in the long term with future timber harvest projects in the project area. Alternative 4 would provide the greatest potential for future projects to continually provide early seral forest habitat in the project area for the long-term, particularly because Alternative 4 would have more uneven-aged units and because less harvest would occur within two-aged units (up to 25 percent of any unit) compared to Alternative 3 (up to 50 percent).

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<sup>47</sup> Nelson, J., D. Cottam, E. W. Holman, D. J. Lancaster, S. McCorquodale, D. K. Person. 2008. Habitat Guidelines for Black-tailed Deer: Coastal Rainforest Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.



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## *Alexander Archipelago Wolf*

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Wolf populations are closely tied to prey abundance (Person et al. 1996<sup>48</sup>). See the deer and moose discussion for effects to primary prey.

The Forest Plan includes a standard and guideline (2016 Forest Plan, p. 4-91, WILD1. XIV. 2.) to: "Provide, where possible, sufficient deer habitat capability to first maintain sustainable wolf populations, and then to consider meeting estimated human deer harvest demands. This is generally considered to equate to the habitat capability to support 18 deer per square mile (using habitat capability model outputs) in biogeographic provinces where deer are the primary prey of wolves."

The deer model is most appropriate to assess landscape-level winter deer habitat capability in comparing project alternatives that would harvest old-growth. The model does not account for even-aged or uneven-aged harvest management of young growth, and it does not reflect any benefits from commercial thinning, precommercial thinning, development of canopy gaps, or other treatments.

Because mature young growth provides relatively little winter habitat value, the interagency deer model does not assign more value to older young-growth stands as they age. Thus, as applied to this project, the deer model generated a very small short-term increase (less than 1 percent) in the theoretical deer habitat capability for all alternatives, after which the theoretical deer habitat capability would return to the existing capability. None of the action alternatives would contribute a further reduction in the deer habitat capability as determined by the interagency deer habitat capability model. The no action alternative would not improve the calculated deer habitat capability, even in the long-term.

## *American Marten*

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Marten represent species using lower elevation old-growth forest habitats during the winter season (USDA Forest Service 2016<sup>49</sup>, p. 3-354). The area where timber harvest would occur is low elevation, but productive old growth would not be harvested. Marten numbers fluctuate greatly over time in response to food availability, habitat conditions, and trapping pressure (USDA Forest Service 2008<sup>50</sup>, p. 3-234).

On the Tongass, research shows marten significantly select for medium and large volume productive old growth than any other habitat type, particularly in winter (Flynn and Schumacher 2016<sup>51</sup>). In research elsewhere, marten have been shown to avoid openings and simple stands, and when lower quality stands are used, marten movements are faster, more linear, and consistent with predator avoidance or lower resource availability (Moriarty et al. 2016<sup>52</sup>). Marten may avoid large openings particularly if they have no

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<sup>48</sup> Person, D.K., M. Kirchhoff, V. Van Ballenberghe, G.C. Iverson, and E. Grossman. 1996. The Alexander Archipelago wolf: a conservation assessment. Gen. Tech. Rep. PNW-GTR-384. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 42 p.

<sup>49</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-769e. USDA Forest Service, Alaska Region, Juneau.

<sup>50</sup> USDA Forest Service. 2008. Tongass Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-603c. USDA Forest Service, Alaska Region, Juneau.

<sup>51</sup> Flynn, R.W., and T.V. Schumacher. 2016. Habitat selection of American martens on Northeast Chichagof Island, Southeast Alaska, 1991-1997. Alaska Department of Fish and Game, Wildlife Research Report. ADF&G/DWC/WRR-2016-6, Juneau.

<sup>52</sup> Moriarty, K.M., C.W. Epps, and W.J. Zielinski. 2016. Forest thinning changes movement patterns and habitat use by Pacific marten. *Journal of Wildlife Management* 80(4): 621-633.



## Thomas Bay Young-Growth Timber Sale



structure such as snags and logs (Heinemeyer 2002<sup>53</sup>, Cushman et al. 2011<sup>54</sup>). The young-growth stands proposed for harvest provide some thermal cover and ground-level structure that may support marten prey species (small mammals and birds) and provide some hiding cover for protection for avian predators such as great horned owls and barred owls.

With no action, the stands would continue to develop, and over the long term would begin to attain habitat characteristics more beneficial to marten, such as a better developed canopy structure (large branches) and eventually large snags and logs.

Since the action alternatives would create openings that lack thermal cover, reduce ground-level structure, and remove hiding cover, the ability of marten to move through the landscape and between residual patches of old-growth may be affected in the short term. In general, alternatives that create the largest openings would have a greater potential to affect marten. Alternative 2 would create the largest openings, therefore would have the most potential for effects. Alternative 3 would have a lesser potential for effects, and Alternative 4 with the smallest openings would have the least potential for effects to marten.

Marten are easily trapped and can be overharvested. As discussed in the wolf section, the area where temporary roads would be constructed and reconstructed is already readily accessible. Reconstruction of old temporary roads and construction of new temporary roads would slightly improve access for marten trapping. Temporary roads would be more likely to close in with encroaching vegetation in Alternative 2, compared to Alternatives 3 and 4 where multiple entries in future projects would be more likely to keep the roads accessible and clear of encroaching vegetation over the long term. Regardless, the area would remain readily accessible in any alternative.

### *Red Squirrel*

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Red squirrel habitat includes productive old growth and young growth with cone-producing trees (generally older than 40 years). Productive old growth would not be harvested. The action alternatives would reduce the amount of older young-growth habitat on NFS lands by 29.5 percent (Alternative 2), 19.7 percent (Alternative 3), and 12.3 percent (Alternative 4). The ability for the habitat to support red squirrels would return after the regenerated young-growth trees begin to produce cones, about 40 years post-harvest. A reduction in the red squirrel population is anticipated under any of the action alternatives to varying degrees, likely correlating with the number of acres harvested.

### *Black Bear and Brown Bear*

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Short-term beneficial impacts to bears are anticipated in all action alternatives since the openings created would provide more forage. Bears den during winter so they would not be negatively impacted by forage buried by deep snow during severe winters.

### *Brown Creeper, Hairy Woodpecker, and Red-breasted Sapsucker*

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Brown creepers are most closely associated with interior productive old-growth forest, hairy woodpeckers are most closely associated with high volume productive old-growth forest, and red-breasted sapsuckers

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<sup>53</sup> Heinemeyer, K.S. 2002. Translocating individual movements into population patterns: American marten in fragmented forested landscapes. Dissertation. University of California Santa Cruz, Santa Cruz, California. 150 pp.

<sup>54</sup> Cushman, S.A., M.G. Raphael, L.F. Ruggiero, A.S. Shirk, T.N. Wasserman, and E.O. O'Doherty. 2011. Limiting factors and landscape connectivity: the American marten in the Rocky Mountains. *Landscape Ecology* 26: 1137-1149.



# Thomas Bay Young-Growth Timber Sale



are most closely associated with low and medium volume productive old-growth forest (USDA Forest Service 2016<sup>55</sup>, p. 3-352).

Minimal effects to these wildlife MIS are anticipated from any of the action alternatives in the short- or long-term because the productive old-growth habitat they are closely associated with would not be reduced. These species may use the young-growth stands proposed for harvest for foraging activities, but their population density and use of the stands is expected to be low in any young-growth successional stage (USDA Forest Service 2016, p. 3-352).

With no action, in the very long term (after another 90 years), the stands may begin to provide more suitable habitat for these species.

## *Bald Eagle, Mountain Goat, River Otter, and Vancouver Canada Goose*

Effects to these wildlife MIS or their habitats are not anticipated since they are not expected to use habitat in or near the young-growth units.

Effects to bald eagle under any alternative are not anticipated because of their close association with old growth in the beach/estuary buffer (young-growth stands proposed for harvest are inland). Bald eagle nesting is not anticipated within 660 feet of the proposed units or the Thomas Bay LTF. The nearest documented bald eagle is a third of a mile from the LTF. Effects to nesting bald eagles near the LTF are not anticipated due to the distance and since the area already receives frequent human use. There are no known or anticipated bald eagle roosting areas within or near the units. If bald eagle nests or communal roosting areas are found within or near the units, protective measures would be applied to comply with the Bald and Golden Eagle Protection Act.

Mountain goats occur on the Thomas Bay mainland but are closely associated with the steeper terrain to the east and southeast of the project area and would not be affected.

River otters would not be affected by the proposed activities as their associated habitat, riparian and coastal productive old growth, would not be impacted.

Vancouver Canada geese would not be affected because their associated habitat, forested muskeg or unforested habitats (e.g., muskeg, riparian habitats), would not be impacted.

## *Management Indicator Species Summary*

The following table summarizes how changes in habitat from project activities may impact wildlife populations of management indicator species in relation to expected population trends, survival or reproductive success, behavioral changes, distribution and shifts in habitat use, etc.

**Table 8. Summary of the intensity of effects and population viability determinations<sup>56</sup> for wildlife management indicator species (MIS) in the planning area (Tongass National Forest). The project area is within the Central Coast Range Biogeographic Province.**

| Species and Habitat Association                                              | No Action Alternative                                                                                                                                     | All Action Alternatives                                                                                         |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Sitka black-tailed deer</b><br>Productive Old Growth (POG) below 800 feet | No impact in the short term, minor beneficial effects to individuals and the population in the long term. In the long term, the young-growth stands would | Minor impact – Individuals would be affected but population-level effects would be unlikely. The most important |

<sup>55</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Volume I. R10-MB-769e. USDA Forest Service, Alaska Region, Juneau.

<sup>56</sup> See the 1997 Forest Plan FEIS, pp. 3-379 to 3-382 for discussion of Wildlife Species Viability.

| Species and Habitat Association                                                                                          | No Action Alternative                                                                                                                                                                                                                                                              | All Action Alternatives                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| elevation (2008 Forest Plan FEIS, p. 3-230)                                                                              | continue to develop characteristics of POG (the most important deer winter habitat). Deer populations would remain viable and well-distributed in the planning area. (See additional discussion of effects to deer below.) <sup>57</sup>                                           | deer winter habitat (low elevation POG) would not be harvested. Because of the amount of most important deer winter habitat that would remain in the project area and because habitat connectivity and corridors would remain for deer movement through the landscape, deer populations would remain viable and well-distributed in the planning area. (See additional discussion of effects to deer below.) <sup>58</sup> |
| <b>Alexander Archipelago wolf</b><br><br>Deer habitat capability <sup>59</sup> and changes in road access (road density) | No impact in the short term, minor beneficial effects to individuals and the population in the long term. There would be minor beneficial effects in the long term to wolves' primary prey (deer). Wolf populations would remain viable and well-distributed in the planning area. | Negligible impact – Because population-level effects to wolves' primary prey (deer) would be unlikely and because road access would not add effects to the hunting and trapping of wolves in the localized area (the area is already readily accessible via the existing road system),                                                                                                                                     |

<sup>57</sup> Sitka black-tailed deer – no action alternative: Taking no action would maintain the older young growth in its current condition. In the long term the older young growth would begin to develop attributes of productive old growth (e.g., large trees with big canopies consisting of strong limbs that can capture more snow, small openings in the canopy allowing light to reach the forest floor) providing minor beneficial long-term effects in the project area during severe winters.

<sup>58</sup> Sitka black-tailed deer – action alternatives: Deer occupy the project area during all seasons and in general move down in elevation during periods with snow cover. Suitability of winter habitat is the most limiting for deer populations. The area where timber harvest is proposed is in an extensive area of relatively flat terrain at low elevation. All of the existing young growth in the project area is below 800 feet elevation (a vast majority of the project area as a whole is below 800 feet elevation). The project would not harvest POG. Existing POG below 800 feet elevation in the project area would remain on 6,611 acres on NFS lands (70 percent of historic) and 7,177 acres on all land ownerships (67 percent of historic). Young-growth harvest within the home range of individuals may alter their daily and seasonal movement patterns. During the non-winter seasons and during mild winters in the short term, deer may use the improved forage in openings created by timber harvest, but during severe winters the forage may be covered by high snow amounts. This could affect individual body condition and survival. Young of the year are typically the most susceptible to the effects of severe winters (e.g., starvation, restricted ability to move through deep snow), followed by adult males (which may enter the winter season after the rut in a degraded body condition), then adult females. Effects to reproduction would not be anticipated. Fawning typically occurs in May and June, generally after high snow amounts have diminished particularly at low elevations. The breeding season, or rut, generally occurs in October through November, prior to the usual onset of high snow amounts at lower elevations. Alternatives that create the smallest openings would better mitigate the effects of severe winters. However, all alternatives would provide for habitat connectivity and corridors through the landscape, which would be important for deer movement during severe winters, allowing deer to move to nearby habitats, such as productive old growth, which captures the most snow in the tree canopy, maintaining available forage for longer during periods of high snow amounts. Overall, because of the relatively small scale of any of the project's alternatives in relation to the overall landscape and existing conditions, long-term vital consequences to individuals or the population would not be expected.

<sup>59</sup> Note regarding the interagency deer model: As discussed in the analysis, the deer model generated a very small short-term increase (less than 1 percent) in the theoretical deer habitat capability for all alternatives, after which the theoretical deer habitat capability would return to the existing capability.





# Thomas Bay Young-Growth Timber Sale



| Species and Habitat Association                                                                                         | No Action Alternative                                                                                                                                                                                                                                                                                                              | All Action Alternatives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                         |                                                                                                                                                                                                                                                                                                                                    | wolf populations would remain viable and well-distributed in the planning area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>American marten</b><br>Lower elevation POG during the winter season (USDA Forest Service 2016, p. 3-354)             | No impact in the short term, minor beneficial effects to individuals and the population in the long term. In the long term, the young-growth stands would continue to develop characteristics of POG (the most important marten winter habitat). Marten populations would remain viable and well-distributed in the planning area. | Minor impact – Individuals would be affected but population-level effects would be unlikely. The most important marten winter habitat (low elevation POG) would not be harvested. Because of the amount of the most important marten winter habitat that would remain in the project area and because habitat connectivity and corridors would remain for marten movement through the landscape, marten populations would remain viable and well-distributed in the planning area. (See additional discussion of effects to marten below.) <sup>60</sup> |
| <b>Red squirrel</b><br>Productive old growth and young growth with cone-producing trees (generally older than 40 years) | No impact to individuals or the population in the short term or long term. The young-growth stands are currently at a cone-producing age and would remain so in the long term. Red squirrel populations would remain viable and well-distributed in the planning area.                                                             | Moderate impact – Individuals and the population would be negatively affected for approximately 40 years due to a reduction in habitat (fewer cone-producing trees). However, because of the amount of habitat in the project area that would continue to support cone-producing trees, and because habitat connectivity and corridors would remain for red squirrel movement through the landscape, red squirrel populations would remain viable and well-distributed in the planning area. (See additional                                             |

<sup>60</sup> **American marten:** Suitability of winter habitat is the most limiting for marten populations. All of the existing young growth in the project area is below 1,500 feet elevation (the majority of the project area is below 1,500 feet elevation). The project would not harvest POG. Existing POG below 1,500 feet elevation in the project area would remain on 6,954 acres on NFS lands (71 percent of historic) and 7,519 acres on all land ownerships (68 percent of historic). As described in the analysis, marten may avoid openings. Young-growth harvest within the home range of individuals may alter their daily and seasonal movement patterns. Openings created by harvest would hinder individual marten movement through the landscape to varying degrees depending on the alternative, however, population-level effects would not be anticipated. Alternatives that create the smallest openings would mitigate the most against effects to marten movement. All alternatives would provide for habitat connectivity and corridors through the landscape, which would be important for marten movement. Because of the relatively small scale of any of the project's alternatives in relation to the overall landscape and existing conditions, long-term vital consequences to individuals or the population would not be expected.

| Species and Habitat Association                                                                                                                                                                                     | No Action Alternative                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All Action Alternatives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | discussion of effects to red squirrels below.) <sup>61</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Black bear and brown bear</b><br>Denning habitat: acres of POG<br>Foraging habitat: POG within 500 feet of anadromous fish streams and all habitats except stem exclusion young growth<br>Changes in road access | No impact to individuals or populations in the short term. Minor beneficial impact in the long term. As the stands age and begin to take on characteristics of productive old growth, large snags and eventually large logs would become available, improving black bear denning habitat structure in the long term (brown bears most likely den in the higher elevations). Black bear and brown bear populations would remain viable and well-distributed in the planning area. | Minor beneficial impact in the short term – Individuals would have more forage available in the short term, but population-level effects would be unlikely. There would be a short-term improvement in non-winter foraging habitat. Bears den during winter so they would not be negatively impacted by forage buried by deep snow during severe winters. Changes in road access would not add effects to bears in the localized area (the area is already readily accessible via the existing road system). Populations of black bears and brown bears would remain viable and well-distributed in the planning area. |
| <b>Brown creeper, hairy woodpecker, and Red-breasted sapsucker</b><br>Interior POG, high volume POG, and low/medium volume POG, respectively                                                                        | No impact to individuals or populations in the short term, minor beneficial effects in the long term. In the long term, the young-growth stands would continue to develop characteristics of POG (the most important habitat for these species). Populations of brown creeper, hairy woodpecker, and red-breasted sapsucker would remain viable and well-distributed in the planning area.                                                                                       | Negligible impact – There would be no reduction in the most important habitat (POG). These species' population density and use of the stands is expected to be low in any young-growth successional stage (USDA Forest Service 2016, p. 3-352). Existing POG in the project area would remain on 7,079 acres on NFS lands (71% of historic) and 7,645 acres on all land ownerships (69% of historic). Populations of brown creeper, hairy woodpecker, and red-breasted sapsucker would remain viable and well-distributed in the planning area.                                                                        |
| <b>Bald eagle</b>                                                                                                                                                                                                   | No impact – Associated habitat would not be impacted, and there would be no                                                                                                                                                                                                                                                                                                                                                                                                      | No impact – Associated habitat would not be impacted, and there would be no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

<sup>61</sup> **Red squirrel:** The action alternatives would reduce the amount of older young-growth habitat on NFS lands by 29.5 percent (Alternative 2), 19.7 percent (Alternative 3), and 12.3 percent (Alternative 4). [NOTE: This is a correction of the percentages displayed in the EA/FONSI and the Wildlife Report. Those previously displayed in the Red Squirrel effects section of the EA/FONSI and Wildlife Report are incorrect due to a mathematical error]. A slight reduction in the red squirrel population is anticipated under any of the action alternatives to varying degrees. The ability for the young growth to support red squirrels would return after the regenerated trees begin to produce cones, about 40 years post-harvest. The project would not harvest POG. Existing POG in the project area would remain on 7,079 acres on NFS lands (71 percent of historic) and 7,645 acres on all land ownerships (69 percent of historic). While there may be a slight short-term decline in the red squirrel population, suitable habitat (i.e., cone-producing trees) will remain well-distributed in the project area. Because of the relatively small scale of harvest under any of the project's alternatives in relation to the overall landscape and existing conditions in the project area, and because all alternatives would provide for habitat connectivity and corridors through the landscape, there would not be a concern for long-term red squirrel population persistence in the project area.

| Species and Habitat Association                                                               | No Action Alternative                                                                                                                                                                                                                                                                                                                                                      | All Action Alternatives                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| POG within beach/estuary buffer                                                               | anticipated effects to individuals or populations. Bald eagle populations would remain viable and well-distributed in the planning area.                                                                                                                                                                                                                                   | anticipated effects to individuals or populations. Bald eagle populations would remain viable and well-distributed in the planning area.                                                                                                                                                                                                                                   |
| <b>Mountain goat</b><br>POG in close proximity to escape terrain<br>Disturbance from aircraft | No impact – Mountain goats occur on the Thomas Bay mainland but are closely associated with the steeper terrain to the east and southeast of the project area. Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. Mountain goat populations would remain viable and well-distributed in the planning area. | No impact – Mountain goats occur on the Thomas Bay mainland but are closely associated with the steeper terrain to the east and southeast of the project area. Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. Mountain goat populations would remain viable and well-distributed in the planning area. |
| <b>River otter</b><br>Riparian and coastal POG                                                | No impact – Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. River otter populations would remain viable and well-distributed in the planning area.                                                                                                                                                      | No impact – Riparian buffers would be provided. Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. River otter populations would remain viable and well-distributed in the planning area.                                                                                                                  |
| <b>Vancouver Canada goose</b><br>Forested muskeg and unproductive forest, riparian habitats   | No impact – Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. Vancouver Canada goose populations would remain viable and well-distributed in the planning area.                                                                                                                                           | No impact – Associated habitat would not be impacted, and there would be no anticipated effects to individuals or populations. Vancouver Canada goose populations would remain viable and well-distributed in the planning area.                                                                                                                                           |

**Negligible:** No impacts or impacts not measurable to habitat and/or populations **Minor:** Some measurable impacts to habitat but these effects do not affect populations **Moderate:** Impacts are measurable and can affect populations but do not affect population trends **Major:** Impacts to habitat affect populations and population trends

## Sensitive Species

Sensitive species listed for the Tongass are the Aleutian tern, black oystercatcher, Kittlitz's murrelet, and Queen Charlotte goshawk.

Aleutian tern, black oystercatcher, and Kittlitz's murrelet would not be impacted since neither individuals nor habitat occur in the project area or near project activities.

Goshawk inventories are required for proposed projects that affect goshawk habitat (USDA Forest Service 2016<sup>62</sup>, pp. 4-95 to 96; WILD4 II. A. 1.). No goshawk nests were found in the proposed harvest units when they were surveyed in June and July 2019. However, during surveys for prior planning efforts, two goshawk nesting areas were identified on the Thomas Bay mainland. Goshawk buffers have been established for these nests in accordance with Forest Plan Standards and Guidelines. The closest nest is approximately ¾ mile from a proposed unit. On the Petersburg Ranger District, 33 confirmed or probable

<sup>62</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



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goshawk nesting territories have been identified. Despite surveys being conducted to protocol, nesting goshawks are not always detected.

Goshawk home ranges are very large. Nesting is typically associated with old-growth forest on the Tongass. Nesting is unlikely though possible in the units proposed for harvest given the current stand conditions. Occasionally, goshawks will nest in younger forests or in smaller patches of trees, and forage in young forest, as well as along edges and in openings (Boyce et al. 2006<sup>63</sup>). It is possible goshawks use the proposed young growth units for foraging, and less likely for nesting.

Goshawks could be disturbed by project activities, either during foraging or if they are nesting near or within treatment units. If nesting goshawks are found within or near the proposed units under any alternative, a nesting habitat buffer and other management restrictions (e.g., those pertaining to road construction and a limited operating period) would be applied in accordance with Forest Plan Standards and Guidelines (USDA Forest Service 2016<sup>64</sup>, pp. 4-95 to 96; WILD4 II. A. 1.).

Neither of the two known goshawk nesting areas on the Thomas Bay mainland have been affected by other activities in recent years. The established buffers will continue to receive protections in accordance with the Forest Plan Standards and Guidelines. Surveying will continue for projects that could affect goshawk nesting habitat. There are no reasonably foreseeable future projects on National Forest System or private lands that would affect other known goshawk nesting areas.

Due to potential disturbance during foraging and the potential for effects to nesting, Alternatives 2, 3, and 4 may impact but are not likely to cause a trend towards federal listing or a loss of viability for the Queen Charlotte goshawk.

## Migratory Birds

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While young growth is not the preferred nesting habitat for most migratory birds, some migratory bird species likely nest in the units proposed for harvest. Potential nesting habitat would be removed under any of the action alternatives; and therefore, could result in small, localized changes in some migratory bird populations. Nesting migratory birds might also be disturbed by human activities in localized areas particularly with the use of heavy equipment.

Project activities could result in the destruction or abandonment of some migratory bird nests during the breeding season. The magnitude of the effects would vary depending on the season. The greatest effects would occur during May and June. By September, fledglings have dispersed.

Given the relatively small scale of the project in relation to the landscape and because young growth is not the preferred nesting habitat for most species, effects to migratory birds would be minimal for all action alternatives. In the short term, no action would cause no effects to migratory birds. Over the long-term, the young-growth stands would continue to develop habitat characteristics more suitable for nesting migratory birds. The project is consistent with the Forest Plan Standards and Guidelines for wildlife (USDA Forest Service 2016<sup>65</sup>, pp. 4-85 to 4-97).

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<sup>63</sup> Boyce, D.A., R.T. Reynolds, and R.T. Graham. 2006. Goshawk status and management: What do we know, what have we done, where are we going? In: Morrison, Michael, ed. The northern goshawk: a technical assessment of its status ecology, and management. Studies in Avian Biology. 31: 312-325.

<sup>64</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

<sup>65</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



# Thomas Bay Young-Growth Timber Sale



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## ***Cumulative Effects of Action Alternatives***

The action alternatives would harvest only young-growth; therefore, project alternatives would not cumulatively contribute to the reduction of productive old-growth, the habitat type most wildlife species on the Tongass are dependent. Within the project area, 71 percent of the productive old growth remains compared to historic conditions (69 percent when considering all land ownerships). At the WAA scale, 84 percent of the productive old growth remains (82 percent when considering all land ownerships).

Based on the interagency deer habitat capability model, none of the alternatives would contribute to a cumulative reduction in the modeled deer habitat capability (see the [Alexander Archipelago Wolf](#) section above for more discussion of the deer model outputs).

Present actions in the project area only affect wildlife habitat at a very small scale, including borrow pit expansion on NFS road 6256 and a moose habitat enhancement project along the Patterson River. Both of these activities affect young growth but at very small scale. Occasional harvest of free-use timber along the project area roads would likely occur but not at a scale that would affect populations, or the way wildlife use the habitat.

Present actions on the Thomas Bay mainland (this includes more area than just the project area) that create intermittent disturbance to wildlife include activities on non-NFS lands, use of the roads, dock and LTF, recreational activities, hunting and subsistence use, road maintenance, borrow pit expansion on NFS road 6256, mushroom collection, outfitter and guide uses, use of a tent platform along the Patterson River, and use of the ADFG administrative cabin near the Thomas Bay dock. Reasonably foreseeable actions include the Cascade Creek Trail reconstruction, and fish passage restoration. The Thomas Bay Young-Growth Timber Sale action alternatives would contribute additional disturbance to wildlife in the project area.

Overall, the project area experiences a low level of ongoing disturbance since it is only connected by road to the small community of Point Agassiz. Disturbance generated by the project would be focused where much of the disturbance already occurs. Additional disturbance generated by the project would not create a situation where wildlife would largely avoid the general area.

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## **Subsistence**

Consistent with section 810 of ANILCA, this project was evaluated to determine potential effects on subsistence opportunities and resources. The analysis specifically addresses access to, abundance of, and competition for subsistence resources. Deer, moose, and furbearers such as marten and wolves were determined to be the primary subsistence uses in the project area. See the deer, moose, and marten sections of the [Wildlife Habitat](#) section and the [Aquatics and Fisheries](#) section for effects to fish for a full discussion of effects to these subsistence species. The most limiting factor for wildlife subsistence species populations on the Tongass is winter habitat. No low elevation productive old-growth, habitat particularly important to these species in severe winters, would be harvested under any alternative.

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## ***Environmental Consequences of No Action Alternative***

By taking no action, the young-growth stands proposed for harvest would continue to develop toward the full understory re-initiation stage. These stands currently provide some forage, thermal and hiding cover, and ground-level structure. The no action alternative would retain these attributes and allow continued development in the stands proposed for harvest.

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## ***Environmental Consequences of All Action Alternatives***

Under the action alternatives, the reconstruction of old temporary roads and construction of new temporary roads would slightly improve access, but the area where harvest would occur is already readily accessible. The roads would facilitate access and slightly reduce competition by providing more area in which subsistence users could spread out use, but the overall effect would be small. Temporary roads would be more likely to close in with encroaching vegetation in Alternative 2, compared to Alternatives 3 and 4 where multiple entries in future projects would be more likely to keep the roads more accessible and clearer of encroaching vegetation over the long term.





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The effects to deer, moose, and marten in the [Wildlife Habitat](#) section address effects to the habitat for, and abundance of, these subsistence species. By reverting young growth to the stand initiation stage there would be a short-term (25 to 35 years) improvement in the biomass of forage for deer and moose, but the tradeoff would be a reduction in thermal cover (tree canopies which intercept snow). Openings would also remove hiding cover for approximately 10 years until dense conifers begin to overtop dense brush, increasing the huntability but also the susceptibility of deer and moose to predation.

Alternative 2 would provide the most forage for deer and moose in the short term (25 to 35 years) but the least resiliency to severe winters because snow would bury forage across a higher number of acres and in larger openings. Alternative 2 would also create the largest openings, increasing the huntability of deer and moose for approximately 10 years until dense conifer growth impedes visibility through the stands.

Alternative 3 would provide less forage for deer and moose in the short term and more resiliency to severe winters than Alternative 2. The effects of Alternative 3 to deer and moose would fall between those of Alternatives 2 and 4.

Alternative 4 is most closely aligned with The Mule Deer Working Group (Nelson et al. 2008<sup>66</sup>) recommendations for deer winter range. Of the action alternatives, Alternative 4 would maintain the most thermal and hiding cover (i.e., where overstory trees capture some snow in the canopy and where predator visibility is reduced) that deer and moose could more readily move through during periods of high snow amounts. Alternative 4 would provide the best balance between providing abundant forage in relatively small openings in the short-term while providing nearby thermal and hiding cover.

Since the action alternatives would create openings that would lack thermal cover, reduce the amount of ground-level structure in openings, and remove hiding cover in the short-term, there may be a reduction in the ability of marten to move through the landscape and between residual patches of old growth. Alternatives that create the largest openings would have more potential for effects to marten. Alternative 2 would create the largest openings, therefore would have the most potential for effects to marten. Alternative 3 which would have lesser potential for effects, and Alternative 4 with the smallest openings would have the least potential for effects to marten.

While there are differences in the anticipated effects between the action alternatives, the Forest Service has determined the action alternatives would not result in a significant possibility of a significant restriction of subsistence uses because young growth provides relatively little winter habitat value and a relatively small percentage of young-growth would be reverted to the stand initiation stage while providing a more heterogeneous mix of young growth at different ages in the short and long term across the project area and WAA. Additionally, a minimal change in access would occur and productive old-growth habitat would not be altered.

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### Resources of Uses Not Present or Not Affected

Additional resource specialists on the interdisciplinary team reviewed the project record and maps for the Thomas Bay Young Growth Timber Sale Environmental Assessment and determined that no further analysis was required because the potential for significant effects as a result of the proposed timber harvest, related road construction and maintenance activities, or the integrated resource opportunities was low. The [analysis folder](#) on the project's webpage contains documentation of these determinations for the following resources:

- Cultural Resources

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<sup>66</sup> Nelson, J., D. Cottam, E. W. Holman, D. J. Lancaster, S. McCorquodale, D. K. Person. 2008. Habitat Guidelines for Black-tailed Deer: Coastal Rainforest Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.



# Thomas Bay Young-Growth Timber Sale



- Lands, Minerals and Special Uses
- Recreation
- Scenery Resources
- Transportation
- Wetlands

## Agencies and Persons Consulted

The Responsible Official contacted or consulted with those listed below during the preparation of the environmental assessment in compliance with requirements to involve the public, relevant agencies, organizations, and governments.

### Agencies

#### State of Alaska

Department of Fish and Game  
Historic Preservation Office

#### Federal

U.S. Fish and Wildlife Service  
National Marine Fisheries Service – Protected Resource Division (ESA), Habitat Conservation Division (EFH)

### Federally Recognized Tribal Governments and Alaska Native Corporations

Central Council of Tlingit and Haida Tribes of Alaska  
Kake Tribal Corporation  
Organized Village of Kake  
Petersburg Indian Association  
Sealaska Corporation  
Sealaska Heritage  
Wrangell Cooperative Association

### State and Local Governments

City of Kake  
City of Kupreanof  
Petersburg Borough

### Summary of Public Involvement

Several methods were used to share the initial Thomas Bay Young-Growth Timber Sale proposed action and solicit comments. The first outreach began with listing the project on the Tongass National Forest's quarterly [Schedule of Proposed Actions \(SOPA\)](#) on August 1, 2021. On August 18<sup>th</sup>, an email was sent to 699 project subscribers through GovDelivery, a web-based email subscription management system, that included a description of the proposed action and a link to the project website <https://www.fs.usda.gov/project/?project=60639>. A [scoping letter](#) with more information about the project was posted on the project webpage. The next day, a [legal notice](#) announcing the opportunity to comment on the proposal was published in the *Petersburg Pilot*. Petersburg's local radio station, KFSK, provided a public service announcement during the 30-day comment period that directed interested listeners to the project webpage and/or project contact for more information about the project and how to submit comments.

Fourteen comment letters were received during the 30-day comment period on the initial proposed action. All the comments submitted are available for review in the Thomas Bay Young Growth Timber Sale [Comment Reading Room](#) and were considered by the interdisciplinary team (IDT). Comments were



# Thomas Bay Young-Growth Timber Sale



generally supportive with comments supporting small sales and requesting opportunities for sustained harvest over a longer period of time. In response, interdisciplinary team members developed Alternatives 3 and 4 that use silvicultural prescriptions (two-aged or uneven-aged management) to retain a portion of timber stands to allow for multiple harvest entries over time. While providing opportunities for multiple harvest entries over time, these prescriptions also meet resource objectives by maintaining wildlife connectivity (particularly adjacent to the Old-Growth Habitat LUD), provide for increased subsistence opportunities and access, increase the amount of retention in each unit, limit opening sizes, and extend the longevity of moose habitat.

On April 5, 2023, the [Thomas Bay Timber Sale Young Growth EA/FONSI](#) was posted on the project webpage. The next day, a [legal notice](#) published in the *Petersburg Pilot* announced the beginning of a 30-day comment period. The Forest Service also advertised the availability of the EA/FONSI for comment through a [news release](#) sent to media outlets, and through an [email](#) to 419 project subscribers. Again, KFSK provided a public service announcement during the comment period.

Nineteen comment letters were received during the 30-day comment period on the EA/FONSI. These comments are available for review in the [Comment Reading Room](#). Comments on the Preferred Alternative were generally supportive of small sales and the integrated resource opportunities within the project area; however, some commenters prefer opportunities for sustained harvest over a longer period of time while others (mostly locals within the project area) would prefer a shorter implementation period. Other more specific comments within the scope of the proposal and with supporting information for the Responsible Official to consider have been addressed in a Response to Comments document posted on the [project webpage](#) to help commenters understand how their comments were considered.

## Findings Required by Other Laws and Regulations

### National Forest Management Act (NFMA) – Land Management Plan Consistency

The interdisciplinary team reviewed the action alternatives including project design features and determined it is consistent with applicable land management plan direction, standards, and guidelines.

### Other Law, Regulation, and Policy Consistency

The interdisciplinary team reviewed the action alternatives and found them compliant with the following laws and regulations, in addition to NEPA.

### Endangered Species Act

#### *Threatened, Endangered, Proposed, and Candidate Species and Critical Habitat*

Plant, fisheries, and wildlife specialists reviewed the project and made the following determinations for threatened, endangered, proposed and candidate species and/or critical habitat.

#### Botany

No Threatened, Endangered, Proposed, Candidate species or habitat occur in the project area; therefore, **no effect**.

#### Fisheries and Wildlife

On June 8, 2023, prior to the release of the EA, draft Decision Notice and FONSI, the Petersburg Ranger District requested concurrence and expedited informal consultation from the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the Thomas Bay Young Growth Timber Sale project based on the following determinations:

If marine access facilities and marine haul routes are used to transport logs, the project **may affect, but is not likely to adversely affect** the Mexico DPS humpback whale, fin whale, sperm whale, and Western



# Thomas Bay Young-Growth Timber Sale



DPS Stellar sea lion. Project design features have been developed to minimize the potential for effects to these species. While these measures will not eliminate the potential for vessel strike, vessel-based disturbance, or effects of noise, any effects would be either too small to detect or measure, or extremely unlikely to occur.

The project would have **no effect** on Steller sea lion critical habitat because vessel traffic would not take place near critical habitat, which includes 3,000 feet surrounding designated haulouts, nor would project activities affect essential physical and biological features identified for the critical habitat designation.

Short-tailed albatross, federally listed under the regulatory jurisdiction of USFWS, are not expected in or near the project area, therefore, **no effect**.

The project would have **no effect** to the listed threatened and endangered salmonid and sturgeon species<sup>67</sup> that possibly occur on or adjacent to the Tongass National Forest. Habitat for these species is not likely present within the project area and these species are not known or suspected to be affected by vessel transit on marine waters.

On July 17, 2023, the Petersburg Ranger District received a letter from NMFS concurring with our determinations.

## Sensitive Species

Plant, fisheries, and wildlife specialists reviewed the proposed actions and made the following determinations for sensitive species:

**Table 9. Sensitive species impact determinations**

| Species                                                                      | Determination* | Rationale (or refer to project documentation)                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Round leaved orchid<br><i>Platanthera orbiculata</i><br>(Pursh) Lindl.       | MIIH           | Although this species has been found in young-growth forests south of the project area, there are no known occurrences on the Petersburg Ranger District or on the mainland of Southeast Alaska. Habitat is protected through non-development land use designations in the project area. |
| Mountain lady's slipper<br><i>Cypripedium montanum</i><br>Douglas ex. Lindl. | MIIH           | On the Tongass National Forest, one population has been found in a limestone influenced wetland. None have been found on the Petersburg Ranger District. Habitat is protected through non-development land use designations in the project area.                                         |
| Alaska rein orchid<br><i>Platanthera unalascensis</i> (Spreng.)<br>Kurtz     | MIIH           | This orchid has been documented on the Tongass on ultramafic geology, poorly drained soils, and gravelly substrate. None have been found on the Petersburg Ranger District. Habitat is protected through non-development land use designations in the project area.                      |

<sup>67</sup> Chinook Salmon (Six ESUs; Lower Columbia River, Upper Columbia Spring-run, Puget Sound, Snake River Spring/Summer-run, Snake River Fall-run, Upper Willamette River), Steelhead (Five DPSs; Lower Columbia River, Middle Columbia River, Upper Columbia River, Snake River Basin, Upper Willamette River), Lower Columbia River coho salmon, Hood Canal summer-run Chum Salmon, Snake River Sockeye Salmon, and Southern DPS Green Sturgeon

| Species                                                     | Determination* | Rationale (or refer to project documentation)                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Queen Charlotte Goshawk<br><i>Accipiter gentilis laingi</i> | IIIH           | Neither of the two known goshawk nesting areas on the Thomas Bay mainland have been affected by other activities in recent years. Goshawk buffers have been established and will continue to receive protections in accordance with the Forest Plan Standards and Guidelines.<br><br>Surveys will continue to occur for projects that could affect goshawk nesting habitat. |

**NI** – no impact; **IIIH**- may impact individuals or habitat but will not likely contribute to a trend towards federal listing or loss of viability to the population or species; **WIFV** - will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species.

## National Historic Preservation Act – Section 106 Review

A cultural resource investigation was initiated to meet the regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act. Forest Service archaeologists reviewed Tongass National Forest cultural resource files and atlases, the National Heritage Database, the Forest Service Cultural Sites GIS data layer, and the Office of History and Archaeology Integrated Business Suite for information on previous cultural resource investigations, as well as known or suspected archaeology sites in the project area. A search of these records and databases revealed that Forest Service archaeologists conducted four cultural resource surveys within the Area of Potential Effect (APE) since 1974. These surveyed areas total over 424 acres and vary in methodology. No previously recorded sites were found within the project's APE; however, several pre-contact period sites are in the vicinity and the project is in the high probability zone for cultural resources (USDA Forest Service 2017<sup>68</sup>). Forest Service archaeologists conducted a field survey of the APE during the summers of 2019 and 2020 and returned several times in 2021 and 2022. One new Alaska Heritage Resources Survey (AHRs) site that is eligible to the National Register of Historic Places (NRHP) was documented. To ensure site protection, a protective buffer was established between the site's outer edge and the nearest proposed project activities. With this measure in place, no direct, indirect, or cumulative effects are anticipated.

The Forest Service has made a determination of **No Adverse Effect** with project implementation and the Alaska SHPO concurred with our findings. We have met our obligations using standard procedures of the 36 CFR 800 review process as defined in the Programmatic Agreement regarding heritage program management on National Forests in the State of Alaska (USDA Forest Service 2017<sup>69</sup>).

## Consultation with Federally Recognized Tribes and Villages and Regional Corporations

In Alaska, Indian Tribes, as defined by the National Historic Preservation Act, include federally recognized tribes and villages and regional corporations created by the Alaska Native Claims Settlement Act. The Forest Service consulted with the Central Council of Tlingit and Haida Tribes of Alaska, the Organized Village of Kake, the Petersburg Indian Association, Kake Tribal Corporation, Sealaska Heritage Institute,

<sup>68</sup> USDA Forest Service. 2017. Programmatic Agreement Among the USDA Forest Service, Alaska Region, The Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Program Management on National Forests in the State of Alaska. *Manuscript on file, USDA Forest Service, Tongass National Forest, Petersburg Ranger District, Petersburg, Alaska.*

<sup>69</sup> USDA Forest Service. 2017. Programmatic Agreement Among the USDA Forest Service, Alaska Region, The Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Program Management on National Forests in the State of Alaska. *Manuscript on file, USDA Forest Service, Tongass National Forest, Petersburg Ranger District, Petersburg, Alaska.*





# Thomas Bay Young-Growth Timber Sale



Sealaska Corporation, and the Wrangell Cooperative Association, tribal groups that are culturally affiliated with the project area.

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## Clean Water Act

Congress intended the Clean Water Act of 1972, as amended in 1977 and 1987, to protect and improve the quality of water resources and maintain their beneficial uses. Section 313 and Executive Order 12088 of January 23, 1987, address Federal agency compliance and consistency with water pollution control mandates. Sections 208 and 319 address nonpoint source pollution caused by activities such as timber harvest.

A discharge of dredge or fill material from normal silviculture activities such as harvesting for the production of forest products is exempt from Section 404 permitting requirements in waters of the United States, including wetlands (404)(f)(1)(a). Forest roads qualify for this exemption only if constructed and maintained in accordance with BMPs to assure flow and circulation patterns and chemical and biological characteristics of the waters are not impaired (404)(f)(1)(e). The BMPs are specified in 33 CFR 323.4(a). These specific BMPs have been incorporated into Forest Service BMP 12.5 (USDA Forest Service 2006<sup>70</sup>).

The site-specific application of best management practices (BMPs), with a monitoring and feedback mechanism, is the approved strategy for controlling nonpoint source pollution as defined by Alaska's Nonpoint Source Water Pollution Prevention and Restoration Strategy (ADEC 2020<sup>71</sup>). The State approved the BMPs as described in the Forest Service's Soil and Water Conservation Handbook (USDA Forest Service 2006) as consistent with the Alaska Forest Resources and Practices Regulations (AFRPA). The BMPs are incorporated into the Forest Plan. The Forest Service issued National Core BMPs in 2012 (USDA Forest Service 2012<sup>72</sup>).

The Thomas Bay Young Growth Timber Sale project will implement the most up-to-date BMP guidance, including the Forest Service National Core BMPs, to achieve Alaska Water Quality Standards. A list of key BMPs that would be implemented as part of this project is included in the [unit cards](#) and in the [Design Features](#) listed above. The design of harvest areas for the project was guided by standards, guidelines, and direction in the Forest Plan and applicable Forest Service Manuals and Handbooks. Consequently, the proposed actions would comply with the Clean Water Act and meet the goals of Alaska's water quality standards.

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## Magnuson-Stevens Fisheries Conservation and Management Act (EFH)

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires consultation with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for actions that may adversely affect Essential Fish Habitat (EFH).

The Thomas Bay Young Growth Timber Sale EFH Assessment was submitted to NMFS for consultation on April 6, 2023. Following consultation, the Forest Service determined the project may adversely affect

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<sup>70</sup> USDA Forest Service. 2006. Soil and Water Conservation Handbook. US Forest Service Alaska Region 10: R10-2509.22-2006-2. Chapter 10, Section 14.26. Juneau, Alaska. 117 pp.

<sup>71</sup> State of Alaska. Department of Environmental Conservation. 2020. Alaska Nonpoint Source Water Pollution Prevention and Restoration Strategy. State Fiscal Years 2021-2025.

<sup>72</sup> USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. FS-990a. April 2012.  
[https://www.fs.fed.us/biology/resources/pubs/watershed/FS\\_National\\_Core\\_BMPs\\_April2012.pdf](https://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf)



# Thomas Bay Young-Growth Timber Sale



freshwater EFH based on the potential short-term increase in sedimentation caused by heavy equipment clearing woody debris from the culvert on AWC 108-60-10030-2011-3020 and removing the dike on AWC 108-60-10025.

In response to consultation, NMFS provided two conservation recommendations to further avoid, minimize, mitigate, or otherwise offset effects in accordance with Section 305(b)(4)(A) of the Magnuson-Stevens Fishery Conservation and Management Act. In response to the recommendations, the Forest Service will require barging rather than rafting logs at the LTF, and secondly, the Forest Service will monitor the culvert on AWC 108-60-10030-2011-3020 for future blockage. If the problem persists, the Forest Service will consider installing beaver deterrents.

Other potential adverse effects to freshwater EFH are not anticipated since potential sedimentation to EFH from project activities, primarily from temporary road construction activities, will be minimized and short term by implementing BMPs and applying no-harvest buffers (100 feet or more) to Class I and II streams (see [Unit Cards](#)). The risk of road-related sedimentation from timber harvest activities within the project area is low due to the flat topography and low transport capacity of most streams in the area. The no-harvest buffers will also protect stream shade and potential effects to stream temperature. Potential long-term adverse effects to freshwater EFH are not anticipated because temporary roads will be decommissioned, and no new permanent roads would be built.

No marine EFH is expected to experience adverse effects because transport of timber would utilize existing log transfer facility infrastructure via barge only, and no disturbance of near-shore and sea-floor habitat would occur.

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## Alaska National Interest Lands Conservation Act

In compliance with Section 810 and 811 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), the potential effects of project activities on subsistence opportunities and resources have been evaluated. Effects to subsistence resources are addressed in the Subsistence and Wildlife Habitat sections of this document. In summary, 1) harvest of young growth varies slightly by alternative and has the potential to cause small changes in the populations of primary subsistence wildlife in the area including deer, moose, marten, and wolves, and 2) access will not be substantively changed with temporary road construction or reconstruction particularly since the area where harvest would occur is already readily accessible. Overall, effects from any of the alternatives on abundance, access to, or competition for subsistence resources will be limited and temporary. They will not result in a significant possibility of a significant restriction of subsistence uses.

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## Bald and Golden Eagle Protection Act

Though it is very unlikely due to the project location and project activities, if a bald eagle nest or communal roost site is identified near project activities, the National Bald Eagle Management Guidelines (USFWS 2007<sup>73</sup>) will be followed, or an incidental take permit will be attained prior to implementation.

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## Marine Mammal Protection Act

Marine mammals are protected by the Marine Mammal Protection Act. The Forest Plan additionally provides a Standard and Guideline to provide for the protection and maintenance of harbor seal, Steller sea lion, and sea otter habitats (USDA Forest Service 2016<sup>74</sup>, p. 4-89). That Standard and Guideline (WILD1 A.1.) states: "Ensure that Forest Service authorized or approved activities are conducted in a

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<sup>73</sup> U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines.

<sup>74</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



# Thomas Bay Young-Growth Timber Sale



manner consistent with the Marine Mammal Protection Act (MMPA), Endangered Species Act, and NMFS guidelines for approaching seals and sea lions. Consult with the appropriate agency for identification of critical timing events, such as molting, parturition, etc., and recommended distances to avoid disturbances. "Taking" of marine mammals is prohibited; "taking" includes harassment (adverse disturbance), pursuit, or attempting any such activity."

The [design features](#) above include measures to minimize the potential for vessel strike and vessel-based disturbance to marine mammals. These measures minimize the chance that vessels and marine mammals would be in close enough proximity to cause effects. While these measures will not eliminate the potential for vessel strike or vessel-based disturbance, any potential for adverse effects would be extremely unlikely to occur.

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## Tongass Timber Reform Act

Timber harvested as a result of the action alternatives would provide part of the timber supply to the Tongass National Forest's timber program, as stated in Section 101 of TTRA "... the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle."

Commercial timber harvest is prohibited within no less than 100 feet of any Class I stream or any Class II stream flowing directly into a Class I stream, as required in Section 103 of the TTRA. The design and implementation direction in the EA incorporates best management practices (BMPs), and Forest Plan direction (standards and guidelines) for the protection of all stream classes; therefore, this project complies with the Tongass Timber Reform Act.

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## Executive Orders

The Responsible Official and/or applicable specialist(s) have determined the action alternatives are in compliance with the following Executive Orders (EO), which were deemed pertinent based on the project.

**EO 11988, Floodplain Protection** – avoid construction in and modification of floodplains. Although this act deals largely with avoiding flood damage and hazards, it also directs agencies to restore and preserve the natural and beneficial values of floodplains while planning for land use. No floodplains will be affected by the Thomas Bay Young-Growth Timber Sale project.

**EO 11990, Protection of Wetlands** – avoid actions within wetlands unless there are no practical alternatives, and the action includes all practicable means to minimize harm to wetlands. Very little wetland is present in the project area or in any of the proposed units or proposed road locations. Wetlands will not be affected by the Thomas Bay Young-Growth Timber Sale project.

**EO 12898, Environmental Justice** – identify and address disproportionately high and adverse effects on minority and low-income populations. The actions proposed will not disproportionately affect any minority or low-income population. Public outreach, including scoping and tribal consultation, has provided an opportunity for meaningful involvement regardless of race, color, national origin, or income.

**EO 12962, Aquatic Systems and Recreational Fisheries** – conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities. The action alternatives minimize the effects on aquatic systems through project design, application of standards and guidelines, and BMPs. Recreational fishing opportunities would remain essentially the same as the current condition because aquatic habitats are protected through implementation of BMPs and riparian buffers.

**EO 13112, Invasive Species** – prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Because Thomas Bay is nearly weed-free, only a small population of reed canary grass has been found in the project area, so preventing introduction and establishment of invasive species is a high priority.

**EO 13175, Consultation and Coordination with Indian Tribal Governments** - directs federal agencies to respect tribal self-government, sovereignty, and tribal rights, and to engage in regular and meaningful



# Thomas Bay Young-Growth Timber Sale



government-to-government consultation with tribes on proposed actions with tribal implications. The Forest Service consulted with the Central Council of Tlingit and Haida Tribes of Alaska, the Organized Village of Kake, the Petersburg Indian Association, Kake Tribal Corporation, Sealaska Heritage Institute, Sealaska Corporation, and the Wrangell Cooperative Association, tribal entities culturally affiliated with the project area.

**EO 13186, Migratory Birds** – identify actions that may have a measurable negative effect on migratory bird populations. Given the relatively small scale of the project in relation to the landscape and because young growth is not the preferred nesting habitat for most species, effects to migratory birds are minimal for all action alternatives.

## NEPA: Finding of No Significant Impact (FONSI)

As the Responsible Official, I have reviewed the environmental impacts of the project relative to the definition of significance established by Council on Environmental Quality (CEQ) Regulations (40 CFR 1501.3[b]) and have determined that the activities proposed under any of the action alternatives would not have a significant effect on the quality of the human environment. My determination takes into consideration all information included in the environmental assessment, including the [Potentially Affected Environment](#), as well as documentation in the project record. Because I have not found evidence of significant environmental impacts associated with action alternatives, I further find that there is no need to prepare an environmental impact statement. My rationale for this finding is as follows and considers the potentially affected environment and the degree of effects.

### Potentially Affected Environment

Appropriate to the proposed action alternatives, I considered the locally affected area and its resources as documented in the [Environmental Effects](#) section and in the project record.

For the action alternatives, the environmental effects are based on the analyses summarized in the Environmental Effects section. The setting of this action is limited to the harvest of up to 841 acres of National Forest System lands within 2,851 acres of young-growth forest stands within the Modified Landscape and Scenic Viewshed land use designations, which is about 25 percent of the total 3,478 acres of young-growth timber in the project area. Other actions include the construction of up to 0.9 mile of new temporary road, the reconstruction of up to 6.23 miles of temporary road, and terrestrial and aquatic restoration and improvement activities (Table 1).

### Factors Considered for Degrees of Effects

#### 1. Both short- and long-term effects.

The sections [Environmental Effects](#) and [Findings Required by Other Laws and Regulations](#) summarize potential effects, focusing the discussion around compliance with relevant law, regulation, and policy. Specialists considered both short- and long-term effects. None would cause a significant impact on the various resources contributing to the quality of the human environment. Project design features and Best Management Practices limit effects locally to the site-specific areas in which project activities are occurring.

#### 2. Both beneficial and adverse effects.

The [Environmental Effects](#) section contains the analysis of effects and impacts, both beneficial and adverse, which are disclosed for each resource. Neither adverse nor beneficial effects rise to the level of a significant impact. Project design features and best management practices reduce expected adverse impacts to low or moderate levels.

#### 3. Effects on public health and safety.

Activities associated with young-growth timber harvest have been implemented on the Forest with no impacts to public health or safety. No circumstances or conditions exist to indicate unusual or



## Thomas Bay Young-Growth Timber Sale



substantial risks to public health and safety. No concerns were raised during the public scoping period. Contract measures will be enforced during implementation to minimize conflicts with increased vehicle traffic.

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#### ***4. Effects that would violate federal, state, tribal or local laws protecting the environment.***

We have analyzed the proposed activities for compliance with applicable laws. As documented in the [Environmental Effects](#) and [Findings Required by Other Laws and Regulations](#) sections and in the project record, the proposed activities do not violate federal, state, or local law requirements imposed for the protection of the environment and has been reviewed by federal and state agencies. The activities proposed are consistent with the Forest Plan.





# Thomas Bay Young-Growth Timber Sale



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# Thomas Bay Young-Growth Timber Sale



## Decision Notice

### Thomas Bay Young-Growth Timber Sale USDA Forest Service Tongass National Forest, Petersburg Ranger District

The Decision Notice is based on all previous information in the [Environmental Assessment](#) and [Finding of No Significant Impact \(FONSI\)](#), as well as information included in the project record.

## Decision

Based upon my review of the Thomas Bay Young-Growth Timber Sale Environmental Assessment and FONSI, public comments, consideration of the 2016 Tongass National Forest Land and Resource Management Plan (Forest Plan), the [Findings Required by Other Laws and Regulations](#), alignment with the Southeast Alaska Sustainability Strategy, and documentation in the project record, I have selected [Alternative 3](#) (hereafter referred to as the Selected Alternative) to allow harvest of approximately 561 acres of young-growth resulting in about 12.6 million board feet of timber and 6.8 miles of temporary road within the Thomas Bay project area on the mainland (see Table 2 and Figure 4). The Selected Alternative includes all project design features and the terrestrial and aquatic restoration and improvement activities as identified and described in the environmental assessment (EA). The terrestrial and aquatic restoration and improvement activities will be implemented in conjunction with the Selected Alternative.

The Selected Alternative is one of two alternatives developed in response to public scoping comments on the initial proposed action ([Alternative 2](#)). Unlike the initial proposed action, the Selected Alternative does not include any even-aged management, and two units (16 and 19) that would require road building through an Old-Growth Habitat LUD were dropped from consideration. Additionally, the harvest units were configured to be operable for a variety of operators to better support timber industry employment and benefit local and regional economies, while maintaining wildlife connectivity (in addition to the adjacent to the Old-Growth Habitat LUD) and creating early seral habitat distributed throughout the project area over time. To accomplish this, the Selected Alternative silvicultural prescriptions allow for:

- multiple entries over the life of the stand (approximately 60 years for even-aged management),
- varying retention levels (50 to 66 percent), and
- smaller opening sizes.

The majority of the harvest, 519 acres in 9 units, will be two-aged management (patch clearcut with reserves), retaining roughly 50 percent of the unit with clearcuts up to 30 acres. Harvest of another 42 acres in 2 units (Units 15 and 20) will use uneven-aged management where up to 33 percent of the unit will be harvested through group selections creating up to 2-acre openings and yarding corridors, where needed, for access. No roads will be constructed through the Old-Growth Habitat LUD, and wildlife connectivity will be maintained through all stands.

## Decision Rationale

In my selection of Alternative 3 for the Selected Alternative, I reviewed and considered:

- how best to meet the purpose of this project to support the employment of the young growth timber industry for the benefit of local and regional economies, while also maintaining wildlife connectivity and addressing restoration needs in the area;
- the existing conditions within the project area;
- the environmental effects;
- direction in the 2016 Tongass National Forest Land and Resource Management Plan (Forest Plan);
- Section 101 of TTRA to seek to meet annual timber market demand;
- the project record, which shows a thorough analysis using the best available science;
- relevant issues and concerns; and
- public comments.



# Thomas Bay Young-Growth Timber Sale



All three action alternatives meet the purpose and need of the project; however, they each do so to varying extents, with tradeoffs between timber economics and other resources. My rationale is based on an evaluation of these tradeoffs, considering the beneficial and adverse environmental effects of the action alternatives documented in the environmental analysis.

I believe the Selected Alternative provides the best mix of treatments that will meet multiple objectives with consideration for near-term and long-term management goals that will advance the project area toward the desired conditions outlined by the 2016 Forest Plan Land Use Designations (LUD) which include providing a sustained yield of timber and a mix of other resources activities while minimizing the visibility of developments as seen from Visual Priority Travel Routes and Use Areas.

The Selected Alternative also provides an opportunity to 1) supply economically viable young-growth timber, harvest that supports the employment of the young-growth timber industry for the benefit of local and regional economies, to an emerging market and local operators, and 2) support the transition from a predominantly old-growth timber industry to one that is primarily young-growth based, while maintaining wildlife connectivity and creating a mix of young growth at different ages across the project area and WAA which will provide for a diversity of habitats and continued dispersal and movement of wildlife through older young-growth and between stands of productive old-growth forest.

Together, I believe the actions in the Selected Alternative will best meet the [purpose and need](#), support young-growth timber industry employment for the benefit of local and regional economies, and align with the Southeast Alaska Sustainability Strategy (SASS). The Selected Alternative also provides the best opportunity to refocus resources to implement an integrated forest management program that includes watershed improvement, wildlife habitat restoration and sustainable young-growth harvest.

To conclude, I believe the Selected Alternative best addresses the relevant issues and concerns raised during public comment periods, such as meeting the 2016 Forest Plan's Priority of Direction (Forest Plan, p. 1-5), aligning with the SASS, providing for a mix of timber sale opportunities of different sizes and timeframes, and balancing wildlife objectives (habitat connectivity) with timber economics.

## Summary of Public Involvement

In the EA, a list of agencies, organizations and persons consulted regarding this proposal is provided in the [Agencies and Persons Consulted](#) section, which also provides a summary of public involvement.

All comments submitted on the project are available for review in the Thomas Bay Young-Growth Timber Sale Comment [Reading Room](#) and were considered by the interdisciplinary team (IDT) and Responsible Official. Comments on the Preferred Alternative were generally supportive of small sales and restoration opportunities; however, some commenters prefer opportunities for sustained harvest over a longer period of time while others (mostly locals within the project area) would prefer a shorter implementation period. Other more specific comments have been addressed in the Response to Comments document provided on the [project webpage](#).

## Findings Required by Other Laws and Regulations

Findings required by other laws and regulations applicable to the proposal can be found in the [Findings](#) section of the EA.

## Objection Opportunities

On September 28, 2023, I, the Responsible Official, released the Thomas Bay Young-Growth Timber Sale EA and draft DN/FONSI. The release of the draft DN initiated a 45-day objection period pursuant to the pre-decisional administrative review process (objection process) under 36 CFR 218, subparts A and B. The Reviewing Officer received two objections during the objection filing period and issued a [written response](#) on January 26, 2024.

The Reviewing Officer found no violation of law, regulation, or policy; however, he requested that I, as the Responsible Official, clarify the intensity of effects, and the viability determinations and rationale for



# Thomas Bay Young-Growth Timber Sale



wildlife management indicator species based on the anticipated changes in habitat prior to signing the Decision Notice. This request was addressed with the addition of Table 8 beginning on page 47 of the EA. Subsequently, I may sign the Decision Notice.

## Implementation

Implementation may begin immediately after this Decision Notice is signed pursuant to 36 CFR 218.12.

## Contact

For additional information concerning this decision, contact: Ben Case, Team Leader, Petersburg Ranger District, PO Box 1328, Petersburg, Alaska, 99833, [benjamin.case@usda.gov](mailto:benjamin.case@usda.gov), 907-772-3871.

**VERNON  
BORN**

Digitally signed by  
VERNON BORN  
Date: 2024.02.22  
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Vernon (Ray) Born  
District Ranger



# Thomas Bay Young-Growth Timber Sale



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## Appendix – Unit Cards

Unit cards are developed for the layout foresters by the interdisciplinary planning team (IDT) to explain site-specific activities and any resource concerns associated with required [project design features](#). These activities include timber harvest units and proposed and existing roads needed for timber harvest. Both narratives and maps are provided to show site-specific information.

### Unit Card Header Information

Each unit card has a header block with information used to generally describe the unit's size, location, and volume for harvest. Each header block contains the following information:

**Harvest Acres:** This is an estimate of acres within the proposed harvest unit using aerial photos and GIS information. These numbers exclude areas within the overall unit boundary set-aside to meet Forest Plan Standards and Guidelines or for other resource concerns. The numbers have been rounded to the nearest whole number.

**Prescription:** The prescription code for the prescribed treatment.

- Even-aged management – Clearcutting (EA-CC)
- Two-aged management – Patch Clearcutting, 25% removal (2A-PCC 25%)
- Two-aged management – Patch Clearcutting, 50% removal (2A-PCC 50%)
- Uneven-aged management – Group Selection, 33% removal (UEA-GS 33%)

**Net Harvest Volume (MBF):** This is the estimated volume in thousand board feet (MBF) available for harvest in the unit as determined from field estimates and stand examination plots.

**Harvest System:** The method of proposed timber removal or how it will be yarded from the harvest unit.

**VCU:** The Value Comparison Unit (VCU) the proposed harvest area is within.

**LUD:** The Land Use Designation(s) (LUD) the proposed harvest unit is within.

### Resource Information

#### Silviculture

This section of the unit card identifies the silvicultural prescription completed for the initial proposed unit pool. Minor changes are expected during implementation to better meet on-site resource management and protection objectives. Slight adjustments to unit boundaries are also likely during final layout to improve logging system efficiency or for site conditions. Detailed *Stand/Unit Diagnosis* and *Prescriptions including detailed marking guidelines* for each stand in the selected alternative will be approved by a certified silviculturist and available in the project record.

Silvicultural systems refer to a complete set of treatments used to manage forest stands and forest landscapes over long periods of time. This process includes the harvest of stand regeneration, intermediate cutting, and other treatments necessary for the development and replacement of the forest stand. Units with high windthrow risk are identified in the unit card narratives under Aquatics, and buffers shall be designed by an interdisciplinary team during unit layout.

The 2016 Forest Plan (Chapter 4, Standards and Guidelines) and USDA Forest Service Manual 2400 (Timber Management) provide detailed information about the silviculture systems recommended for the Tongass National Forest. The three recommended systems are (1) even-aged, (2) two-aged, and (3) uneven-aged. All of these systems are proposed in the Thomas Bay Young Growth Timber Harvest project. Descriptions of these silviculture systems follow.

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#### Even-aged System

The regeneration method chosen to achieve even-aged management is clearcutting where all, or the majority trees will be harvested within the unit. Where this treatment is recommended, it has been determined optimal for the site. Some reasons to select the use of even-aged systems are: (1) compatibility with the use of standard logging systems, (2) favorable harvest economics, (3) the control of disease such as hemlock dwarf mistletoe, (4) to minimize the effects of windthrow and (5) the creation of conditions favorable for regeneration of Sitka spruce, Alaska yellow-cedar and western

redcedar (USDA Forest Service 2016<sup>75</sup>, p. 4-71). Most of the past harvest in the project area occurred before there were regulations on the size of clearcuts. National Forest Management Act regulations provide that even-age openings in the western hemlock-Sitka spruce forest type of Southeast Alaska should not exceed 100 acres unless exempted under specific conditions. The Forest Plan page 4-69 defines these conditions. Even-aged harvest areas proposed in this project will be prescribed to be 100 acres or less. There are no known instances where stand conditions or topography warrant exceeding 100 acres.

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### ***Two-aged System***

Two-aged management results in stands that have 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. In order for a harvest to be considered two-aged, at least 15 percent of the original standing green tree basal area 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 objective of this management method is to maintain and manage for two-aged stand structure primarily for increased wildlife benefit over even-aged management while maintaining operational and economic feasibility. The retention level prescribed is area based. Harvesting would occur through patch clearcutting on up to 50 percent in Alternative 3 and up to 25 percent of the stand area in Alternative 4. Patch clearcuts will be limited to 30 acres in size for Alternative 3, and 10 acres in size for Alternative 4. Unharvested areas of generally 10 acres in size and configured such that they are feasible for future harvest and should be well distributed throughout the stand. Patches should be located so that the residual stand is not isolated from harvest in the future. A second entry in roughly 30 years that harvests the remaining stand area is anticipated under this management strategy. The second entry will be timed assuming PCT occurring in the first age class about 20 years after harvest. This would be followed by a ten-year rest period that allows for the slash from treatment to decompose to a point that it no longer impedes deer access (McClellan et al. 2014<sup>76</sup>). Harvest openings should be located to balance wildlife needs while creating an economical sale opportunity.

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### ***Uneven-aged System***

Uneven-aged management is a commercial treatment designed to promote improved wildlife habitat in older young growth while producing a commercial timber product. The system will be implemented using a prescription designed around group selection/retention. The goal of uneven-aged management is to economically harvest a percentage of the stand while improving wildlife habitat and retaining timber for future economically viable entries. The group selection system will have a low risk of residual stand damage from windthrow and allow for economical use of ground-based logging equipment.

This prescription involves more intensive management than even-aged or two-aged prescriptions. There is no final rotation age as in even-aged or two-aged systems, but instead regular, periodic entries designed to maintain three or more distinct age classes in a reasonably well dispersed manner across the stand. In the Thomas Bay project uneven-aged management is prescribed using a group selection system where roughly 66 percent of the stand area is retained in the first harvest entry. Group selections or harvest areas should be designed so that openings are two acres or less, and where necessary for access, connected by trails up to 60-feet wide, depending on the equipment used. Access trails should be designed to minimize their length and either designed or approved by Forest Service personnel. Unharvested areas of generally 2 acres or greater and configured such that they are feasible for future harvest should be well distributed throughout the stand. The second entry would occur about 30 years after, similarly harvesting another third of the stand. A third entry would occur 60 years in the future. Harvest in this manner will result in stands of high structural diversity due to the high variability in age, tree size and individual tree characteristics. As with the other two systems, PCT would be prescribed for the harvested area about 20 years after each entry.

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<sup>75</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

<sup>76</sup> McClellan, M. H., P.E. Hennon, P.G. Heuer, K.W. Coffin. 2014. Condition and deterioration rate of precommercial thinning slash at False Island, Alaska. Res. Pap. PNW-RP-594. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 29 pp.

Natural regeneration would occur in the harvested stands in satisfactory amounts. The limited openings in the canopy, would tend to favor hemlock regeneration and somewhat limit the regeneration of spruce.

The primary difficulty of the system will be avoiding damage to the regenerated portion of the stand during future entries.

## Logging Systems/Transportation

This section of the unit card identifies the method of proposed logging system and where it will be yarded from the harvest unit. It also identifies any proposed temporary road construction.

## Resource-Specific Requirements

In the Thomas Bay Young Growth Timber Sale project area, most concerns are mitigated with the silvicultural system as directed by Forest Plan Standards and Guidelines; the remaining resource concerns are mitigated by unit design and adherence to Forest Plan Standards and Guidelines, best management practices (BMPs) and [design features](#) provided in the EA and below.

This section of the unit card narrative is a place for resource specialists to highlight unit-specific resource concerns and provide specific direction to the layout foresters on how to mitigate the concerns.

## Design Features to Mitigate Resource Concerns

### Aquatics and Essential Fish Habitat

Potential adverse effects to aquatic resources freshwater Essential Fish Habitat (EFH) will be minimized due to the following:

- All Class I and II streams within the project area will be protected by a no-harvest buffer of 100 feet or more (see the unit card narratives for site-specific activities).
- No Class I or II stream crossings are proposed on new temporary road construction. One new stream crossing is proposed on the reconstructed temporary road in Unit 18. A dike was constructed where this road crosses a Class I palustrine (PA) stream, when this stand was harvested 40 years ago. A temporary culvert would be installed in this dike for this project until harvest activities are complete, at which time the culvert and the dike would be removed to improve hydrologic connectivity through this ponded location. All temporary roads will be decommissioned after timber harvest is complete.
- Best Management Practices and Forest Plan direction will be implemented to protect water quality and aquatic habitat for all freshwater streams within the project area as described below and in the unit cards.

[National BMPs](#) (USDA Forest Service 2012<sup>77</sup>), include:

- Veg-1: Evaluate and field verify site conditions in the project area to design mechanical vegetation treatment prescriptions that avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources.
- Veg-2: Develop an erosion control and sediment plan that covers all disturbed areas including skid trails and roads, landings, cable corridors, temporary road fills, or other areas disturbed during mechanical vegetation treatments.
- Veg-3: Modify vegetation treatment prescriptions and operations in the Aquatic Management Zones as needed to maintain ecosystem structure, function, and processes.

Regional BMPs (USDA Forest Service 2006<sup>78</sup>), include:

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<sup>77</sup> USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. USDA Forest Service. Washington, D.C. 165 pp.

<sup>78</sup> USDA Forest Service. 2006. Soil and Water Conservation Handbook. US Forest Service Alaska Region 10: R10-2509.22-2006-2. Chapter 10, Section 14.26. Juneau, Alaska. 117 pp.

- 12.6: Riparian area designation and protection - Manage riparian areas to provide for long-term conservation, productivity, biological diversity, and ecosystem integrity.
- 12.6a: Buffer design and layout - Design streamside buffers to meet objectives defined during implementation of Regional BMP 12.6.
- 12.8: Oil pollution prevention and servicing/refueling operations - The Forest Service will designate the location, size, and allowable uses of service and refueling areas. The operator will develop Spill Prevention Control and Countermeasure (SPCC) plans as needed by specific site conditions.
- 13.16: Stream channel protection (implementation and enforcement) - In addition to BMPs 12.6 and 12.6a, protection measures may include: leaving an unmanaged streamside buffer, selective harvest of merchantable trees, or other silvicultural prescription designed to meet water quality and riparian objectives.
- 14.9: Drainage control to minimize erosion and sedimentation - To minimize erosive effects of concentrated water flows from transportation facilities and the resulting degradation of water quality through proper design and construction of drainage control systems.
- 14.12: Control of excavation and sidecast material - To minimize sedimentation from unconsolidated excavated and sidecast material caused by road construction, reconstruction, or maintenance activities.
- 14.26: Daily LTF cleanup - Assure cleanup of bark, debris, or other solid materials daily when accumulations are present. Dispose of the materials in an acceptable manner to prevent water quality degradation.
- 14.27 (Log Storage/Sort Yard Erosion Control) - To avoid generation of fine particles and control the overland flow of particles carrying hazardous materials into waterways.

Forest Plan Standards and Guidelines (USDA Forest Service 2016<sup>79</sup>, pp. D5 to D18)

- Per Tongass Timber Reform Act (TTRA) requirements, no commercial harvest within 100 feet of Class I streams and Class II streams flowing directly into Class I streams.
- After field review, no timber harvest is proposed within the Riparian Management Areas (RMA); the channel-specific stream buffers range from 100 to 140 feet from stream bank.
- An interdisciplinary Reasonable Assurance of Windthrow (RAW) review will be conducted prior to implementation and additional buffer width may be prescribed for stream buffer protection.

Additionally, potential adverse effects to coho salmon and freshwater EFH when removing the dike in Unit 18 will be minimized due to the following:

- Timing windows for in-water work will be incorporated into the construction schedule to avoid in-water work during critical life stages for EFH species and other salmonids to minimize potential adverse effects. For example, in-water work will be timed to avoid juvenile salmon out-migration. In Southeast Alaska, in-water construction is generally restricted from June 15 to August 1, although this timing window may be adjusted based on permit stipulations.
- Where required, a fish barrier net may be used upstream and downstream of the crossing to prevent fish from entering the work area.
- At no time will activities result in a migration barrier for adult or juvenile salmonids. Prior to removing in fish-bearing waters, personnel experienced in fish removal/transport will isolate and remove fish from the work area in accordance with an ADF&G fish resource permit and project plans and specifications.
- Any stream bank affected by the work will be restored to natural dimensions and flow capacity.

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<sup>79</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau, AK.

- Temporarily disturbed areas, including slopes, will be re-contoured to match existing contours and stabilized within 7 days of the completion of construction in the area.

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## **Botany/Invasive Plants**

If any previously undiscovered sensitive or rare plant species, or species are encountered in the project area at any point in time prior to or during the implementation of this project, notify a botanist immediately to evaluate the population and recommend avoidance and/or protection measures consistent with Forest Plan standard PLA1(II)(III).

Thomas Bay is nearly weed-free; therefore, it is a high priority to prevent introduction and establishment of invasive species. If any previously undiscovered invasive plant species are encountered at any point in time prior to or during the implementation of this project, a botanist or ecologist will be consulted, and appropriate measures will be taken.

Weed BMPs 2, 3, 7 and 17 for weed prevention practices (Krosse 2019<sup>80</sup>) will be followed.

- BMP 2 - Use contract and permit clauses, provisions, and/or specifications to require that the activities of contractors and permittees are conducted to prevent the introduction 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).
  - Equipment moved between islands and the Thomas Bay mainland will be cleaned following Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance (Krosse 2019, Exhibit 4)
- BMP 7 - Remove seed source that could be transported by passing vehicles by minimizing roadside sources of weed seeds.
- BMP 17 - Ensure that weed prevention is considered in all timber projects.

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## **Heritage (Cultural Resources)**

A 100-foot protective buffer was established to ensure protection of an Alaska Heritage Resources Survey (AHRS) site within the project area that is eligible for listing on the National Register of Historic Places (NRHP). There is an additional 256 feet between the buffer and the nearest proposed project activities.

In the unlikely event that additional cultural resources are discovered with project implementation, work in the area will cease until the resource is assessed.

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## **Soils and Wetlands**

Slopes are less than 35 percent and suitable for harvest with shovel yarding. Forested and non-forested wetlands lie in areas surrounding the harvest units, but none within the proposed units in any alternative. The following site-specific BMPs should be implemented during harvest activities to minimize soil disturbance:

- Reuse existing landings, roads, equipment trails, and yarding corridors when possible. Do not reuse landings in riparian management areas. (National BMP Veg-4, Veg-6, R10 BMP 13.10)
- Retain existing topsoil and surface soil in the unit where possible. Where blading of topsoil is required to meet project objectives, restore the site by stockpiling topsoil and replacing when activities are completed. This activity does not apply to existing temporary roads and landings. (National BMP Veg-4, Veg-6, R10 BMP 14.24)
- Avoid operating equipment when ground conditions are such that excessive rutting, soil puddling, or runoff of sediments directly into waterbodies will result. (National BMP Veg-2, Veg-4, R10 BMP 14.6)
- Use puncheon or a slash mattress to provide adequate bearing strength and prevent rutting from heavy equipment used in felling and yarding operations. Fluff or scatter the puncheon/slash trail upon completion. Do

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<sup>80</sup> Krosse, P. 2019. Guidance for Invasive Plant Management Program, Tongass National Forest. Internal Document. USDA Forest Service, Tongass National Forest, Ketchikan, AK.



not leave thick, dense slash or woody debris accumulations that could inhibit revegetation. (National BMP Veg-4, R10 BMP 13.9, R10 Soil Quality Standards)

- Avoid creating ruts greater than 12 inches deep. Avoid operating heavy machinery in relict channels, sloughs, or non-forested wetlands to prevent rutting. Where these areas cannot be avoided, use adequate slash or puncheon to support the weight of equipment. (Forest Plan, R10 Soil Quality Standards)
- A minimum of partial suspension is required for yarding operations. (R10 BMP 13.9)
- To minimize surface erosion, maintain vegetation or litter cover on the soil across at least 85 percent of each unit's surface. (National BMP Veg-2, R10 BMP 12.17, R10 Soil Quality Standards)
- Large piles of slash at landings reduce soil productivity by burying productive soils. Minimize density and area of slash and non-merchantable material at landings. Scatter slash through unit, haul slash away or treat at the landing to maintain soil productivity. (R10 Soil Quality Standards)

Further resources to protect soil resources can be found in National BMPs (FS-990a) and Region 10 BMPs (FSH 2509.22).

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## Wildlife

If any previously undiscovered endangered, threatened, candidate, sensitive species, or species which require application of Forest Plan Standards and Guidelines or other restrictions are encountered in the project area at any point in time prior to or during the implementation of this project, appropriate measures will be enacted in accordance with management standards and guidelines, laws, regulation, and policy.

Listed below are the Forest Plan Standards and Guidelines and other requirements most applicable to this project.

Heron and Raptor Nests: If an active nest is identified, protect 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. Refer to Forest Plan Standard and Guideline WILD1 XIII (USDA Forest Service 2016<sup>81</sup>, p. 4-90).

Bald Eagle Nests or Communal Roost Sites: If a bald eagle nest or communal roost site is identified near project activities, follow the National Bald Eagle Management Guidelines, or attain an incidental take permit prior to implementation. Refer to Forest Plan Standards and Guidelines WILD1 VIII (p. 4-88), G-WILD-02 (p. 5-15), and the National Bald Eagle Management Guidelines.

Goshawk Nests: Preserve nesting habitat around all goshawk nest sites. Maintain an area of not less than 100 acres of productive old-growth (POG) forest if it exists, or the largest diameter young-growth forest if sufficient POG is not adjacent to the nest. Permit no commercial timber harvest in the protective buffer. Existing roads may be maintained. New road construction is permitted if no other reasonable roading alternatives outside the mapped nesting habitat exist. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Seasonal restrictions are removed for active nests that become inactive or unsuccessful. Refer to Forest Plan Standard and Guideline WILD4 II A (USDA Forest Service 2016, pp. 4-95 to 4-96).

Osprey Nests: Establish a minimum 330-foot radius habitat management zone around each existing osprey nest tree. Maintain the osprey nest zone even if the nest or nest tree becomes inactive. Refer to Forest Plan Standard and Guideline WILD4 II E (USDA Forest Service 2016, p. 4-96).

Marbled Murrelet Nests: If nests are found during activity 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

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<sup>81</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

period. Buffer protection may be removed if the site remains inactive for two consecutive nesting seasons. Refer to Forest Plan Standard and Guideline WILD1 XVI (USDA Forest Service 2016<sup>82</sup>, p. 4-92).

**Wolf Dens:** Design management activities to avoid abandonment of wolf dens. Maintain a 1,200-foot forested buffer, where available, around known active wolf dens. Road construction within the buffer is discouraged and alternative routes should be identified where feasible. No road construction is permitted within 600 feet of a den unless activity review indicates that local landform or other factors will alleviate potential adverse disturbance. Refer to Forest Plan Standard and Guideline WILD1 XIV (USDA Forest Service 2016, p. 4-91).

**Marine Mammals:** Ensure Forest Service permitted, or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, Endangered Species Act, and NMFS regulations for approaching marine mammals.

#### **Vessels**

1. Vessel operators will:
  - a. maintain a watch for marine mammals at all times while underway;
  - b. stay at least 100 yds away from listed marine mammals;
  - c. travel at less than 5 knots when within 300 yards of a whale;
  - d. avoid changes in direction and speed when within 300 yds of whales, unless doing so is necessary for maritime safety;
  - e. not position vessel(s) in the path of whales, and will not cut in front of whales in a way or at a distance that causes the whales to change their direction of travel or behavior (including breathing/surfacing pattern);
  - f. check the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged; and
  - g. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1 mi or less.
2. Adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b)) (note: these regulations apply to all humpback whales). Specifically, pilot and crew will not:
  - a. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
  - b. cause a vessel or other object to approach within 100 yards of a humpback whale; or
  - c. disrupt the normal behavior or prior activity of a whale by any other act or omission.
3. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 100 yds of the vessel, and if maritime conditions safely allow, the engine will be put in neutral, and the whale will be allowed to pass beyond the vessel.
4. Vessels will take reasonable steps to alert other vessels in the vicinity of whale(s).
5. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear. No materials capable of becoming entangled around marine mammals will be discarded into marine waters.

#### **Vessel Transit, Western DPS Stellar Sea Lions, and their Critical Habitat**

6. Vessels will not approach within 3 nautical miles of Stellar sea lion rookery sites listed in (50 CFR § 224.103(d)).
7. Vessels will avoid approaching within 3,000 ft of any Steller sea lion haulout or rookery.

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<sup>82</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

## Reporting

### Unauthorized Take

8. If a listed marine mammal is determined by personnel to have been disturbed, harassed, harmed, injured, or killed as a direct or indirect result of barging activities, the unauthorized take will be reported to NMFS within one business day, with information submitted to [akr.section7@noaa.gov](mailto:akr.section7@noaa.gov). Information will include:
  - a. number of animals of each threatened and endangered species affected;
  - b. the date, time, and location of each event (provide geographic coordinates);
  - c. description of the event;
  - d. the time the animal(s) were observed being disturbed, harassed, injured, or killed;
  - e. mitigation measures implemented prior to and after the animal was taken; and
  - f. if a vessel struck a marine mammal, the contact information for the individual piloting the vessel; and
  - g. photographs or video footage of the animal(s) (if available).

### Stranded, Injured, Sick or Dead Marine Mammal (not associated with the project)

9. If personnel observe an injured, sick, or dead marine mammal (i.e., stranded marine mammal), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773. The observer will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded marine mammals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

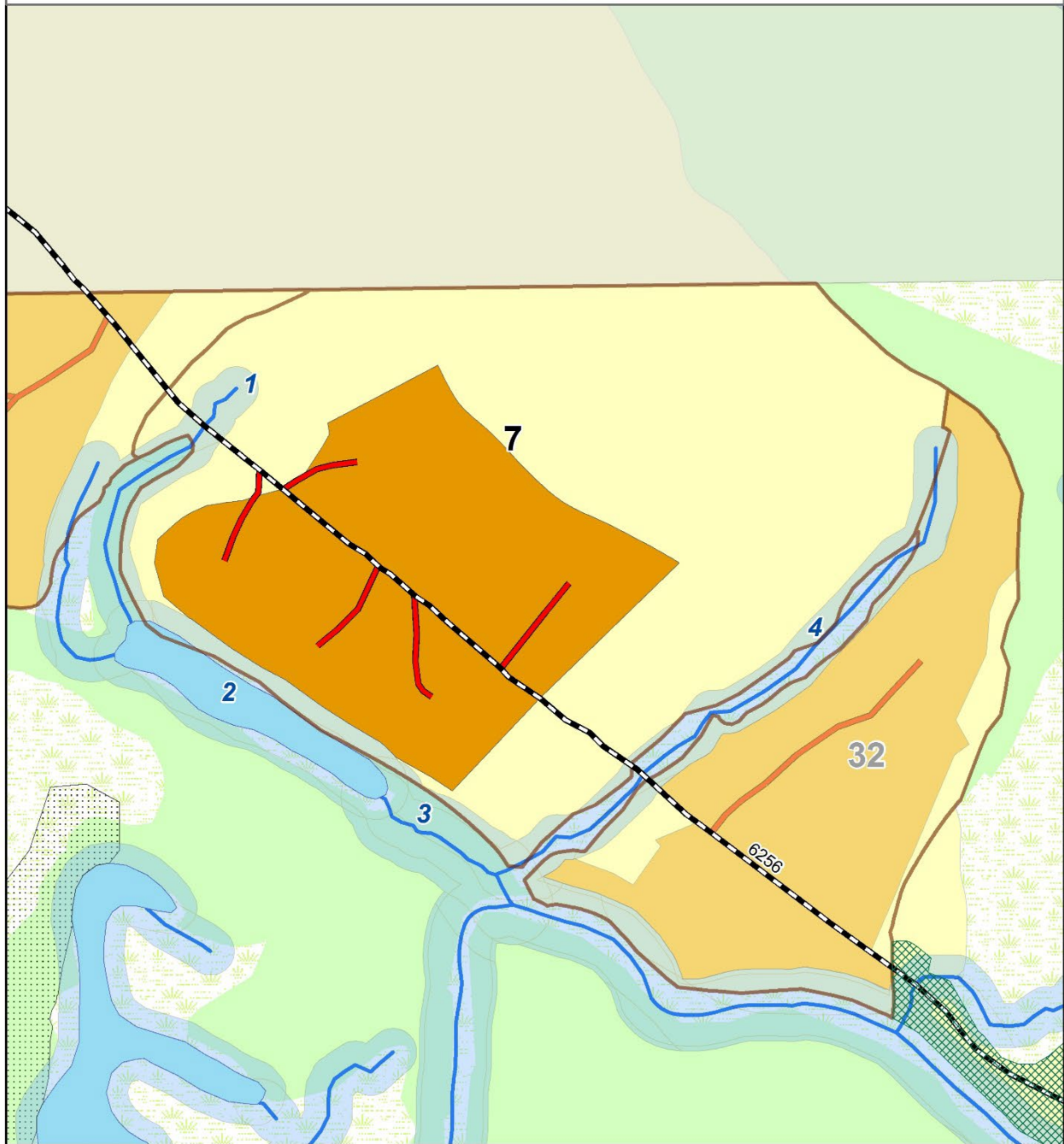
### Illegal Activities

10. If personnel observe marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding, or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (1-800-853-1964).
11. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

### Annual Report

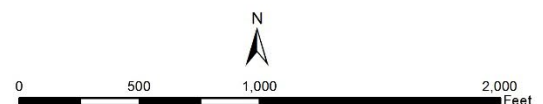
12. An annual report will be submitted to NMFS within 90 calendar days of the completion of the annual barging activities, summarizing the data recorded and submitted to [AKR.section7@noaa.gov](mailto:AKR.section7@noaa.gov).
13. The final report will include:
  - a. summary of barging activities, including travel routes and dates of barging activities date, time, and estimated geographic coordinates of marine mammals seen within 1 nautical mile of barging activities.

# Alternative 2 Unit: 7



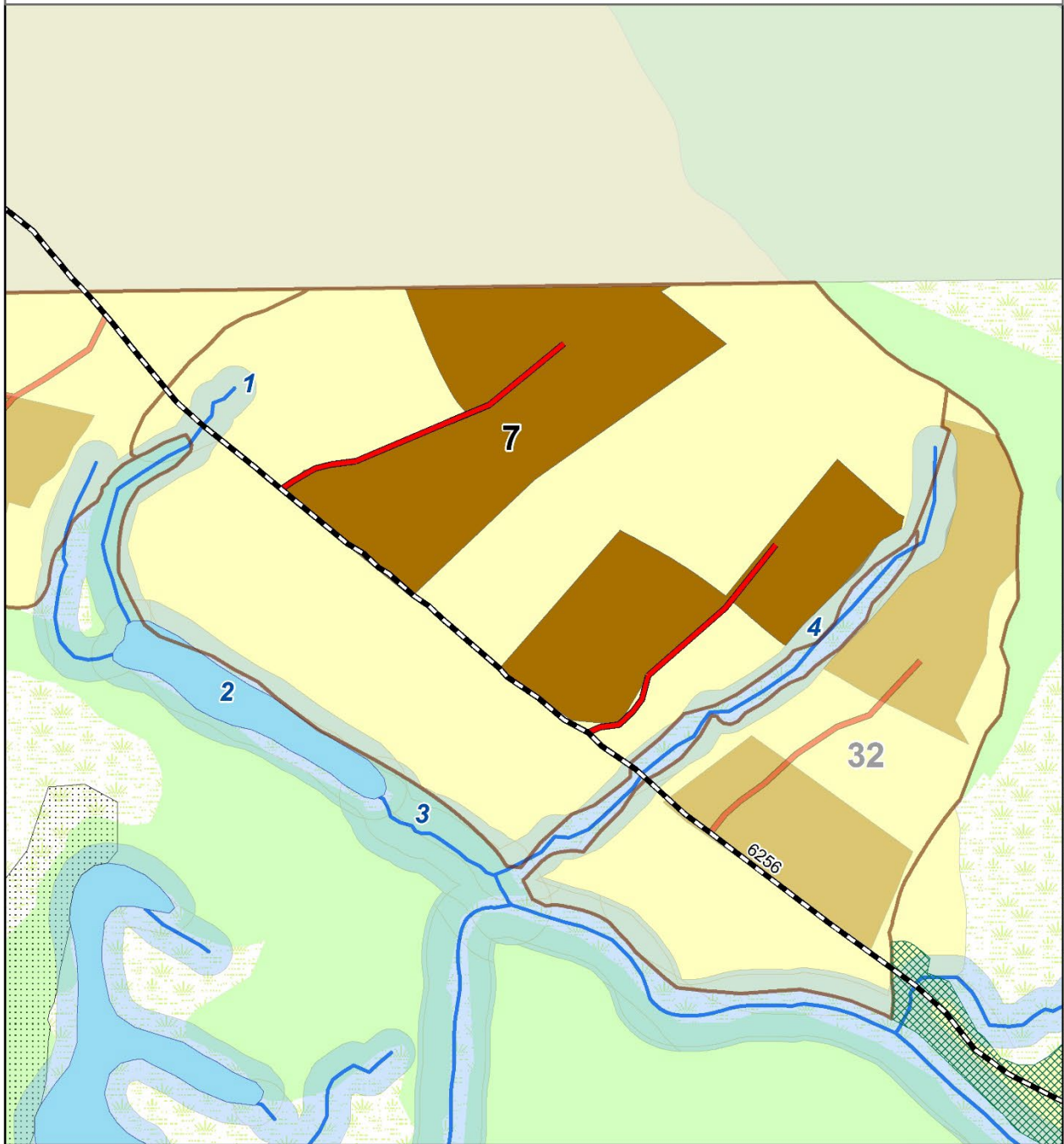
- |                       |                                            |
|-----------------------|--------------------------------------------|
| Unit Boundary         | Riparian Management Area                   |
| Even-aged Management  | Old-Growth Habitat LUD                     |
| Productive Old-Growth | Riparian and Wildlife Restoration Thinning |
| Non-Productive Forest | System Road                                |
| Young-Growth          | Proposed Temporary Road                    |
| Non-National Forest   | Stream Class I                             |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



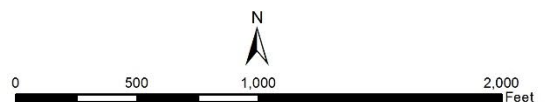


# Alternative 3 Unit: 7



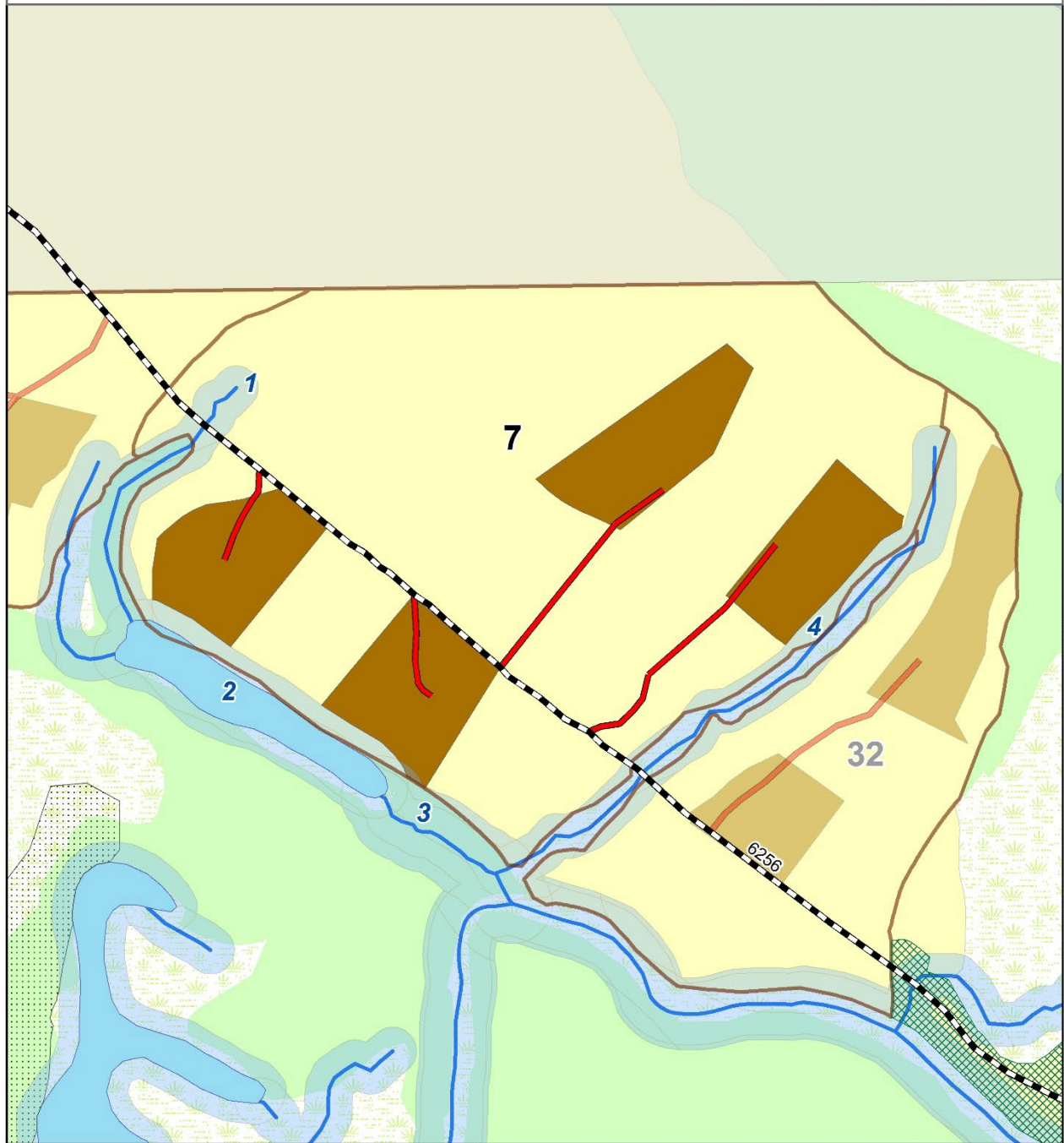
- |                       |                                            |
|-----------------------|--------------------------------------------|
| Two-aged Management   | Riparian Management Area                   |
| Unit Boundary         | Old-Growth Habitat LUD                     |
| Productive Old-Growth | Riparian and Wildlife Restoration Thinning |
| Non-Productive Forest | System Road                                |
| Young-Growth          | Proposed Temporary Road                    |
| Non-National Forest   | Stream Class I                             |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



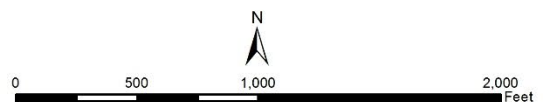


# Alternative 4 Unit:7



- |                       |                                            |
|-----------------------|--------------------------------------------|
| Unit Boundary         | Riparian Management Area                   |
| Two-aged Management   | Old-Growth Habitat LUD                     |
| Productive Old-Growth | Riparian and Wildlife Restoration Thinning |
| Non-Productive Forest | System Road                                |
| Young-Growth          | Proposed Temporary Road                    |
| Non-National Forest   | Stream Class I                             |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



Thomas Bay Young Growth Timber Sale  
Unit Cards - 4

Document Path: T:\FSNF\Sitongass\Project\PRO\ThomasBay\EA\GIS\MapProducts\UnitCards\A14\A14Units.mxd

## Thomas Bay Young-Growth Unit 7

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 61     | Alt 2: EA-CC      | Alt 2: 1,386             | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 53     | Alt 3: 2A-PCC 50% | Alt 3: 1,202             |                |      |                 |
| Alt 4: 36     | Alt 4: 2A-PCC 25% | Alt 4: 804               |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1967 and was precommercially thinned in 1980 and 1999.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>83</sup>, p. 5-2, DC-YG-01). To avoid exceeding the Forest Plan opening size restriction of 100 acres (USDA Forest Service 2016, p. 4-69) with the combined harvest of Unit 7 and Unit 32, ensure at least a 10-acre leave strip is maintained between the two units.

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6256 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Lower 1,220 feet: Class I - channel type: PAB (buffer width: 100 ft)

Upper 350 feet: Class I - channel type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 2: Class I - channel type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 3: Class I - channel type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 4: Class I - channel type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

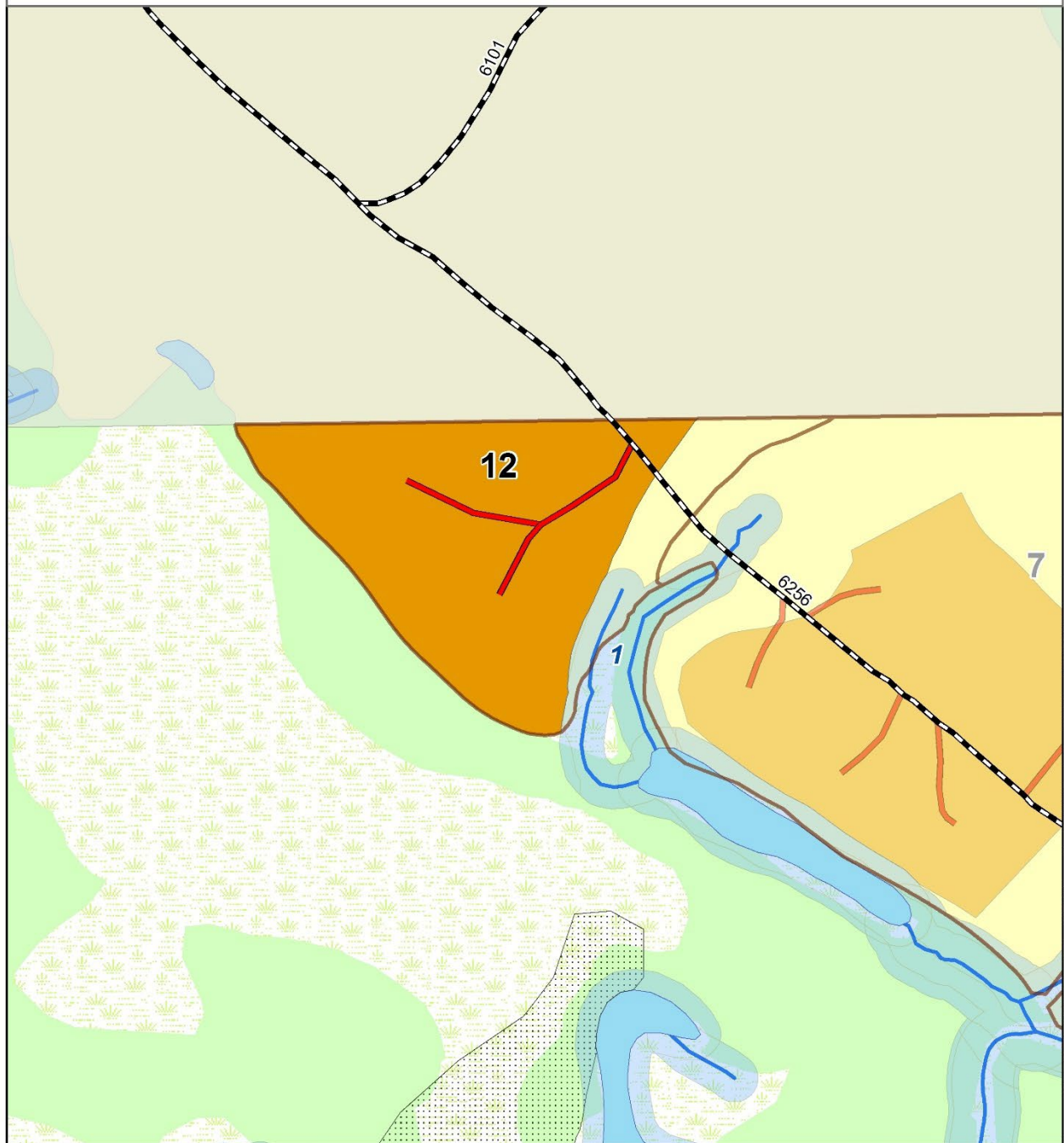
Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>83</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

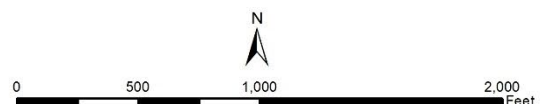
# Alternative 2 Unit: 12



Document Path: T:\F-SNFS\Tongass\Project\PRD\ThomasBay\EA\GIS\MapProducts\UnitCards\A12\A12Units.mxd

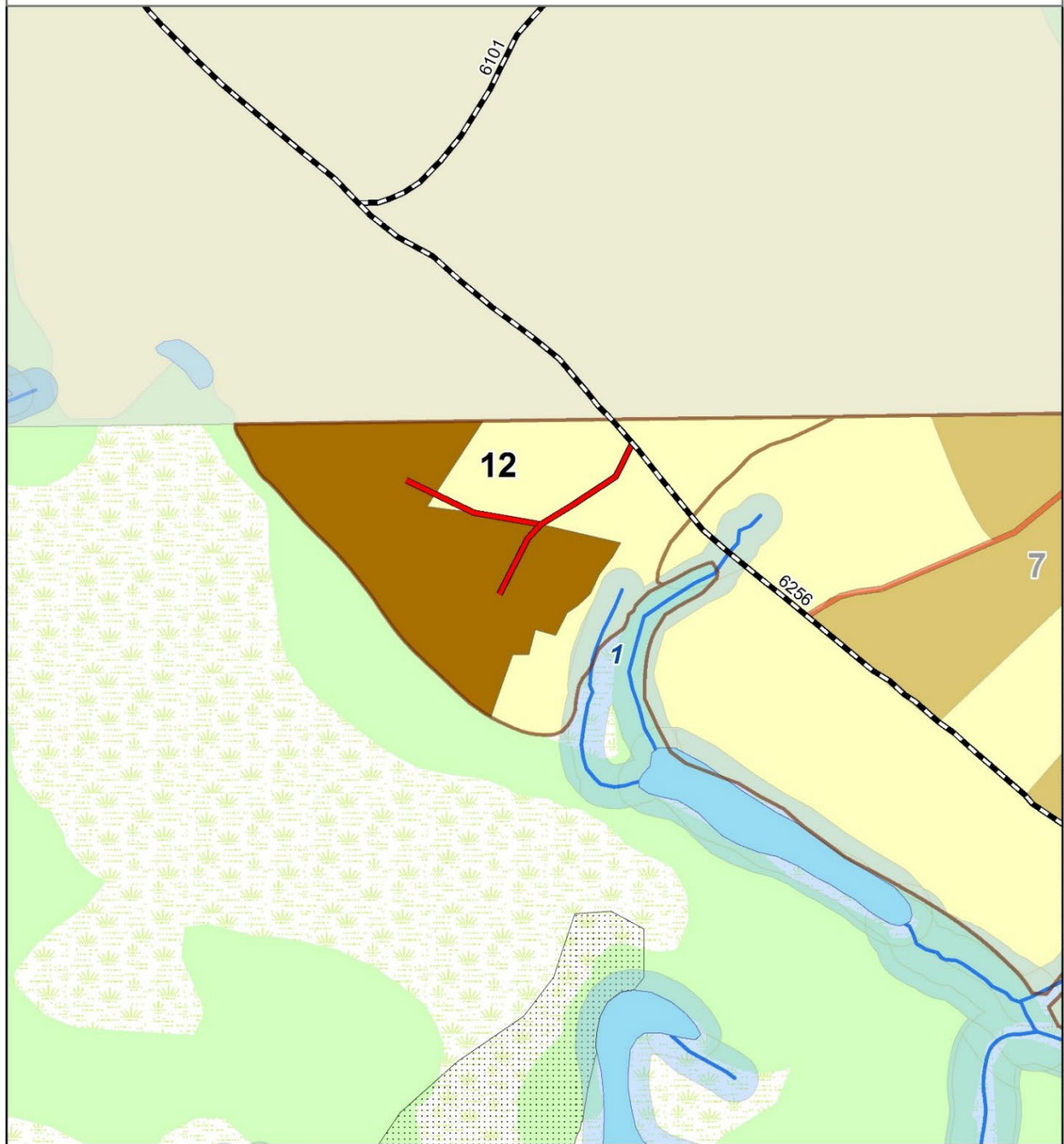
- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



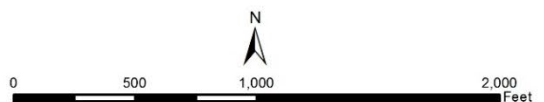


# Alternative 3 Unit: 12

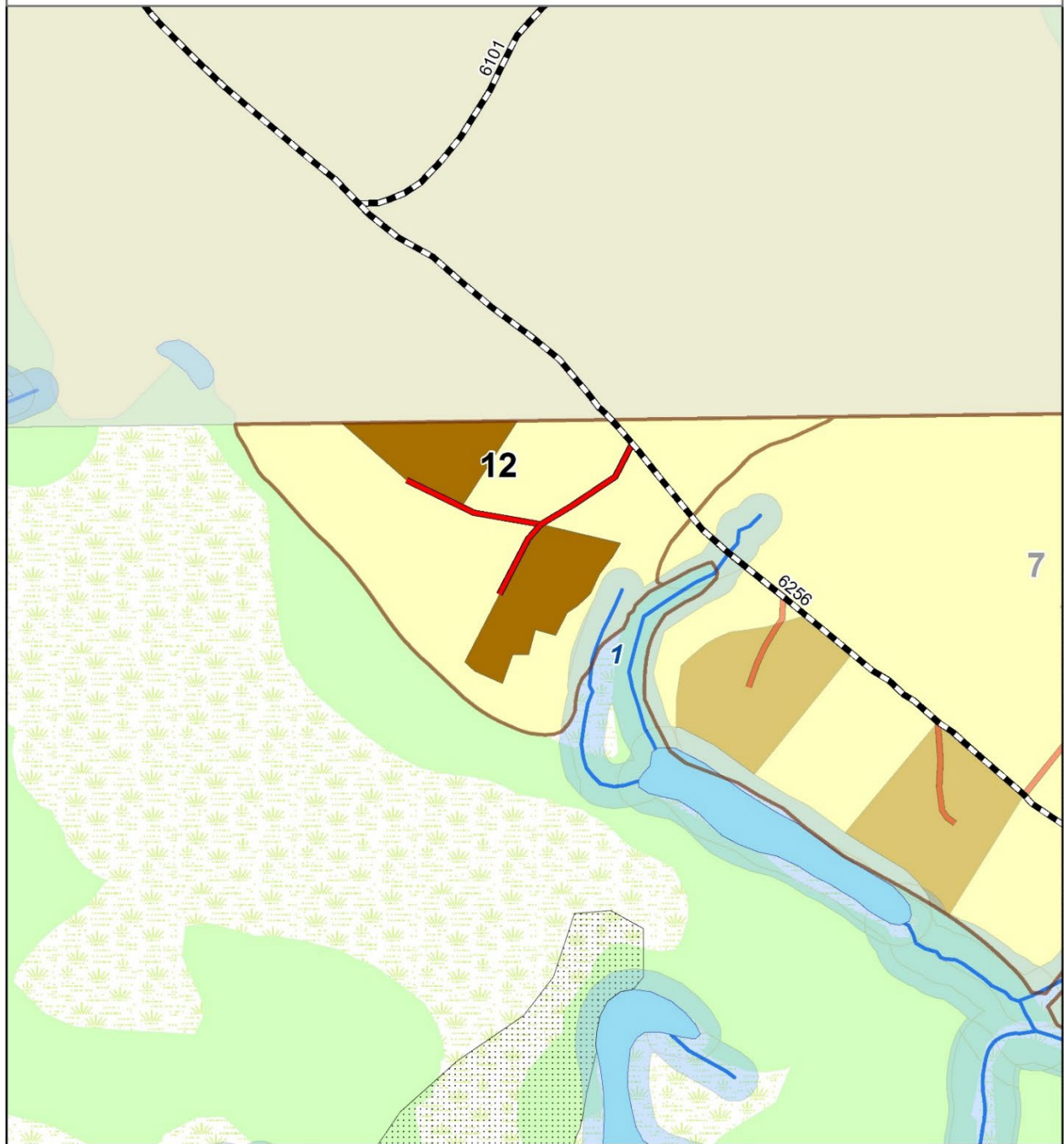


- |                       |                          |
|-----------------------|--------------------------|
| Two-aged Management   | Riparian Management Area |
| Unit Boundary         | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



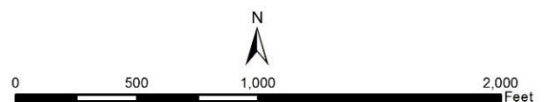
# Alternative 4 Unit:12



Document Path: T:\F\SNFS\Tongass\Project\PRD\ThomasBay\EA\GIS\MapProducts\UnitCards\Alt4\Alt4Units.mxd

- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Two-aged Management   | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





## Thomas Bay Young-Growth Unit 12

| Harvest Acres | Prescription      | Net Harvest<br>Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|-----------------------------|----------------|------|-----------------|
| Alt 2: 32     | Alt 2: EA-CC      |                             | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 21     | Alt 3: 2A-PCC 50% | Alt 2: 818                  |                |      |                 |
| Alt 4: 10     | Alt 4: 2A-PCC 25% | Alt 3: 519                  |                |      |                 |
|               |                   | Alt 4: 263                  |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1958 and was precommercially thinned in 1987.

Current condition: Spruce-hemlock single-story, closed canopy with limited understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>84</sup>, p. 5-2, DC-YG-01).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6256 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAS (buffer width: 100 ft). BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

#### SOILS/WETLANDS:

Alts 2, 3, 4: Temporary road prism exists in the unit that is not accounted for in the road GIS. Reuse where possible. These areas may be opportunities for soil restoration if these roads are not needed for future entries. Portion of the unit was cable yarded so will not have skid trails to reuse.

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

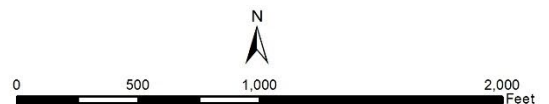
<sup>84</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

The map displays the study area with the following features:

- Legend:**
  - Blue line: River
  - Black dashed line: Road
  - Green star: Study site
- Scale bar:** 0 to 1000 meters.
- North arrow:** Points towards the top of the map.
- Study site (13):** A large orange polygon located in the center of the map.
- River (1):** A blue line flowing from the top left towards the bottom right.
- Road (2):** A black dashed line running diagonally from the bottom left towards the top right.
- Other features:** A green star marks the study site on the road. A small blue polygon is labeled '6100'. A small orange polygon is labeled '6252'.

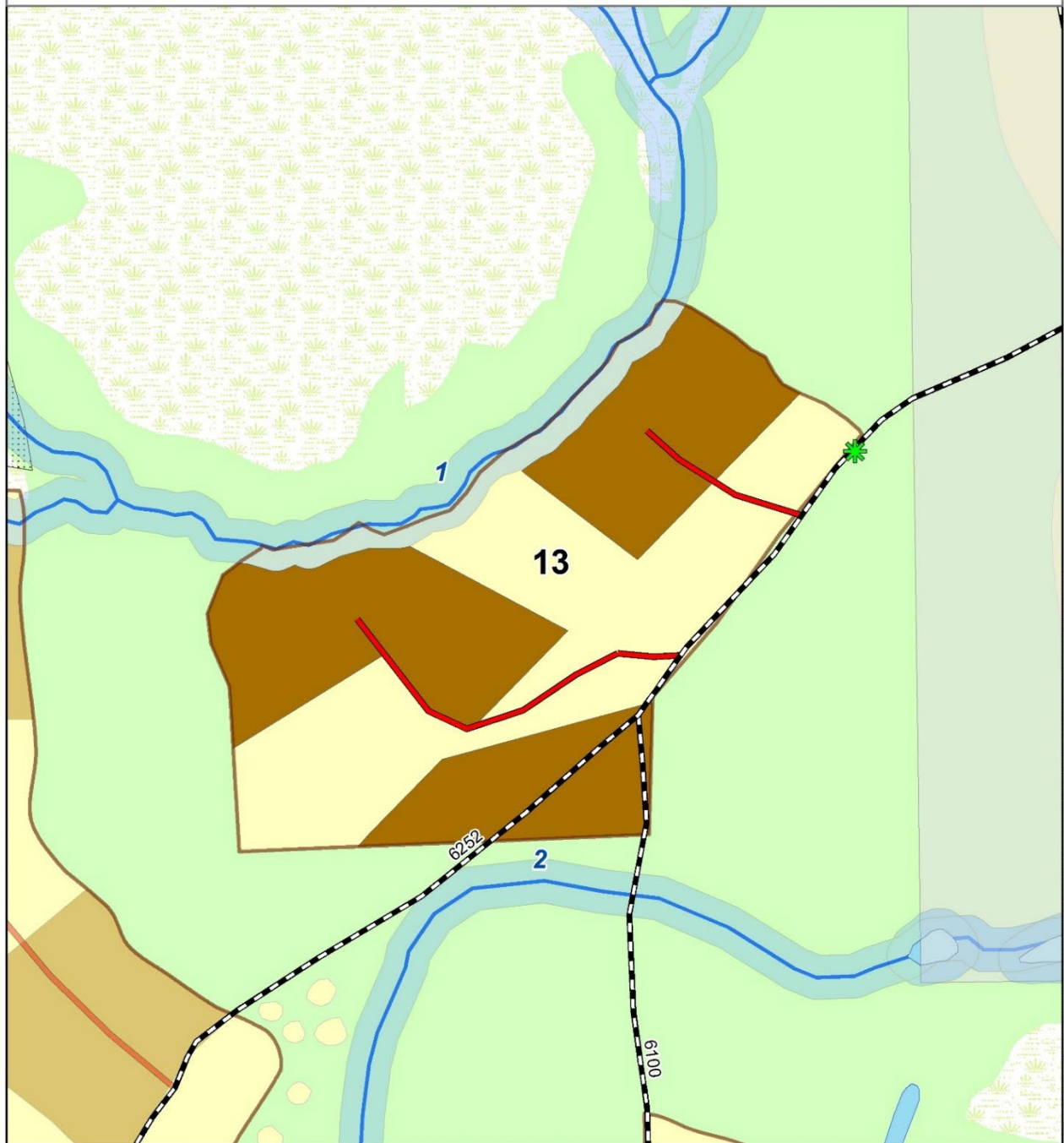
Document Path: T:\FS\NFS\Tongass\Project\PRD\ThomasBayEA\GIS\MapProducts\Alt2\Alt2Units.mxd

- Thomas Bay Young Growth  
Timber Sale  
Petersburg Ranger District**



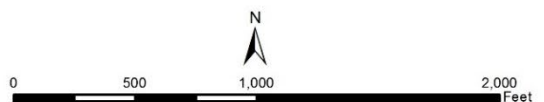
Thomas Bay Young Growth Timber Sale  
Unit Cards - 10

# Alternative 3 Unit: 13



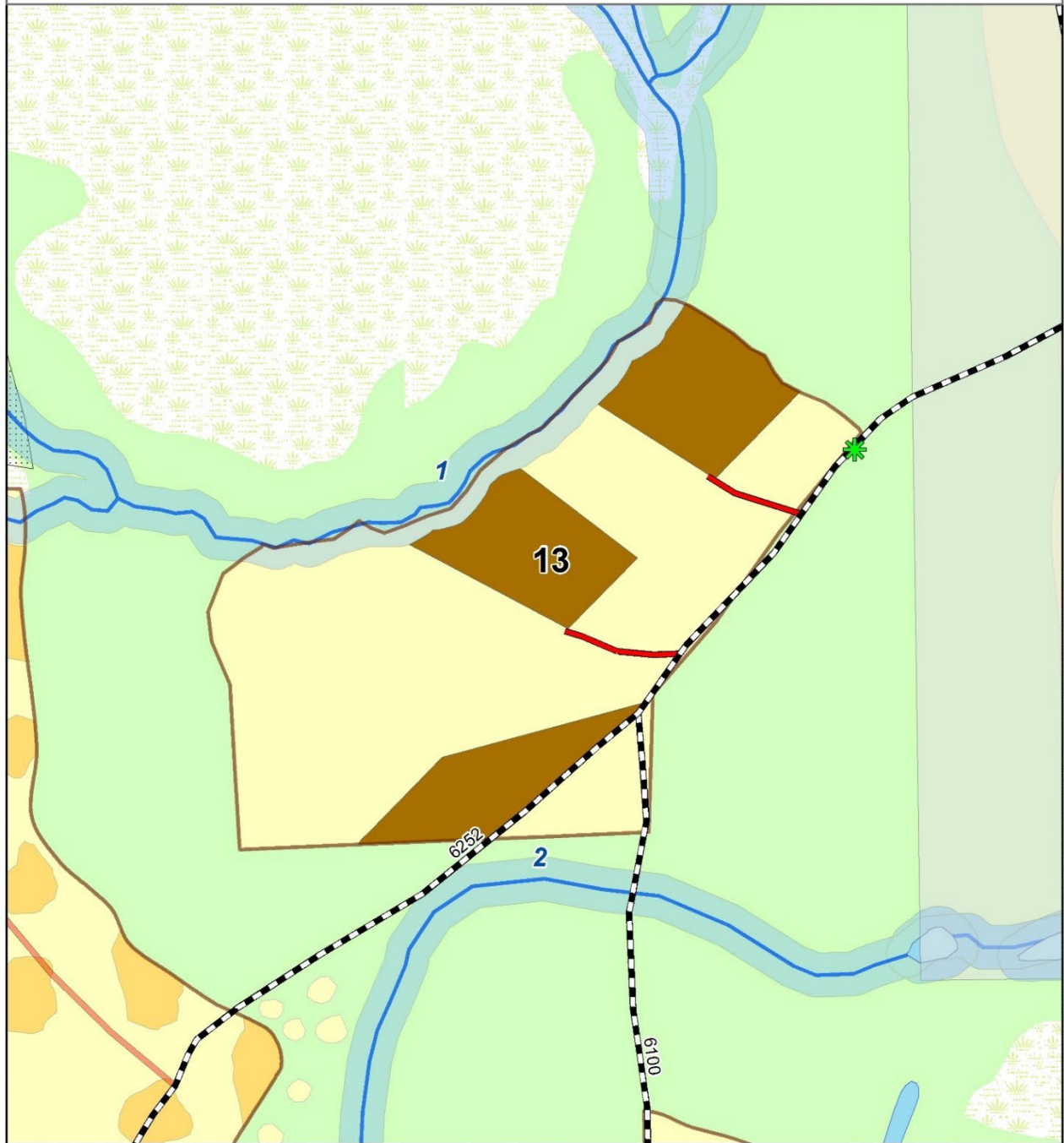
- |                       |                          |
|-----------------------|--------------------------|
| Two-aged Management   | Riparian Management Area |
| Unit Boundary         | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   | Expected Weed Treatment  |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



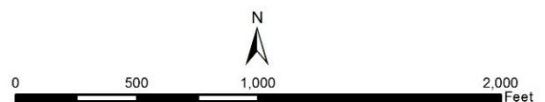


# Alternative 4 Unit:13



- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Two-aged Management   | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   | Invasive Plant Treatment |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 13

| Harvest Acres | Prescription      | Net Harvest<br>Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|-----------------------------|----------------|------|-----------------|
| Alt 2: 99     | Alt 2: EA-CC      |                             | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 52     | Alt 3: 2A-PCC 50% | Alt 2: 2,728                |                |      |                 |
| Alt 4: 26     | Alt 4: 2A-PCC 25% | Alt 3: 1,443                |                |      |                 |
|               |                   | Alt 4: 731                  |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1961 and was precommercially thinned in 1978 and 1996.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>85</sup>, p. 5-2, DC-YG-01).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6252 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: PAH (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

#### BOTANY/INVASIVE PLANTS:

Alts 2, 3, 4: One infestation of reed canary grass is located within the unit along NFS road 6252. The infestation was hand pulled in 2022 and will be monitored to ensure that the infestation does not spread as a result of this project. Consult botanist during unit and road design.

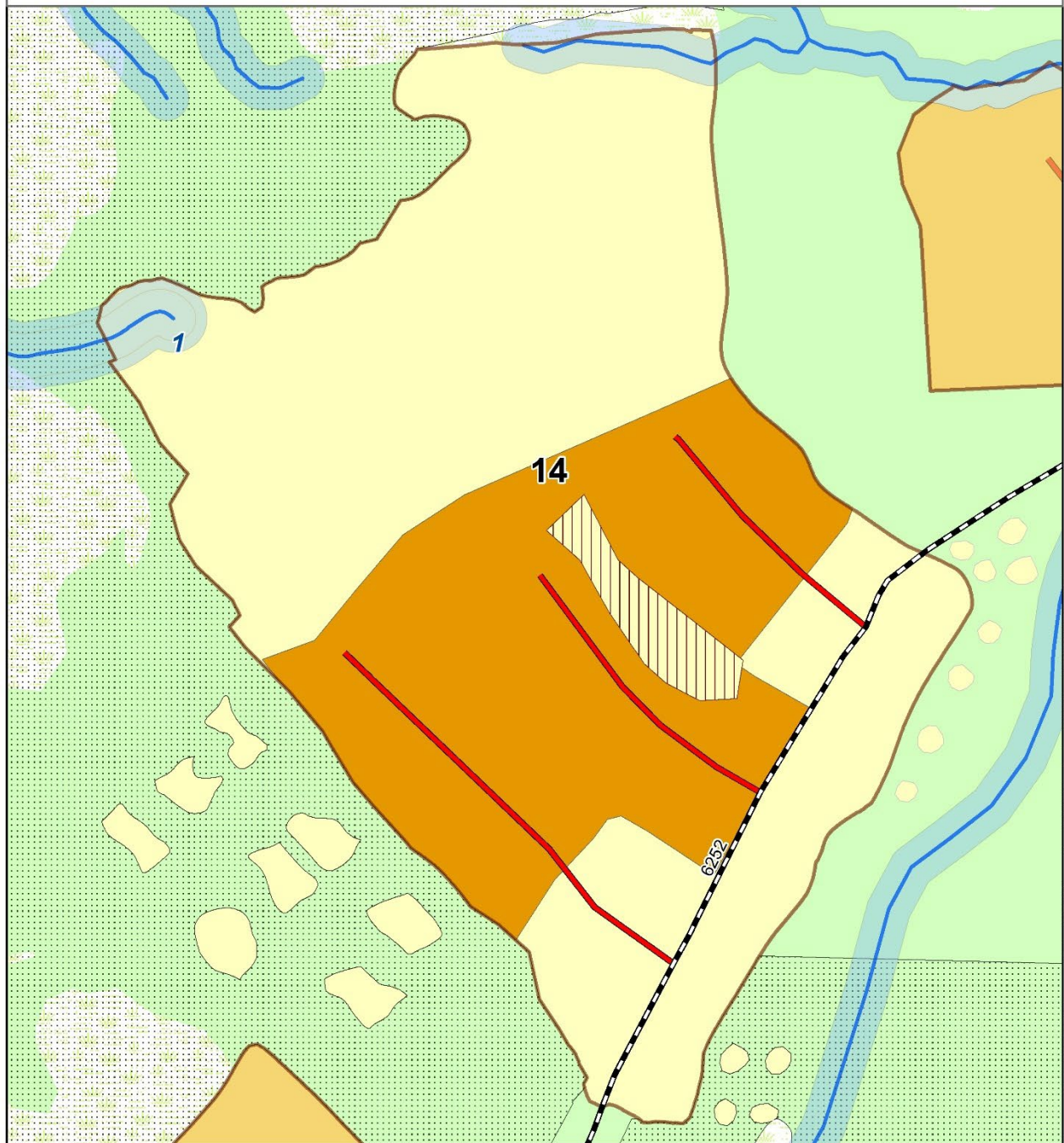
### NO RESOURCE-SPECIFIC REQUIREMENTS

Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>85</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

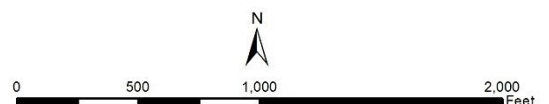


# Alternative 2 Unit: 14



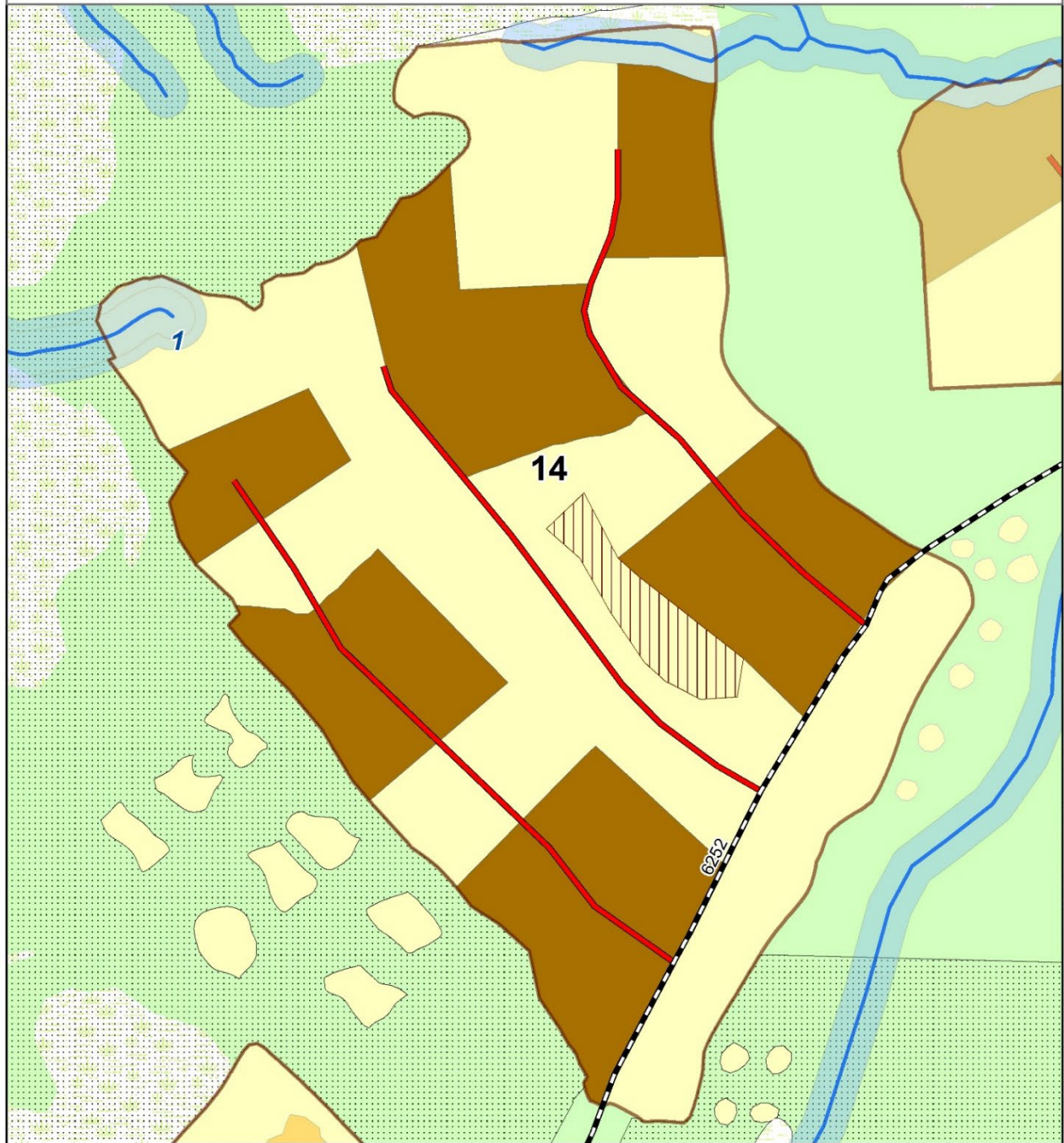
- |                             |                          |
|-----------------------------|--------------------------|
| Unit Boundary               | Riparian Management Area |
| Even-aged Management        | Old-Growth Habitat LUD   |
| Productive Old-Growth       | System Road              |
| Non-Productive Forest       | Proposed Temporary Road  |
| Young-Growth                | Stream Class I           |
| Deferred Remnant Old-Growth |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



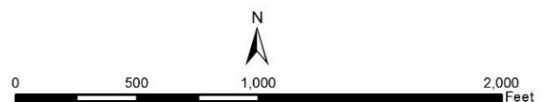


# Alternative 3 Unit: 14



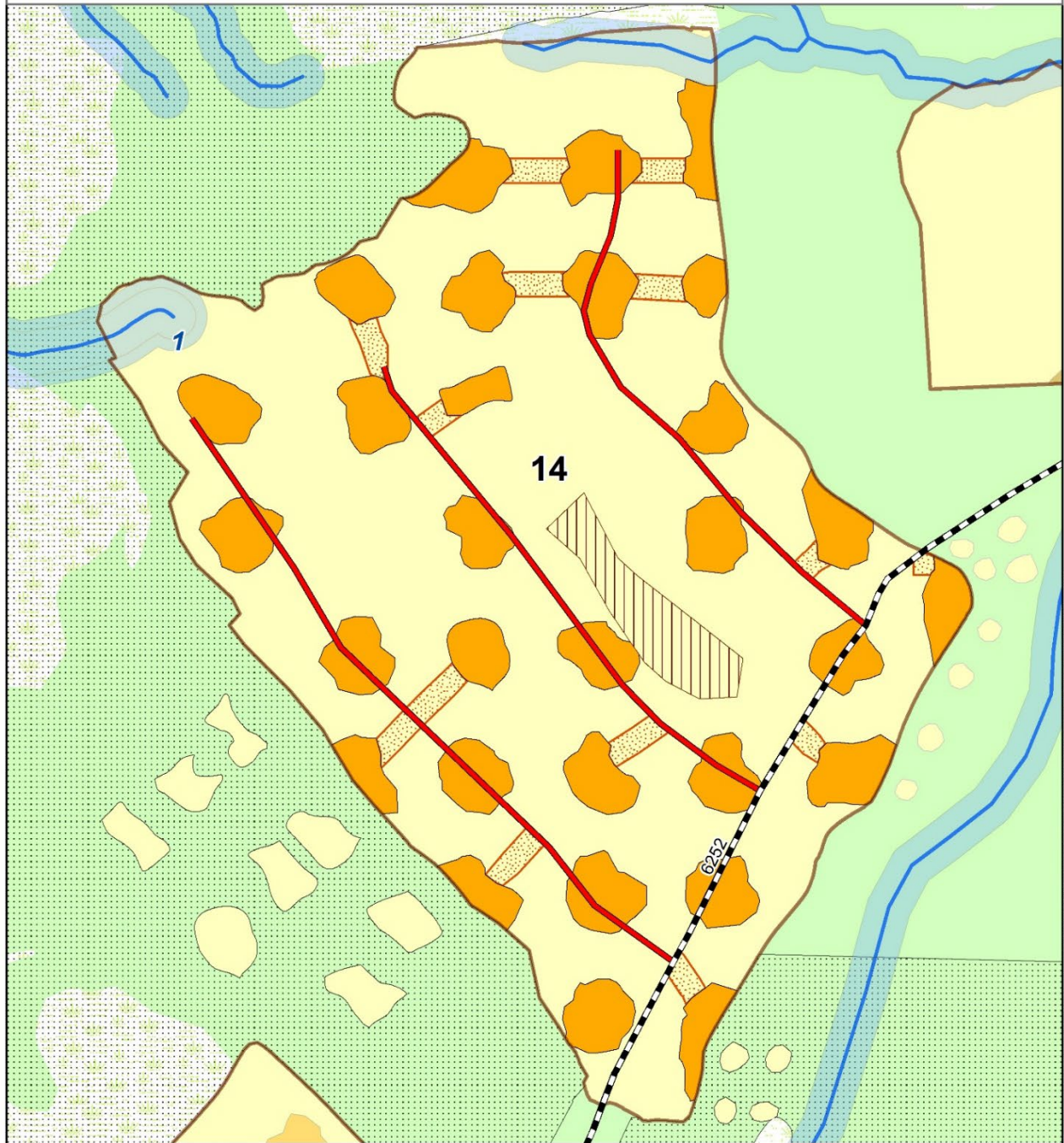
- |                             |                          |
|-----------------------------|--------------------------|
| Two-aged Management         | Riparian Management Area |
| Unit Boundary               | Old-Growth Habitat LUD   |
| Productive Old-Growth       | System Road              |
| Non-Productive Forest       | Proposed Temporary Road  |
| Young-Growth                | Stream Class I           |
| Deferred Remnant Old-Growth |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



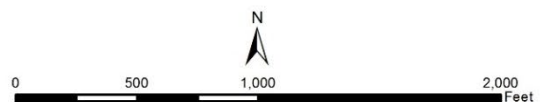


# Alternative 4 Unit:14



- |                             |                          |
|-----------------------------|--------------------------|
| Unit Boundary               | Riparian Management Area |
| Uneven-aged Management      | Old-Growth Habitat LUD   |
| Productive Old-Growth       | Yarding Corridors        |
| Non-Productive Forest       | System Road              |
| Young-Growth                | Proposed Temporary Road  |
| Deferred Remnant Old-Growth | Stream Class I           |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 14

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 92     | Alt 2: EA-CC      | Alt 2: 2,351             | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 109    | Alt 3: 2A-PCC 50% | Alt 3: 2,774             |                |      |                 |
| Alt 4: 68     | Alt 4: UEA-GS 33% | Alt 4: 1,740             |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1965, precommercially thinned in 1981, 1996 and pruned in 1997.

Current condition: Spruce-hemlock single-story, mostly closed canopy with moderate to good understory development. Roughly six acres of remanent old growth from the original stand exists within the interior of the unit.

Alt 2 Prescription: Even-aged clearcut with reserves, to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>86</sup>, p. 5-2, DC-YG-01). Opening size must not exceed 100 acres per Forest Plan restrictions (USDA Forest Service 2016, p. 4-69). Avoid harvest of remnant patch of old growth.

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand. Avoid harvest of remnant patch of old growth.

Alt 4 Prescription: Uneven-aged group selection. Harvest may remove up to 33% of the stand area in openings each up to 2 acres, distributed throughout the stand, and yarding corridors roughly 60 feet wide where necessary. Avoid harvest of remnant patch of old growth.

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2, 3: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6252 and proposed new temporary roads.

Alt 4: This unit is planned for shovel yarding. Yarding corridors (60 feet wide or less depending on equipment used) are necessary to facilitate yarding where harvest openings are not directly adjacent to proposed temporary roads or an existing road. Prior to harvest, yarding corridors will be planned to minimize their distance from existing and/or proposed roads. The unit is accessed by existing NFS road 6252 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES): AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAH (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

<sup>86</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

**SOILS/WETLANDS:**

Alt 3: Relict channel or slough dividing Unit 14 may have soils with low bearing strength which are prone to rutting. This alternative uses the existing roads crossing this feature. Rehabilitate portions of the road crossing the channel by completely removing all slash and yarding debris and recontouring.

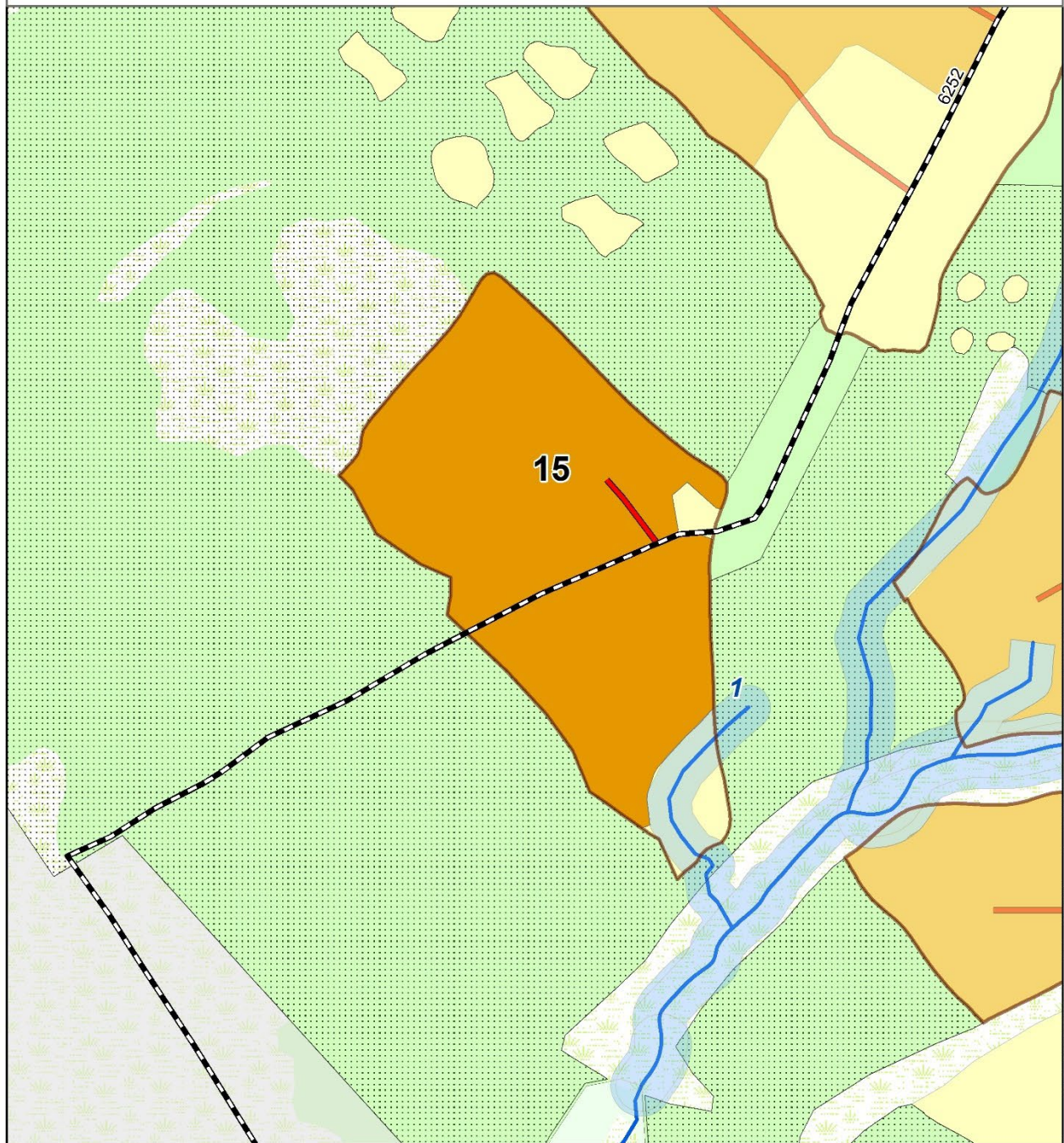
Alt 4: Relict channel or slough dividing Unit 14 may have soils with low bearing strength which are prone to rutting. This alternative uses the existing roads crossing this feature. Rehabilitate portions of the road crossing the channel by completely removing all slash and yarding debris and recontouring. Proposed gaps do not overlap with existing skid trail network. Look for opportunities to close or rehabilitate existing skid trails to maximize long term soil productivity.

**NO RESOURCE-SPECIFIC REQUIREMENTS**

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

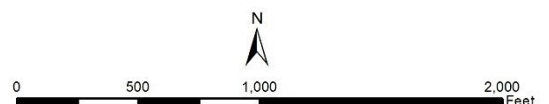


# Alternative 2 Unit: 15



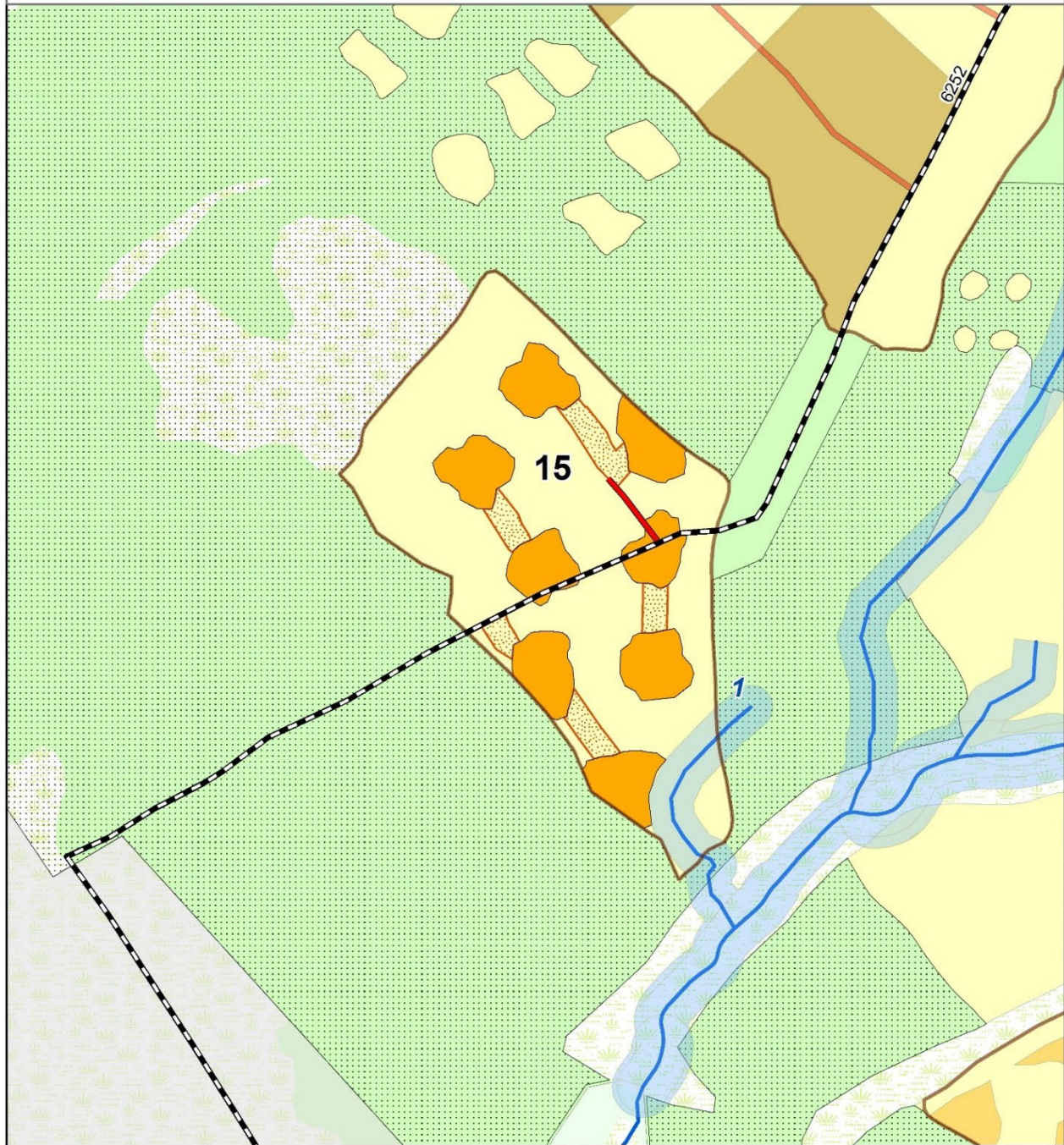
- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



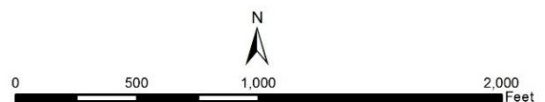


# Alternative 3 Unit: 15



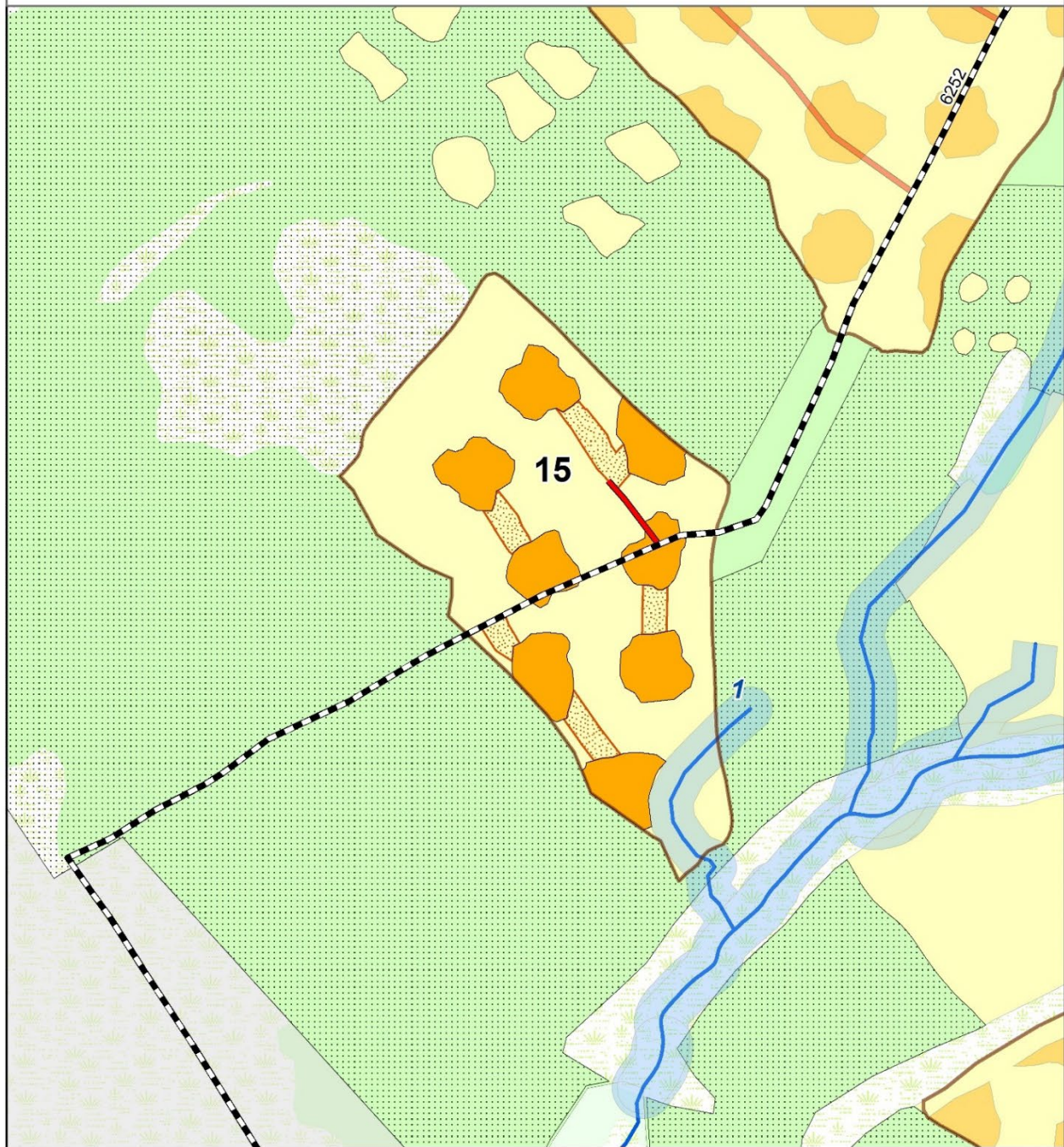
- |                        |                          |
|------------------------|--------------------------|
| Uneven-aged Management | Riparian Management Area |
| Unit Boundary          | Old-Growth Habitat LUD   |
| Productive Old-Growth  | Yarding Corridors        |
| Non-Productive Forest  | System Road              |
| Young-Growth           | Proposed Temporary Road  |
| Non-National Forest    | Stream Class I           |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





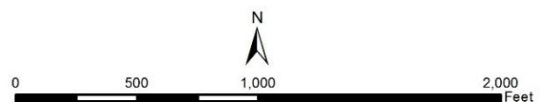
# Alternative 4 Unit:15



- Unit Boundary
- Uneven-aged Management
- Productive Old-Growth
- Non-Productive Forest
- Young-Growth
- Non-National Forest

- Riparian Management Area
- Old-Growth Habitat LUD
- Yarding Corridors
- System Road
- Proposed Temporary Road
- Stream Class I

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 15

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 60     | Alt 2: EA-CC      |                          | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 13     | Alt 3: UEA-GS 33% | Alt 2: 1,543             |                |      |                 |
| Alt 4: 15     | Alt 4: UEA-GS 33% | Alt 3: 340               |                |      |                 |
|               |                   | Alt 4: 489               |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1965 and was precommercially thinned in 1982 and 1998.

Current condition: Spruce-hemlock single-story, closed canopy with limited understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>87</sup>, p. 5-2, DC-YG-01).

Alts 3 and 4 Prescription: Uneven-aged group selection. Harvest may remove up to 33% of the stand area in openings each up to 2 acres, distributed throughout the stand, and yarding corridors roughly 60 feet wide where necessary.

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6252 and proposed new temporary roads.

Alts 3, 4: This unit is planned for shovel yarding. Yarding corridors (60 feet wide or less depending on equipment used) are necessary to facilitate yarding where harvest openings are not directly adjacent to proposed temporary roads or an existing road. Prior to harvest, yarding corridors will be planned to minimize their distance from existing and/or proposed roads. The unit is accessed by existing NFS road 6252 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

#### SOILS/WETLANDS:

Alt 2: Borrow pit exists in eastern portion of the unit. Relict stream channel present in unit may have fine-textured soils which are prone to rutting. Minimize impacts by reusing existing skid trails away from this feature and use adequate slash or other material to support the weight of equipment. Rehabilitate portions of skid trails in channel by completely removing all slash and yarding debris and recontouring.

Alt 3: Borrow pit exists in eastern portion of the unit.

Alt 4: Relict channel or slough dividing Unit 15 may have soils with low bearing strength which are prone to rutting.

This alternative uses the existing roads crossing this feature. Rehabilitate portions of the road crossing the channel by

<sup>87</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

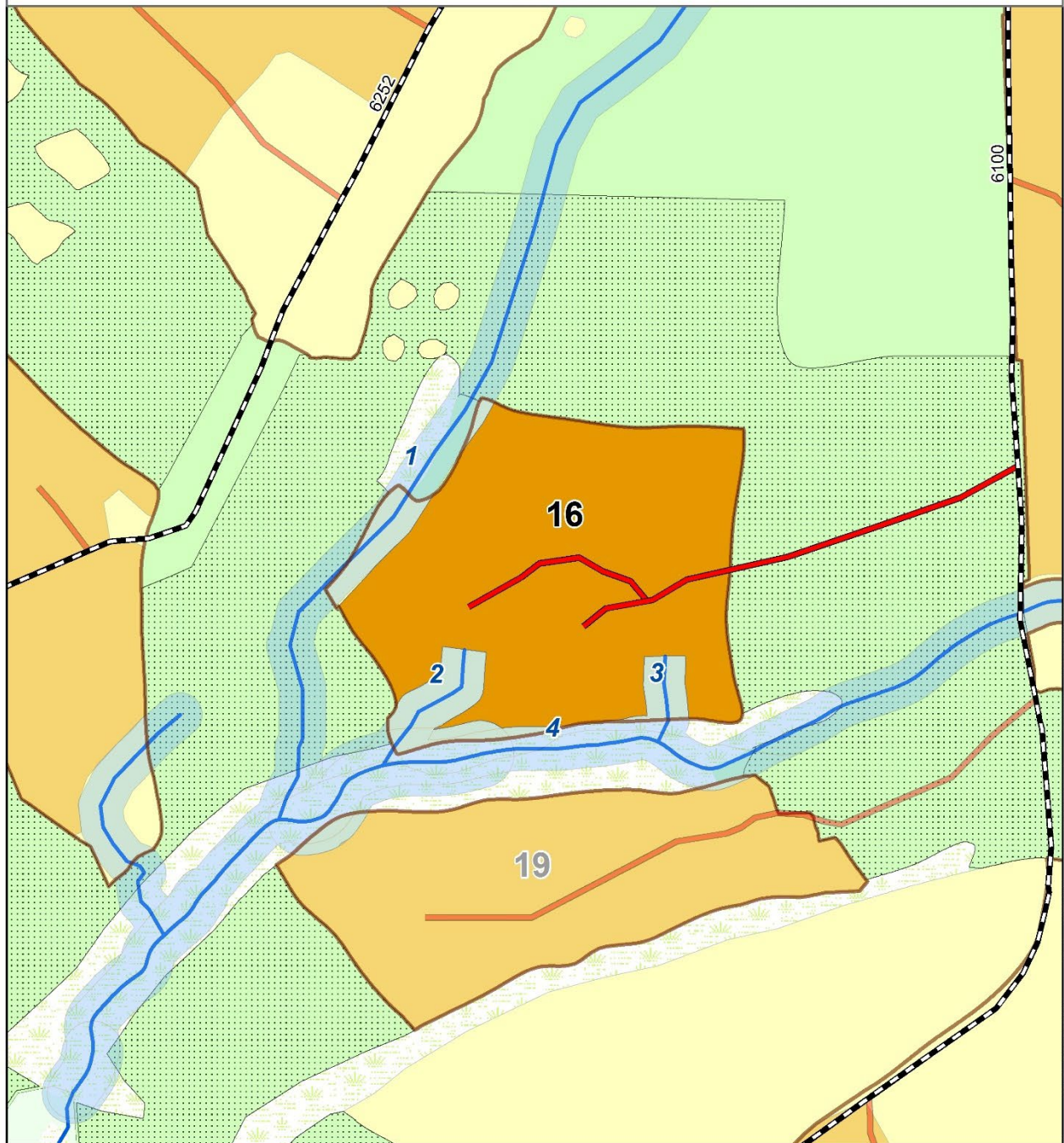
completely removing all slash and yarding debris and recontouring. Proposed gaps do not overlap with existing skid trail network. Look for opportunities to close or rehabilitate existing skid trails to maximize long term soil productivity.

**NO RESOURCE-SPECIFIC REQUIREMENTS**

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

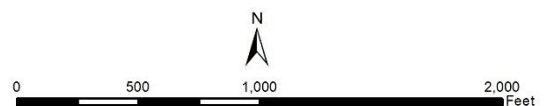


# Alternative 2 Unit: 16



- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 16

| Harvest Acres | Prescription | Net Harvest<br>Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|--------------|-----------------------------|----------------|------|-----------------|
| Alt 2: 8      | Alt 2: EA-CC | Alt 2: 1,023                | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 0      | Alt 3: N/A   | Alt 3: 0                    |                |      |                 |
| Alt 4: 0      | Alt 4: N/A   | Alt 4: 0                    |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1961 and was precommercially thinned in 1982 and 1998.

Current condition: Spruce-hemlock single-story, closed canopy with limited understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>88</sup>, p. 5-2, DC-YG-01).

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 3: Class I - Channel Type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 4: (Entire stream) Class I - Channel Type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

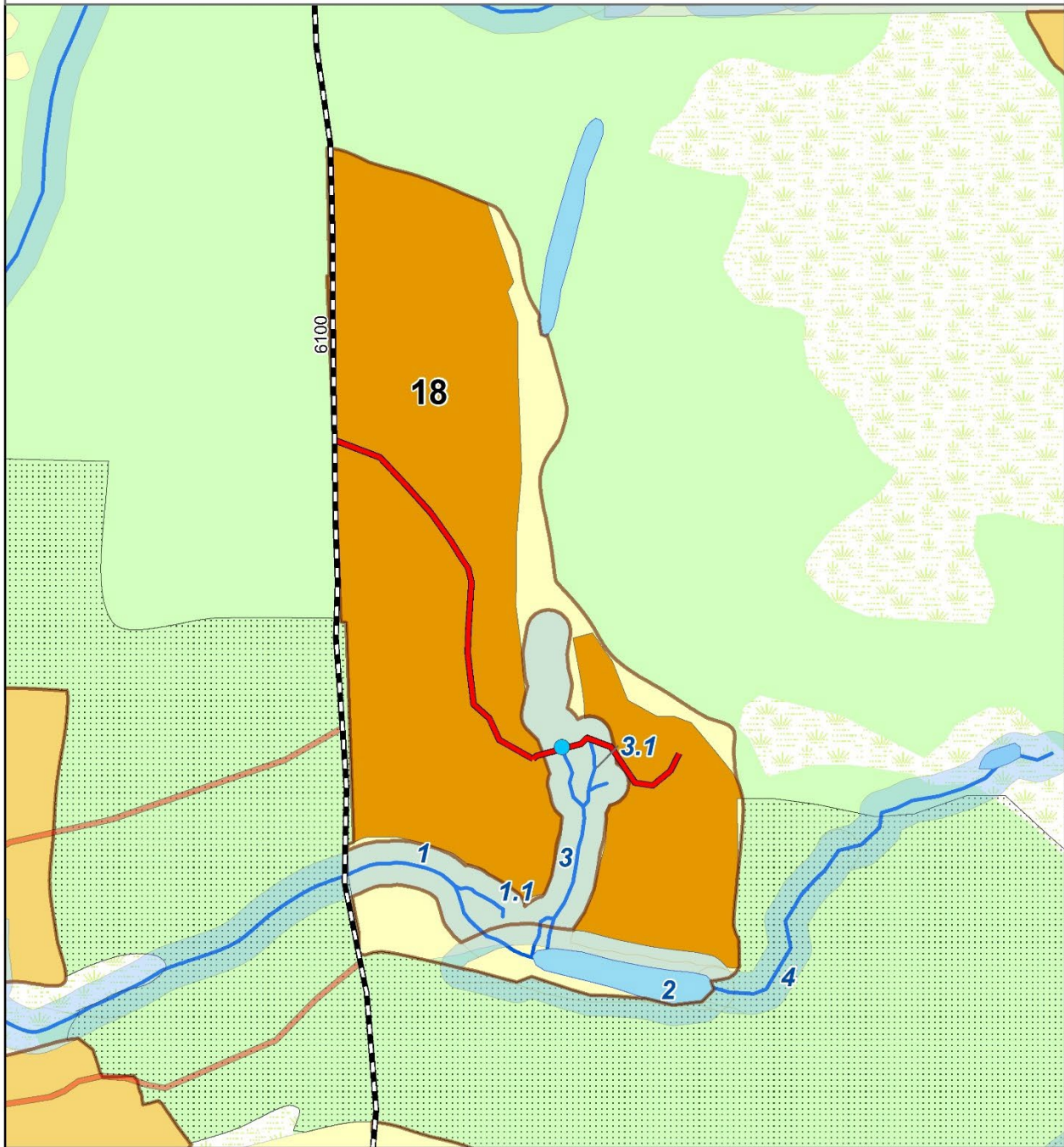
### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>88</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



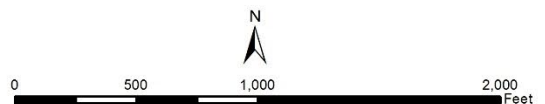
# Alternative 2 Unit: 18



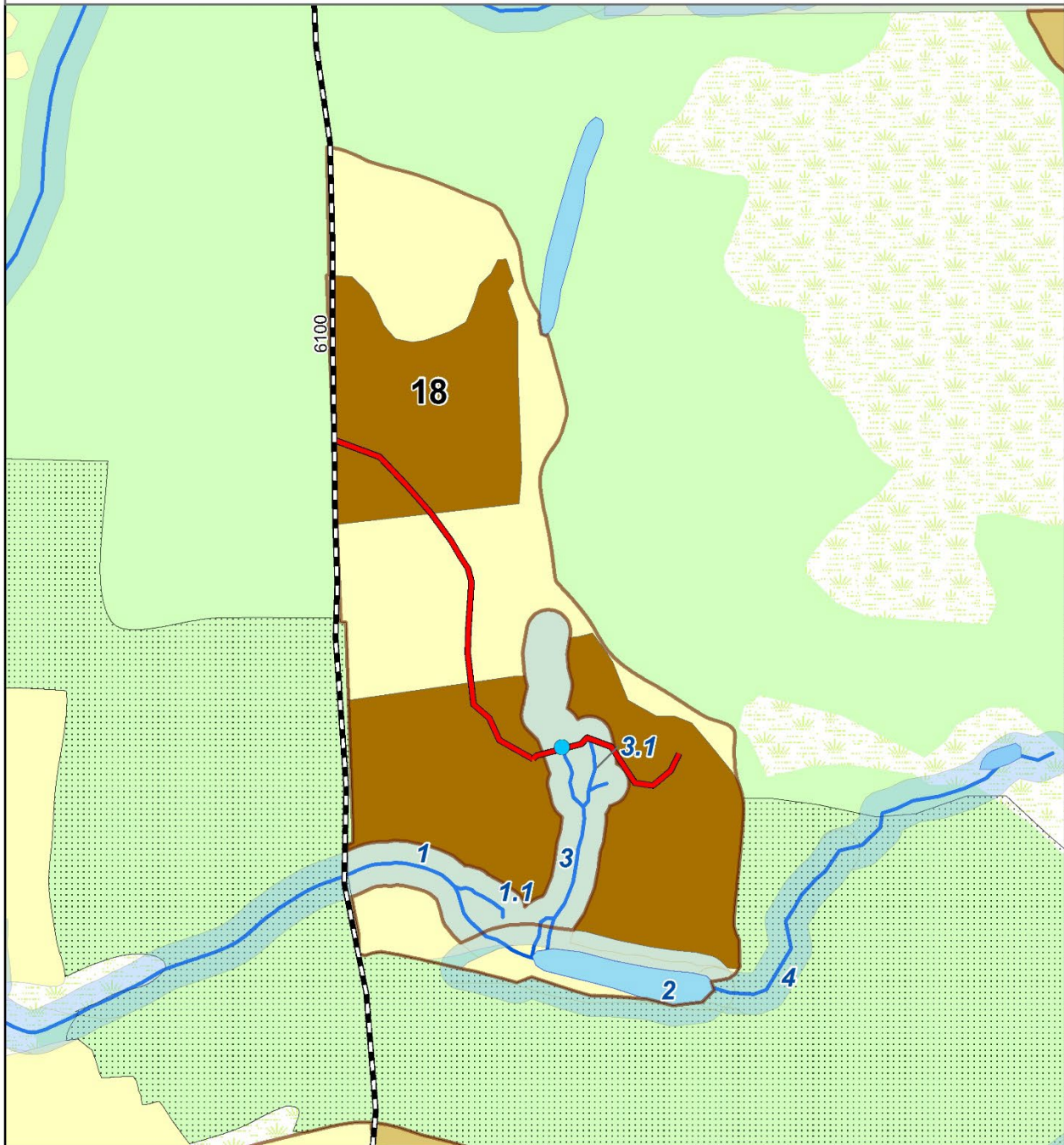
Document Path: T:\FSNFS\Tongass\Project\PRD\ThomasBay\MapProducts\UnitCards\A12\Units.mxd

- |                       |                                 |
|-----------------------|---------------------------------|
| Unit Boundary         | Riparian Management Area        |
| Even-aged Management  | Old-Growth Habitat LUD          |
| Productive Old-Growth | System Road                     |
| Non-Productive Forest | Proposed Temporary Road         |
| Young-Growth          | Stream Class I                  |
| Non-National Forest   | Aquatic Restoration Opportunity |
| Lake                  |                                 |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



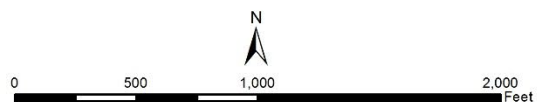
# Alternative 3 Unit: 18



Document Path: T:\F\SNFS\Tongass\Project\PRD\ThomasBay\EA\GIS\MapProducts\UnitCards\A13\A13Units.mxd

- |                       |                                 |
|-----------------------|---------------------------------|
| Two-aged Management   | Riparian Management Area        |
| Unit Boundary         | Old-Growth Habitat LUD          |
| Productive Old-Growth | System Road                     |
| Non-Productive Forest | Proposed Temporary Road         |
| Young-Growth          | Stream Class I                  |
| Non-National Forest   | Aquatic Restoration Opportunity |
| Lake                  |                                 |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





# Alternative 4 Unit:18



- Unit Boundary
- Uneven-aged Management
- Productive Old-Growth
- Non-Productive Forest
- Young-Growth
- Non-National Forest
- Lake

- Riparian Management Area
- Old-Growth Habitat LUD
- Yarding Corridors
- System Road
- Proposed Temporary Road
- Stream Class I
- Aquatic Restoration Opportunity

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District

Thomas Bay Young Growth Timber Sale  
Unit Cards - 28

Document Path: T:\FSNFS\Tongass\Project\PRO\ThomasBay\EA\GIS\MapProducts\UnitCards\A14\A14Units.mxd

## Thomas Bay Young-Growth Unit 18

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 86     | Alt 2: EA-CC      |                          | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 22     | Alt 3: 2A-PCC 50% | Alt 2: 2,405             |                |      |                 |
| Alt 4: 22     | Alt 4: UEA-GS 33% | Alt 3: 1,195             |                |      |                 |
|               |                   | Alt 4: 569               |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1963 and was precommercially thinned in 1977, 1984, and 1998.

Current condition: Spruce-hemlock single-story, closed canopy with moderate to good understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>89</sup>, p. 5-2, DC-YG-01).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Uneven-aged group selection. Harvest may remove up to 33% of the stand area in openings each up to 2 acres, distributed throughout the stand, and yarding corridors roughly 60 feet wide where necessary.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 2, 3: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

Alt 4: This unit is planned for shovel yarding. Yarding corridors (60 feet wide or less depending on equipment used) are necessary to facilitate yarding where harvest openings are not directly adjacent to proposed temporary roads or an existing road. Prior to harvest, yarding corridors will be planned to minimize their distance from existing and/or proposed roads. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAH (*buffer width: 100 ft*). (BMP 12.6, 13.16)

Stream 1.1: Class I - Channel Type: PAS (*buffer width: 100 ft*). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: PAB (*buffer width: 100 ft*). (BMP 12.6, 13.16)

Stream 3: Class I - Channel Type: PAS (*buffer width: 100 ft*). (BMP 12.6, 13.16); dike will be removed following harvest activities. (BMP 14.9, 14.26)

Stream 3.1: Class I - Channel Type: PAS (*buffer width: 100 ft*). (BMP 12.6, 13.16)

Stream 3.2: Class I - Channel Type: PAS (*buffer width: 100 ft*). (BMP 12.6, 13.16)

Stream 4: Class I - Channel Type: PAH (*buffer width: 100 ft*). (BMP 12.6, 13.6)

<sup>89</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

Temp Road Crossing: Stream 3; Class I; Channel Type: PAS; Passage: Yes; Timing Dates: Instream work restricted to June 15 to August 1. During construction implement BMPs 12.17, 13.16, 14.5, 14.6, 14.14, 14.17. Block access and remove dike when road is decommissioned. (BMP 14.24)  
Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

**SOILS/WETLANDS:**

Alt 2: Northern portion of unit is lower productivity which may indicate silty soils prone to rutting. Avoid creating ruts by minimizing number of skid trails and passes and operating on adequate slash.

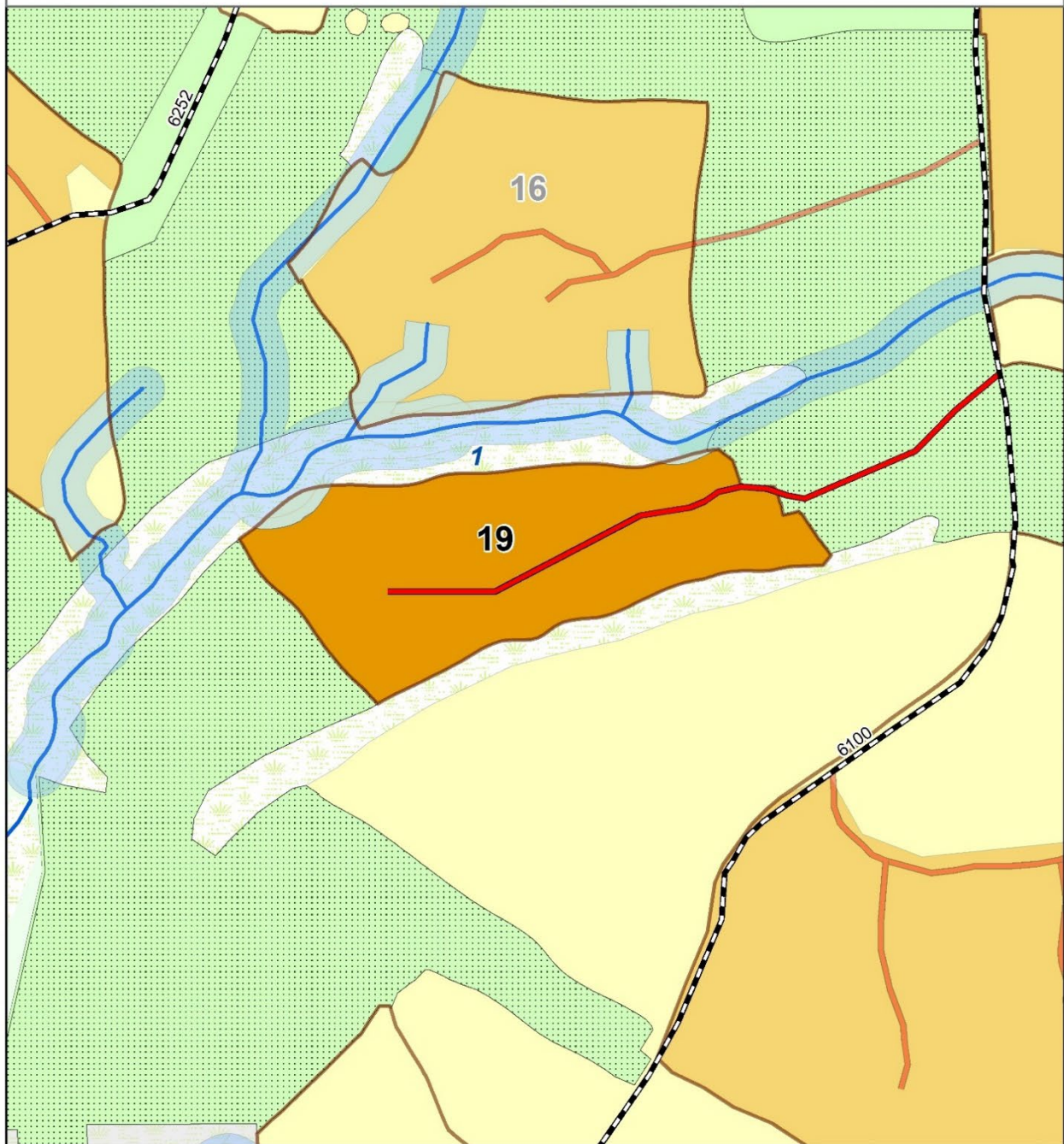
Alt 4: Northern portion of unit is lower productivity which may indicate silty soils prone to rutting. Avoid creating ruts by minimizing number of skid trails and passes and operating on adequate slash. Proposed gaps do not overlap with existing skid trail network. Look for opportunities to close or rehabilitate existing skid trails to maximize long term soil productivity.

**NO RESOURCE-SPECIFIC REQUIREMENTS**

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

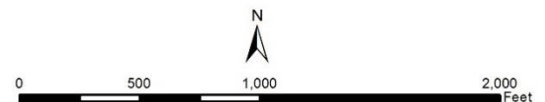


# Alternative 2 Unit: 19



- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





## Thomas Bay Young-Growth Unit 19

| Harvest Acres | Prescription | Net Harvest<br>Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|--------------|-----------------------------|----------------|------|-----------------|
| Alt 2: 30     | Alt 2: EA-CC | Alt 2: 719                  | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 0      | Alt 3: N/A   | Alt 3: 0                    |                |      |                 |
| Alt 4: 0      | Alt 4: N/A   | Alt 4: 0                    |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1961 and was precommercially thinned in 1978 and 1999. Twelve acres were pruned at an intensity of one in every eight trees, in 1997.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>90</sup>, p. 5-2, DC-YG-01).

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAM (buffer width: 100 ft). (BMP 12.6, 13.16)

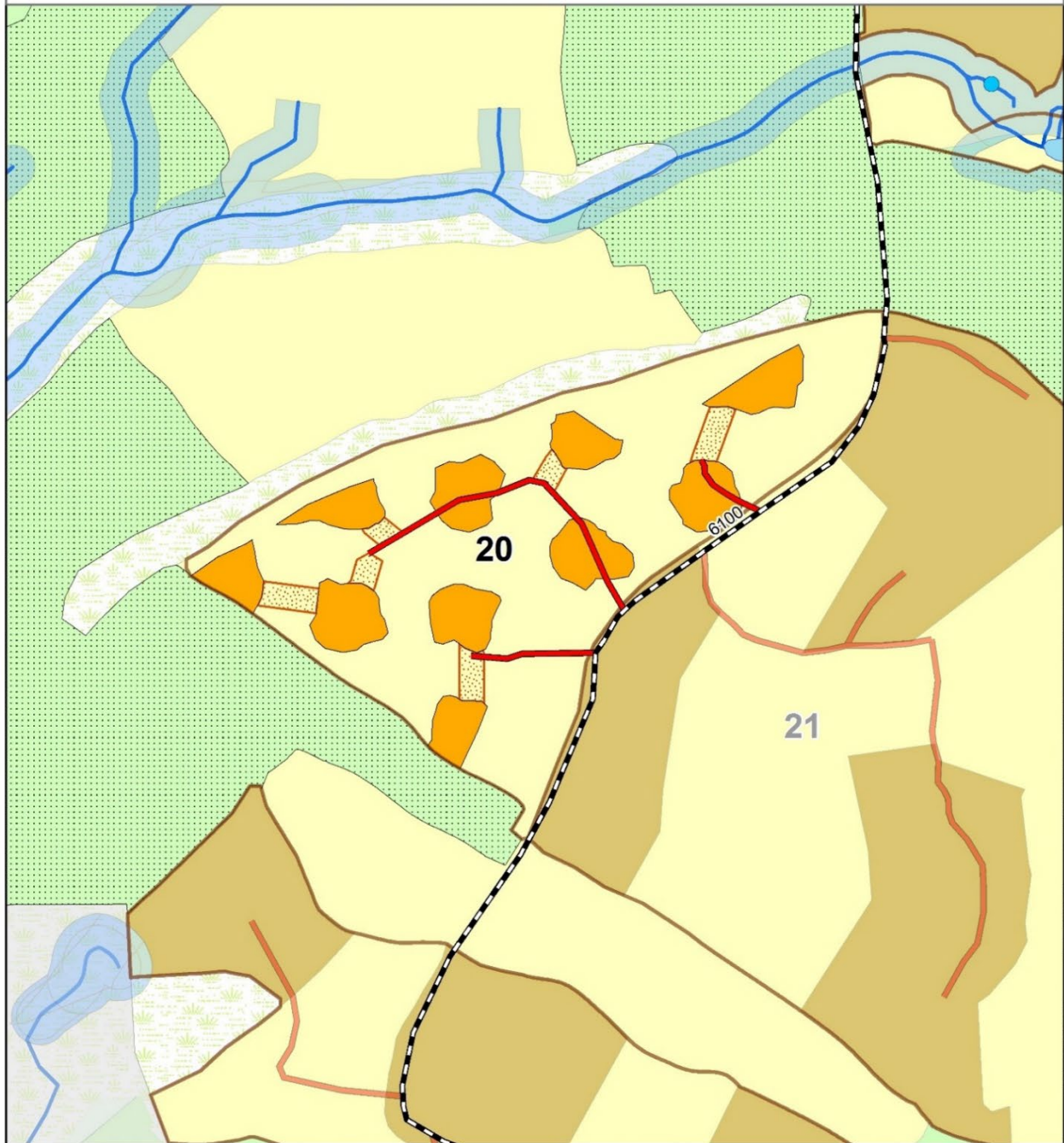
Review all buffers to provide reasonable assurance of wind firmness (BMP 12.6a)

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>90</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

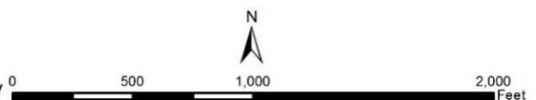
# Alternative 3 Unit: 20



Document Path: T:\FS\NFS\Tongass\Project\PRD\ThomasBay\EA\GIS\MapProducts\UnitCards\Alt3\Alt3Units.mxd

- |                        |                                 |
|------------------------|---------------------------------|
| Uneven-aged Management | Riparian Management Area        |
| Unit Boundary          | Old-Growth Habitat LUD          |
| Productive Old-Growth  | Yarding Corridors               |
| Non-Productive Forest  | System Road                     |
| Young-Growth           | Proposed Temporary Road         |
| Non-National Forest    | Stream Class I                  |
| Lake                   | Aquatic Restoration Opportunity |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



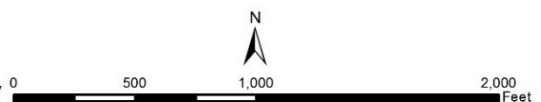


# Alternative 4 Unit:20



- |                        |                                 |
|------------------------|---------------------------------|
| Unit Boundary          | Riparian Management Area        |
| Uneven-aged Management | Old-Growth Habitat LUD          |
| Productive Old-Growth  | Yarding Corridors               |
| Non-Productive Forest  | System Road                     |
| Young-Growth           | Proposed Temporary Road         |
| Non-National Forest    | Stream Class I                  |
| Lake                   | Aquatic Restoration Opportunity |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 20

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD                                  |
|---------------|-------------------|--------------------------|----------------|------|--------------------------------------|
| Alt 2: 0      | Alt 2: N/A        | Alt 2: 0                 | Shovel         | 4890 | Scenic Viewshed & Modified Landscape |
| Alt 3: 22     | Alt 3: UEA-GS 33% | Alt 3: 604               |                |      |                                      |
| Alt 4: 22     | Alt 4: UEA-GS 33% | Alt 4: 607               |                |      |                                      |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1965 and was precommercially thinned in 1978 and 1998.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: No harvest. Unit deferred to meet opening size restrictions associated with proposed harvest of adjacent Unit 21 (USDA Forest Service 2016<sup>91</sup>, p. 4-69).

Alts. 3 and 4 Prescription: Uneven-aged group selection. Harvest may remove up to 33% of the stand area in openings each up to 2 acres, distributed throughout the stand, and yarding corridors roughly 60 feet wide where necessary.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 3 and 4: This unit is planned for shovel yarding. Yarding corridors (60 feet wide or less depending on equipment used) are necessary to facilitate yarding where harvest openings are not directly adjacent to proposed temporary roads or an existing road. Prior to harvest, yarding corridors will be planned to minimize their distance from existing and/or proposed roads. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### SOILS/WETLANDS:

Alts 3 and 4: The two relict channels or sloughs crossing Unit 20 may have fine-textured soils which are prone to rutting. Yarding corridors are designated across these features in four places. Minimize impacts by reusing existing skid trails and use adequate slash or other material to support the weight of equipment. Rehabilitate portions of skid trails in channel by completely removing all slash and yarding debris and recontouring. Proposed gaps do not overlap with existing skid trail network. Look for opportunities to close or rehabilitate existing skid trails to maximize long term soil productivity.

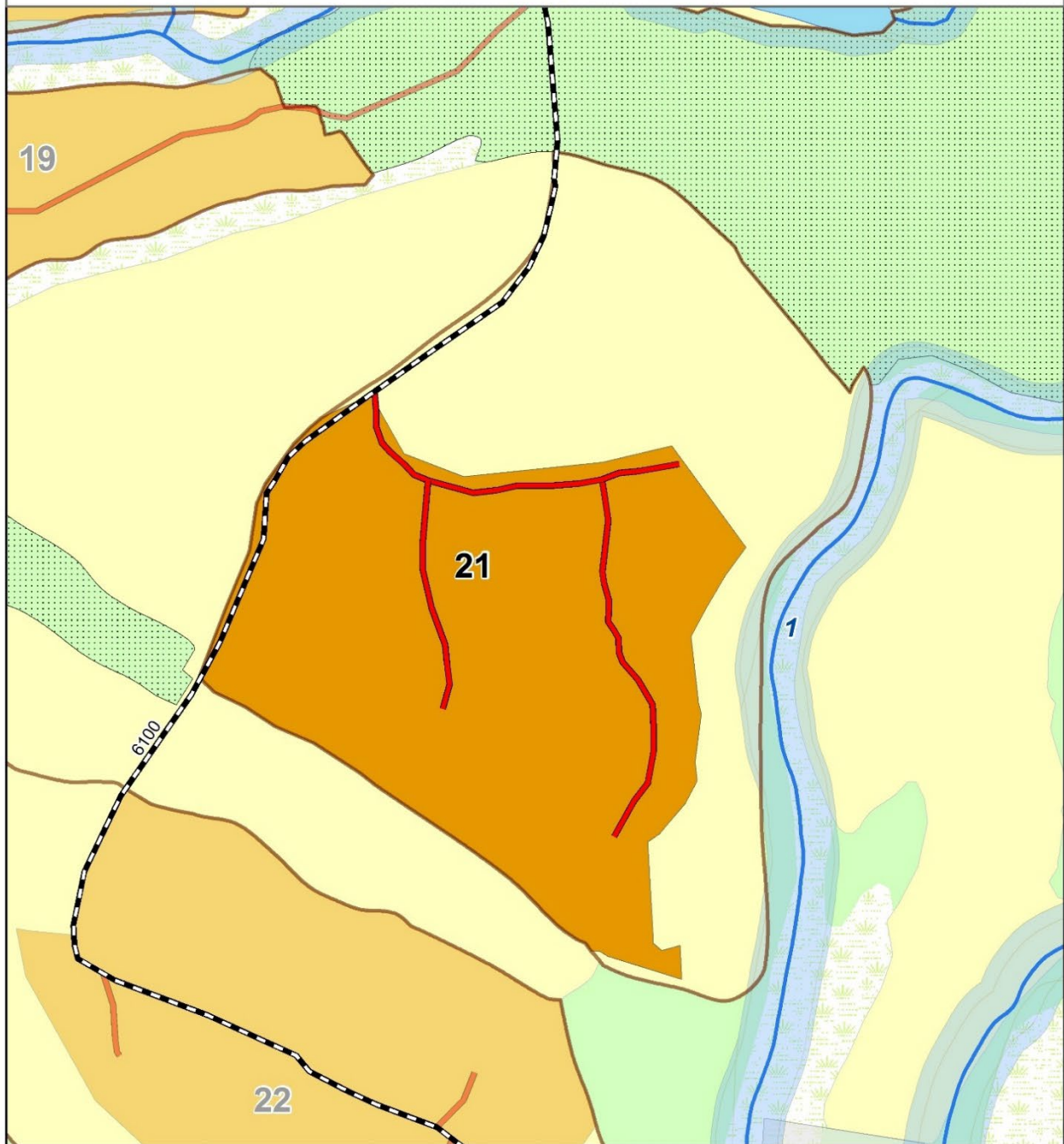
### NO RESOURCE-SPECIFIC REQUIREMENTS

Aquatics, Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

<sup>91</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

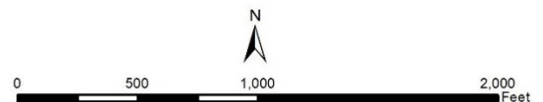


# Alternative 2 Unit: 21

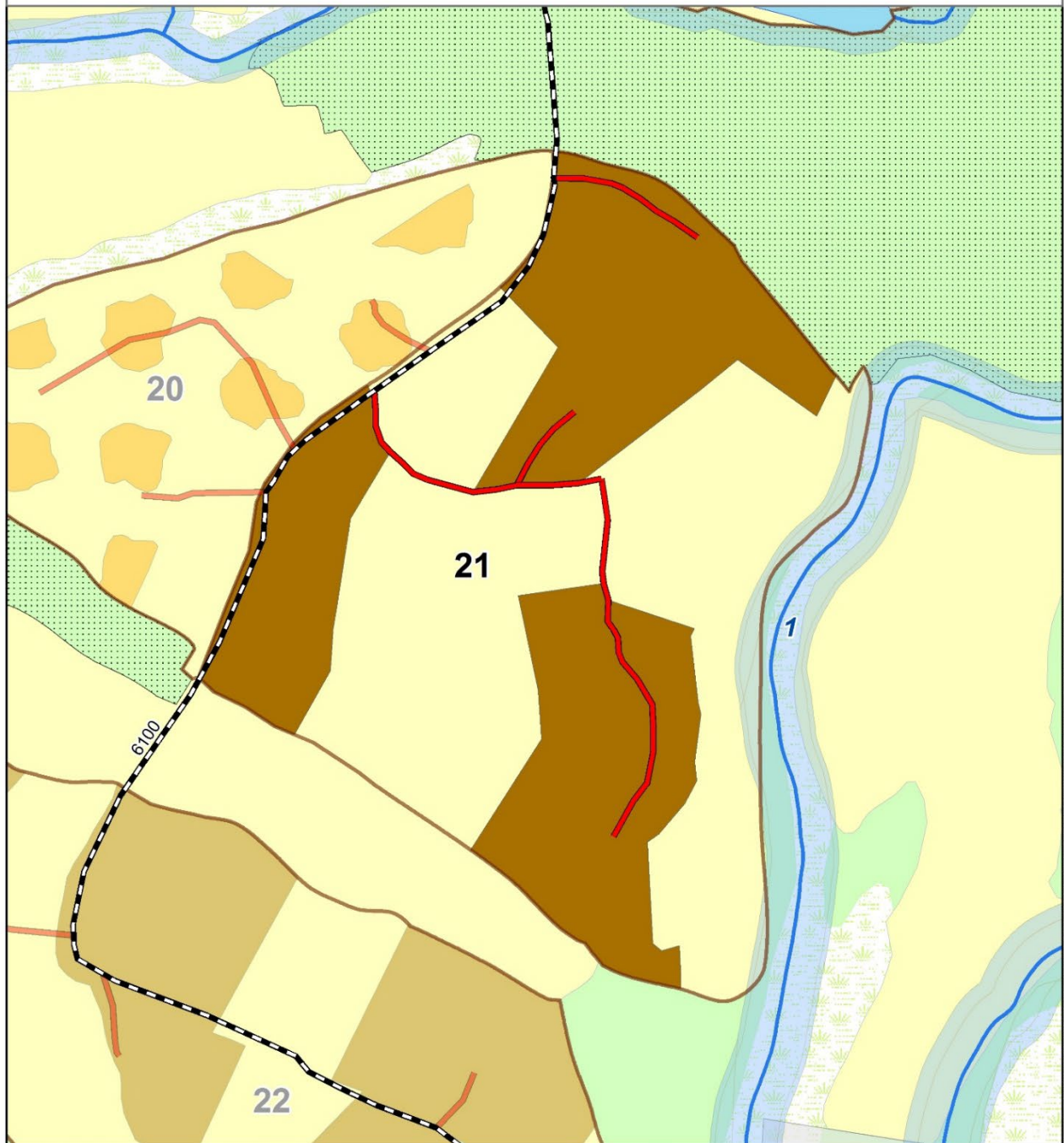


- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District

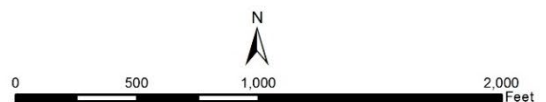


# Alternative 3 Unit: 21



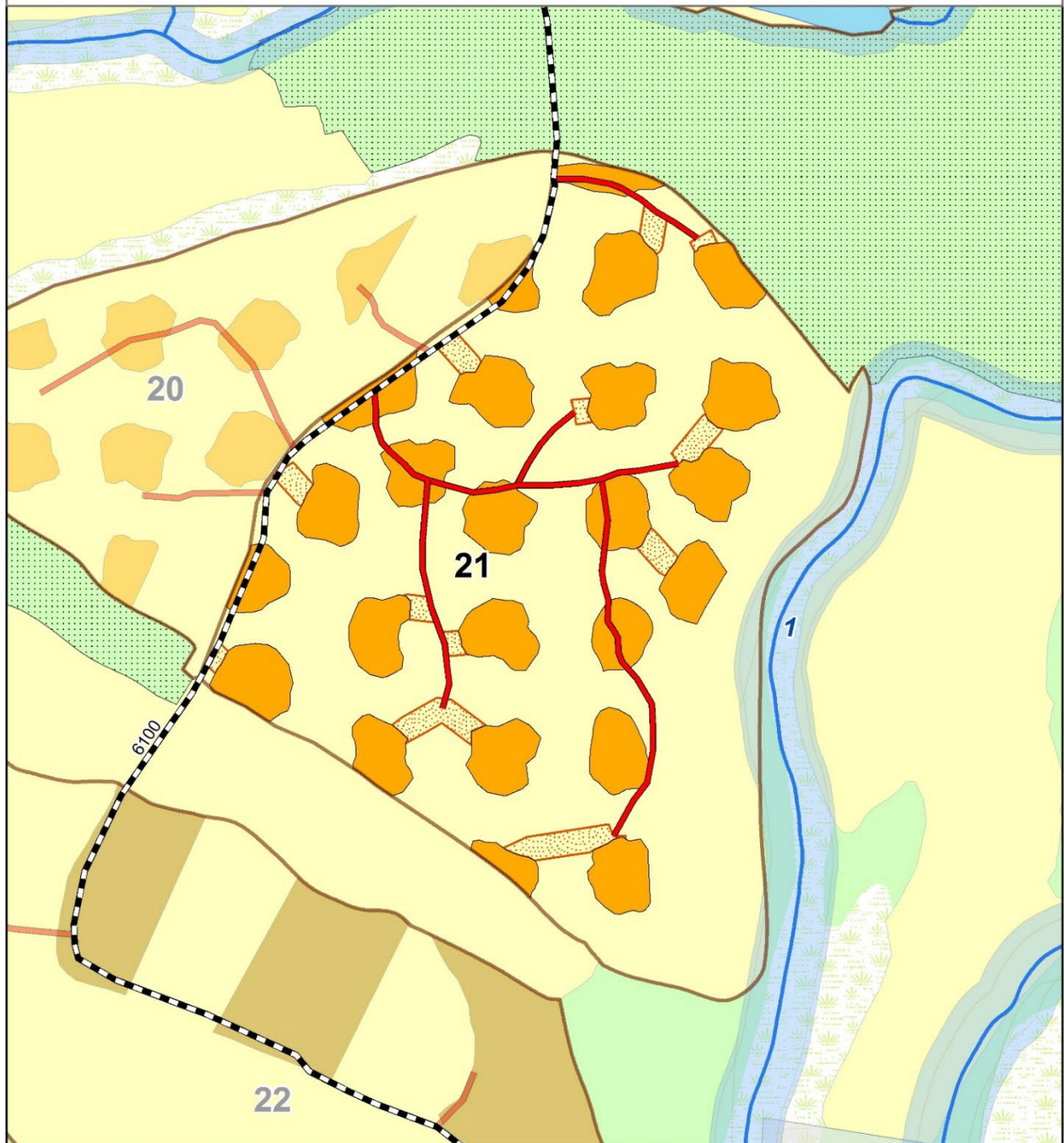
- |                       |                          |
|-----------------------|--------------------------|
| Two-aged Management   | Riparian Management Area |
| Unit Boundary         | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



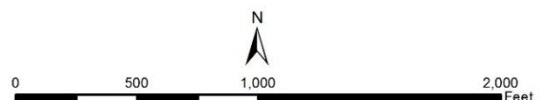


# Alternative 4 Unit:21



- |                        |                          |
|------------------------|--------------------------|
| Unit Boundary          | Riparian Management Area |
| Uneven-aged Management | Old-Growth Habitat LUD   |
| Productive Old-Growth  | Yarding Corridors        |
| Non-Productive Forest  | System Road              |
| Young-Growth           | Proposed Temporary Road  |
| Non-National Forest    | Stream Class I           |
| Lake                   |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



## Thomas Bay Young-Growth Unit 21

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD                                  |
|---------------|-------------------|--------------------------|----------------|------|--------------------------------------|
| Alt 2: 98     | Alt 2: EA-CC      | Alt 2: 1,983             | Shovel         | 4890 | Scenic Viewshed & Modified Landscape |
| Alt 3: 80     | Alt 3: 2A-PCC 50% | Alt 3: 1,625             |                |      |                                      |
| Alt 4: 57     | Alt 4: UEA-GS 33% | Alt 4: 1,065             |                |      |                                      |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1965 and was precommercially thinned in 1978, 1998 and 20 acres pruned in 1997.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>92</sup>, p. 5-2, DC-YG-01). Opening size must not exceed 100 acres per Forest Plan restrictions (USDA Forest Service 2016, p. 4-69).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Uneven-aged group selection. Harvest may remove up to 33% of the stand area in openings each up to 2 acres, distributed throughout the stand, and yarding corridors roughly 60 feet wide where necessary.

### HARVEST SYSTEMS/TRANSPORTATION:

Alt 2 and 3: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

Alt 4: This unit is planned for shovel yarding. Yarding corridors (60 feet wide or less depending on equipment used) are necessary to facilitate yarding where harvest openings are not directly adjacent to proposed temporary roads or an existing road. Prior to harvest, yarding corridors will be planned to minimize their distance from existing and/or proposed roads. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

**AQUATICS (WATERSHED/FISHERIES):** *Only streams requiring buffers included in this summary. All Class IV streams are marked with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I – Channel Type: GOL (buffer width: 130 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

### HERITAGE:

Alts 2, 3, 4: Consult the Petersburg/Wrangell Heritage specialist prior to final unit layout.

<sup>92</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.



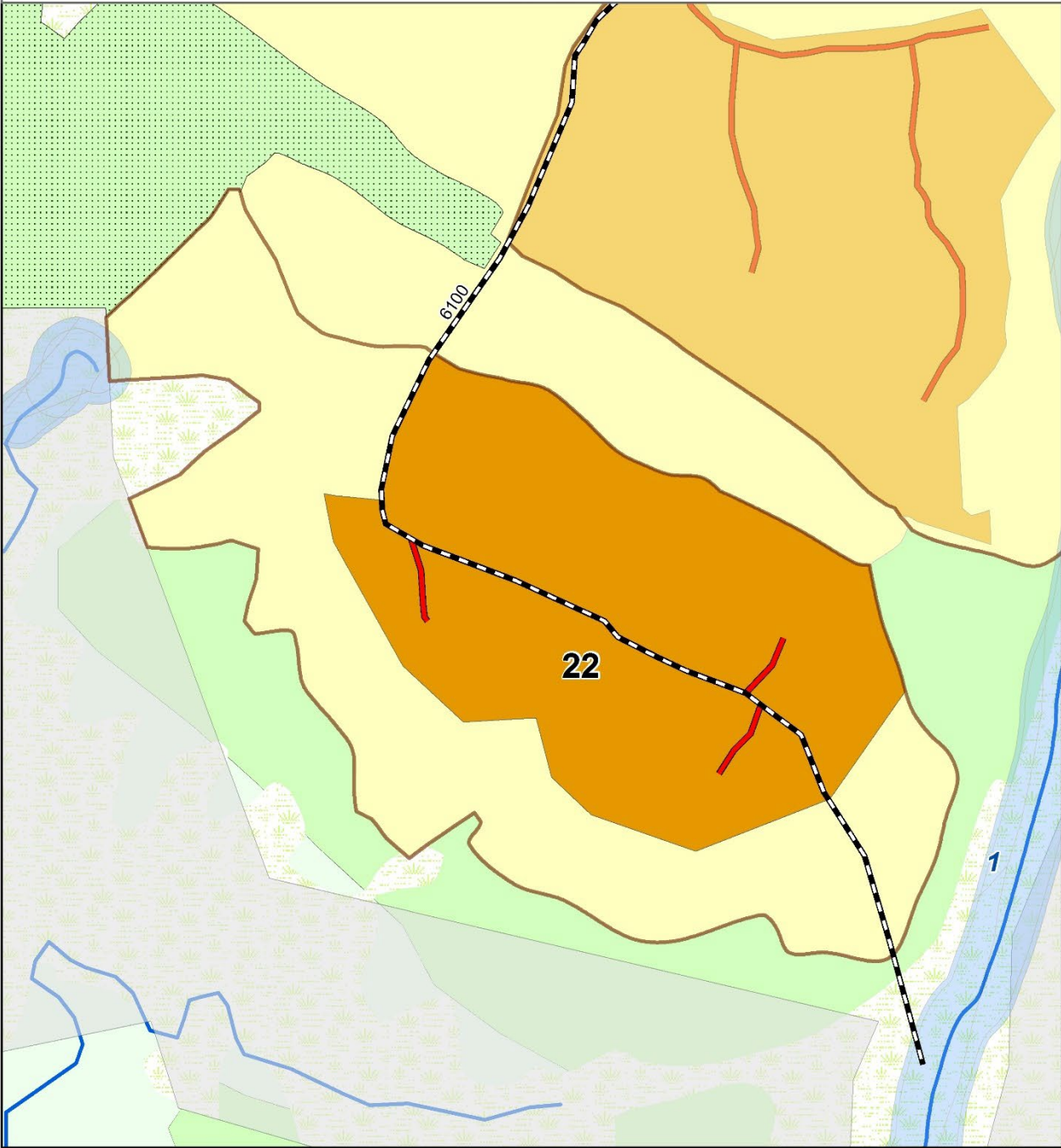
**SOILS/WETLANDS:**

Alt 4: Proposed gaps do not overlap with existing skid trail network. Look for opportunities to close or rehabilitate existing skid trails to maximize long term soil productivity

**NO RESOURCE-SPECIFIC REQUIREMENTS**

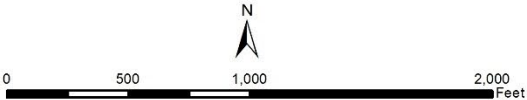
Botany/Invasive Plants, Lands, Recreation, Scenery, Wildlife

# Alternative 2 Unit: 22

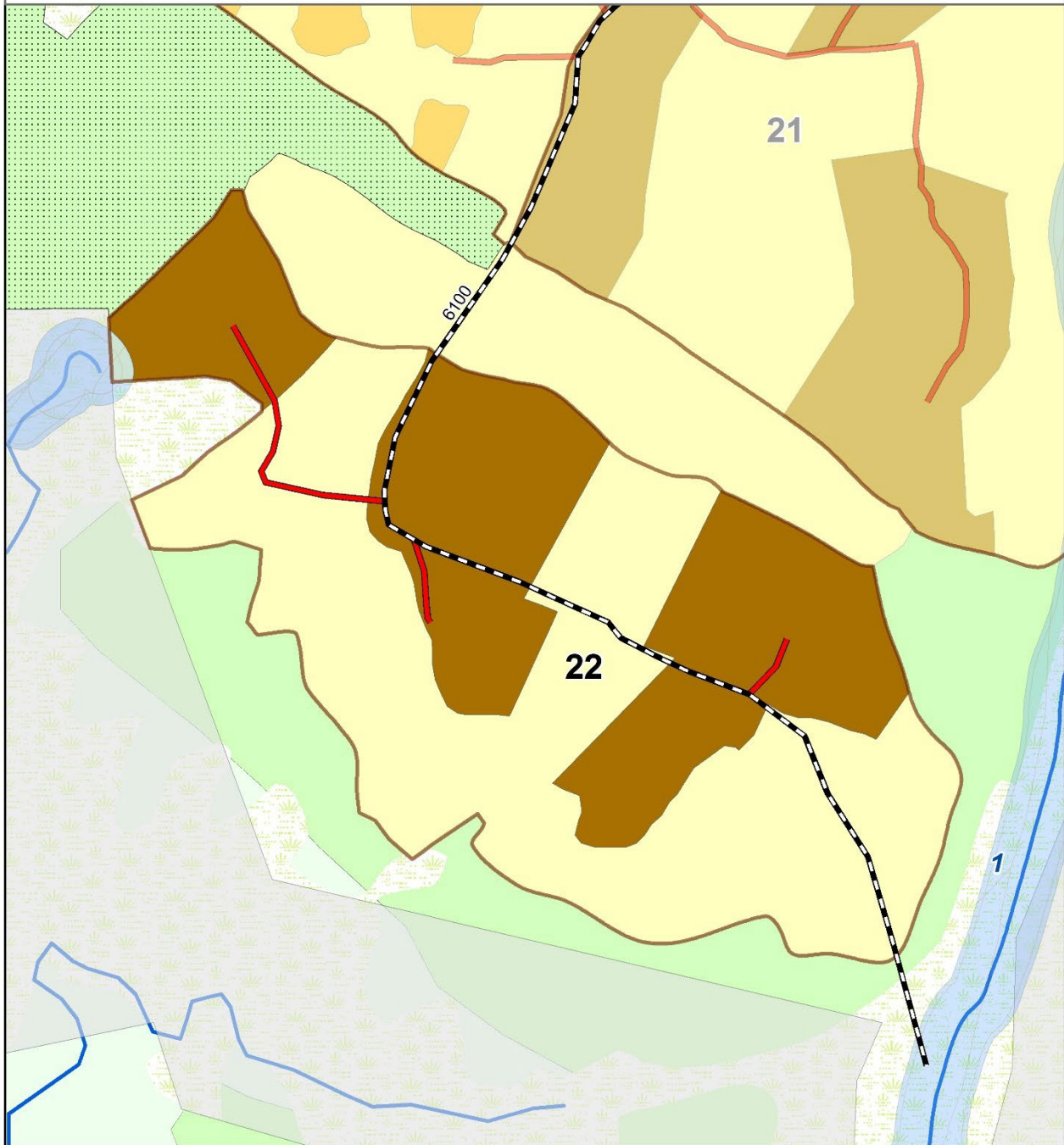


- Unit Boundary
- Even-aged Management
- Productive Old-Growth
- Non-Productive Forest
- Young-Growth
- Non-National Forest
- Riparian Management Area
- Old-Growth Habitat LUD
- System Road
- Proposed Temporary Road
- Stream Class I

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



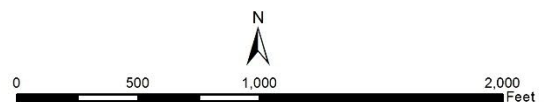
# Alternative 3 Unit: 22



Document Path: T:\FSNFS\Tongass\Project\PRD\ThomasBay\EA\GIS\MapProducts\UnitCards\A13\A13Units.mxd

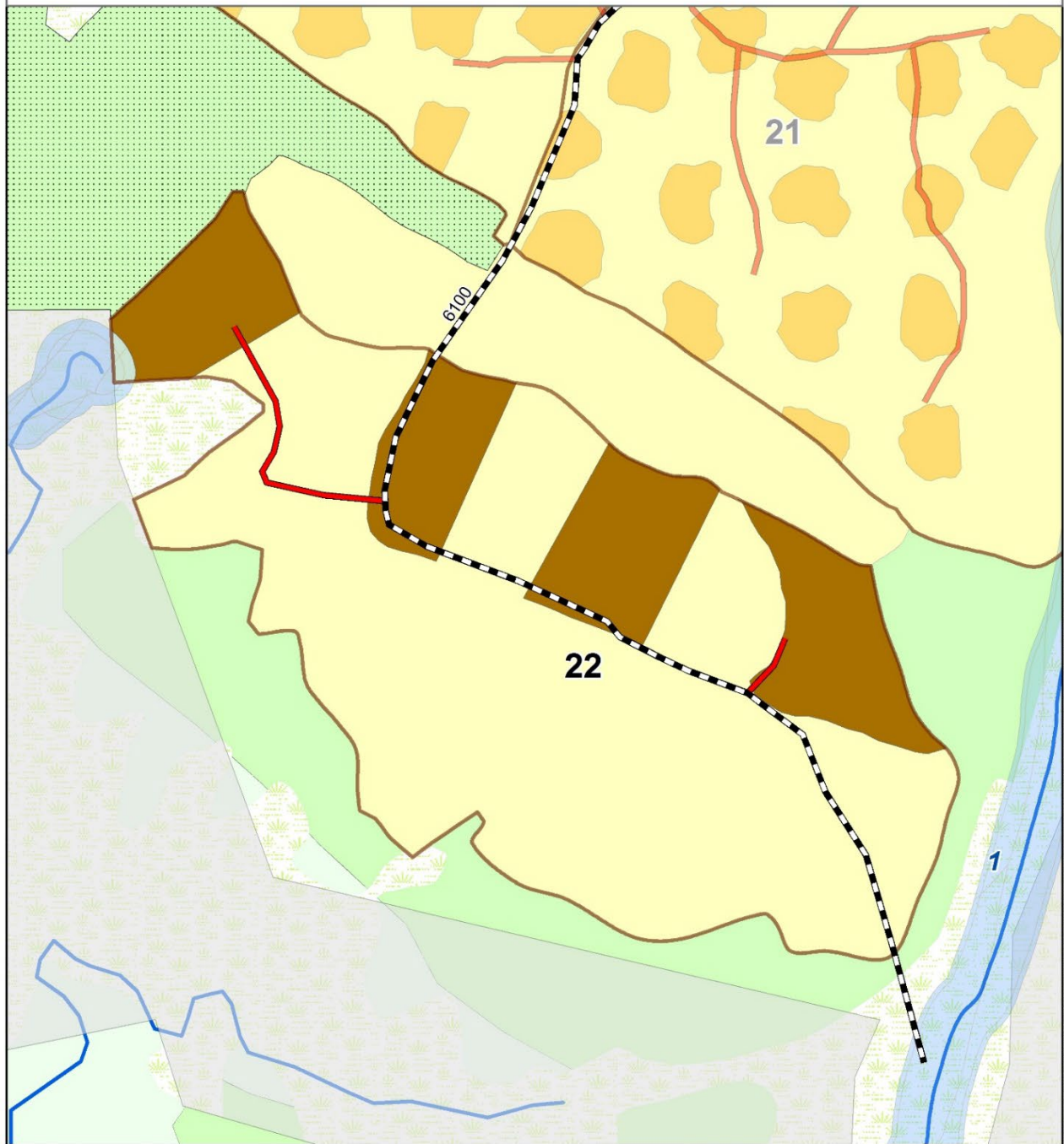
- |                       |                          |
|-----------------------|--------------------------|
| Two-aged Management   | Riparian Management Area |
| Unit Boundary         | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



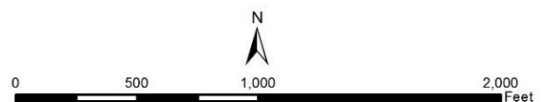


# Alternative 4 Unit:22



- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Two-aged Management   | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





## Thomas Bay Young-Growth Unit 22

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD                                  |
|---------------|-------------------|--------------------------|----------------|------|--------------------------------------|
| Alt 2: 90     | Alt 2: EA-CC      | Alt 2: 1,490             | Shovel         | 4890 | Scenic Viewshed & Modified Landscape |
| Alt 3: 73     | Alt 3: 2A-PCC 50% | Alt 3: 1,207             |                |      |                                      |
| Alt 4: 44     | Alt 4: 2A-PCC 25% | Alt 4: 727               |                |      |                                      |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1968 and was precommercially thinned in 1977 and 2004.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>93</sup>, p. 5-2, DC-YG-01).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6100 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

#### AQUATICS (WATERSHED/FISHERIES):

*Only streams requiring buffers included in this summary. All Class IV streams are marked with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: GOL (buffer width: 130 ft). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: ESS (buffer width: 1,000 ft). (BMP 12.6, 13.16)

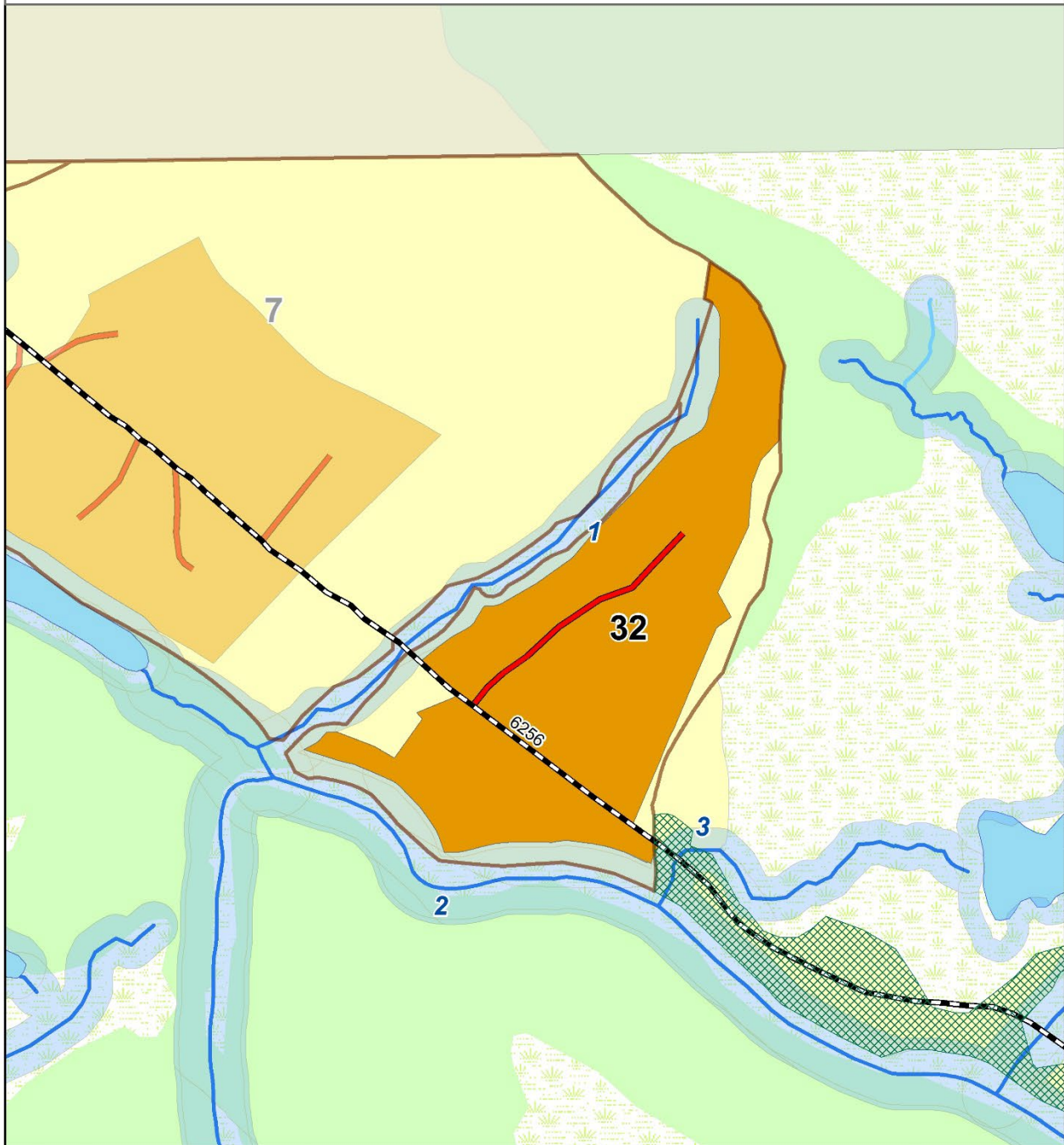
Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>93</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

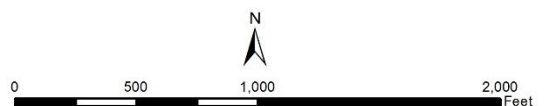
# Alternative 2 Unit: 32



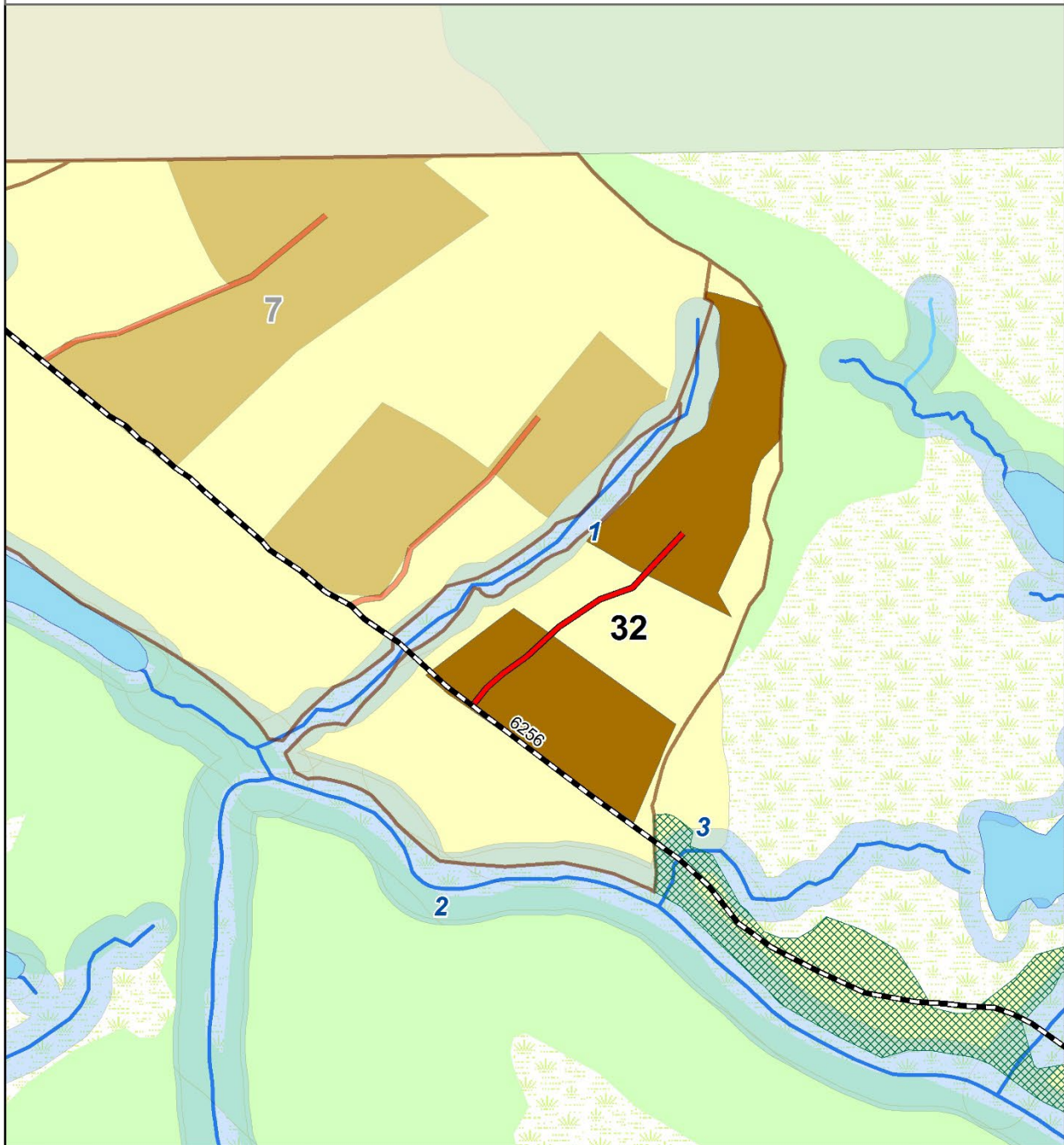
Document Path: T:\FSNFS\Tongass\Project\APRO\ThomasBay\EAGIS\MapProducts\UnitCards\A12\Units.mxd

- |                       |                                            |
|-----------------------|--------------------------------------------|
| Unit Boundary         | Riparian Management Area                   |
| Even-aged Management  | Riparian and Wildlife Restoration Thinning |
| Productive Old-Growth | System Road                                |
| Non-Productive Forest | Proposed Temporary Road                    |
| Young-Growth          | Stream Class I                             |
| Non-National Forest   | Stream Class II                            |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



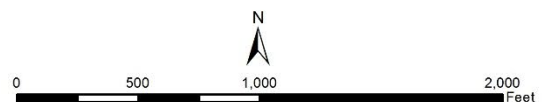
# Alternative 3 Unit: 32



Document Path: T:\FSNFS\Tongass\Project\APRO\ThomasBay\GIS\MapProducts\UnitCards\A13\A13Units.mxd

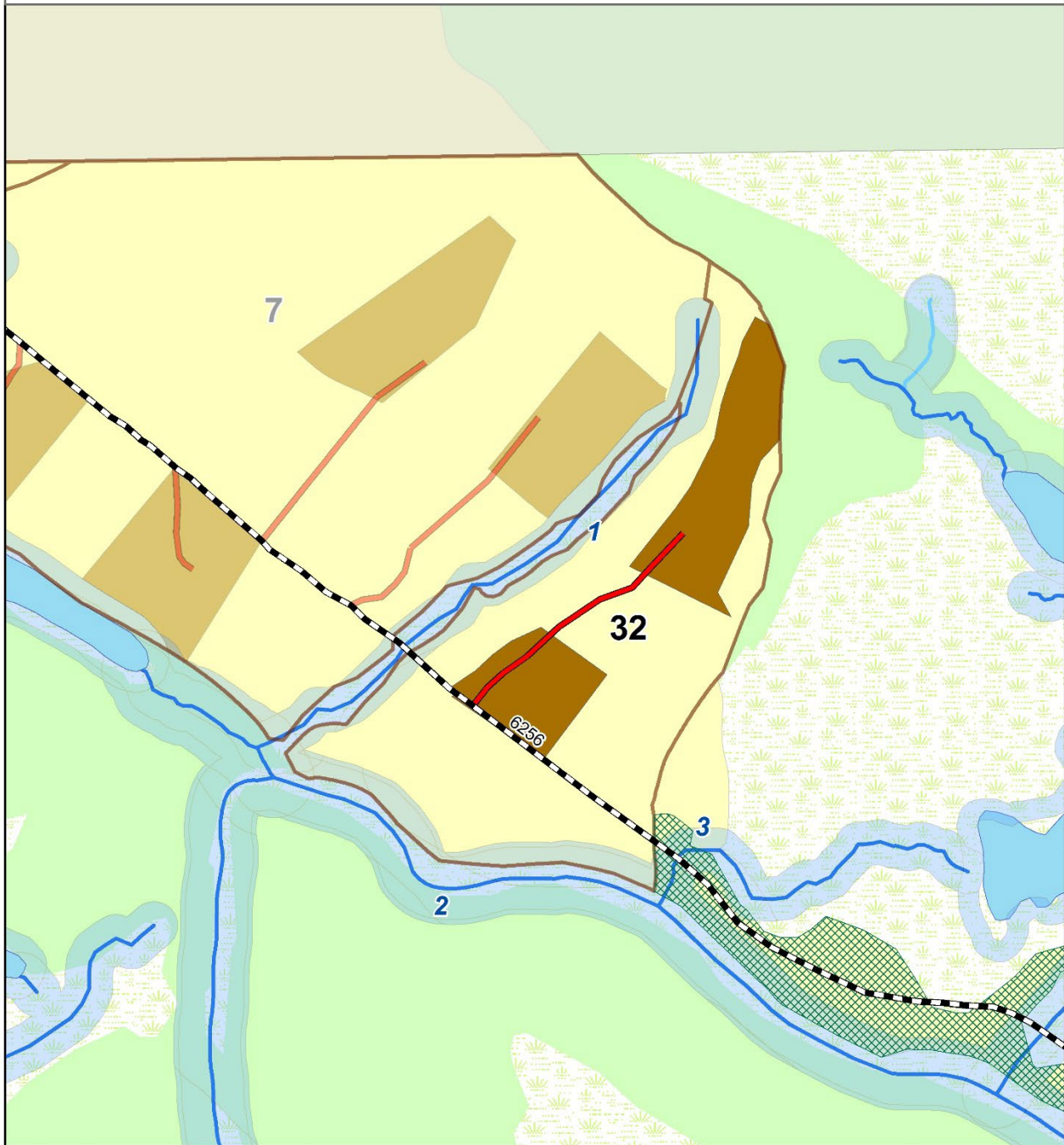
- |                       |                                            |
|-----------------------|--------------------------------------------|
| Two-aged Management   | Riparian Management Area                   |
| Unit Boundary         | Riparian and Wildlife Restoration Thinning |
| Productive Old-Growth | System Road                                |
| Non-Productive Forest | Proposed Temporary Road                    |
| Young-Growth          | Stream Class I                             |
| Non-National Forest   | Stream Class II                            |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





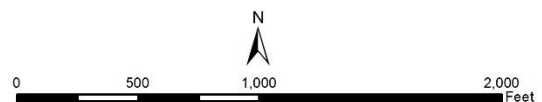
# Alternative 4 Unit:32



Document Path: T:\FSNFS\Tongass\Project\APRO\ThomasBay\EAGIS\MapProducts\UnitCards\A14\A14Units.mxd

- |                       |                                            |
|-----------------------|--------------------------------------------|
| Unit Boundary         | Riparian Management Area                   |
| Two-aged Management   | Riparian and Wildlife Restoration Thinning |
| Productive Old-Growth | System Road                                |
| Non-Productive Forest | Proposed Temporary Road                    |
| Young-Growth          | Stream Class I                             |
| Non-National Forest   | Stream Class II                            |
| Lake                  |                                            |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





## Thomas Bay Young-Growth Unit 32

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 48     | Alt 2: EA-CC      |                          | Shovel         | 4890 | Scenic Viewshed |
| Alt 3: 26     | Alt 3: 2A-PCC 50% | Alt 2: 1,200             |                |      |                 |
| Alt 4: 15     | Alt 4: 2A-PCC 25% | Alt 3: 648               |                |      |                 |
|               |                   | Alt 4: 384               |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1967 and was precommercially thinned in 1980.

Current condition: Spruce-hemlock single-story, closed canopy with limited understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>94</sup>, p. 5-2, DC-YG-01).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6256 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

**AQUATICS (WATERSHED/FISHERIES):** *Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension when yarding across channels, clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 3: Class I - Channel Type: PAS (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

### SOILS/WETLANDS:

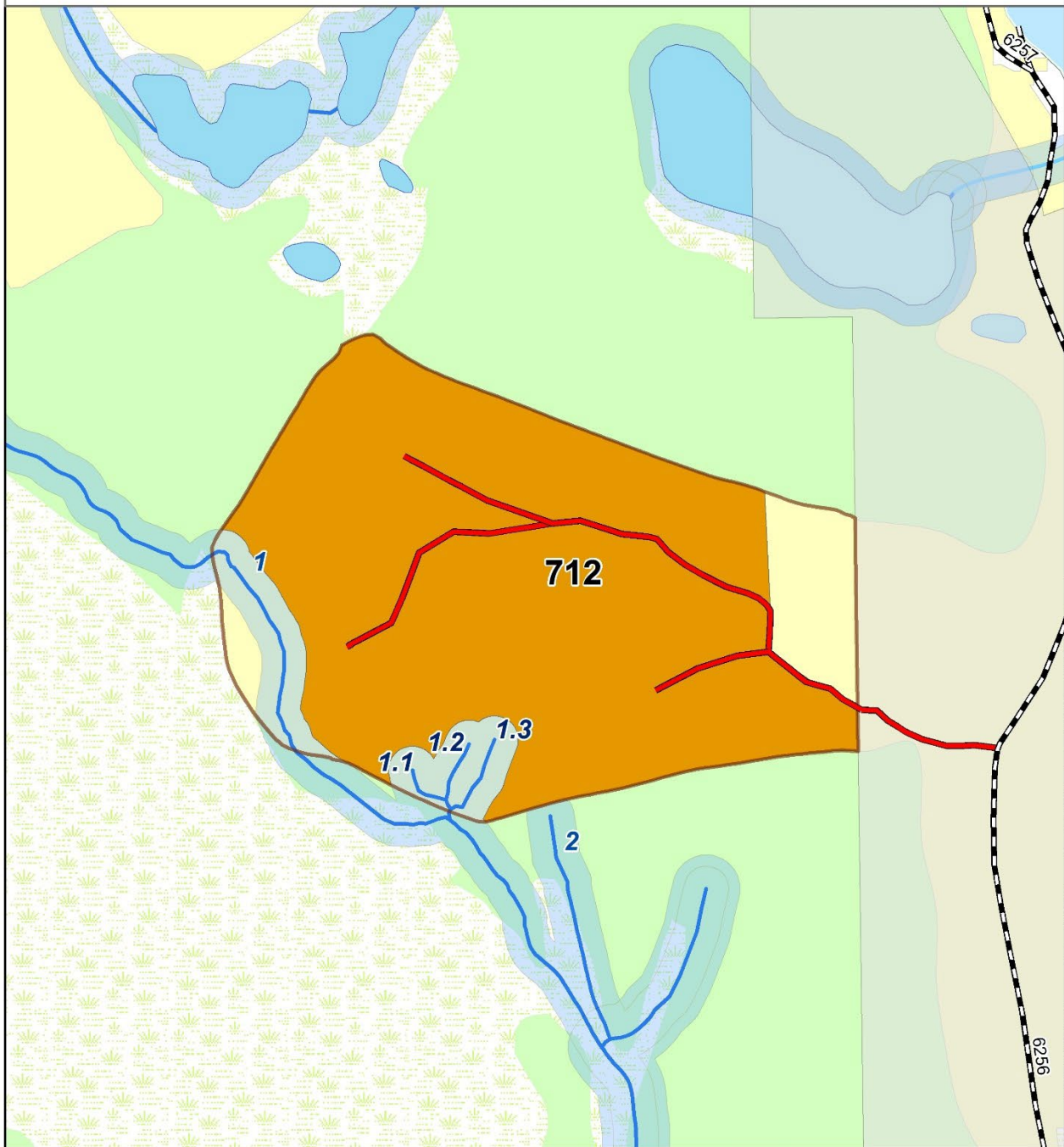
Alts 2, 3, 4: Borrow pit exists in the southwest corner of the unit.

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Wildlife

<sup>94</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.

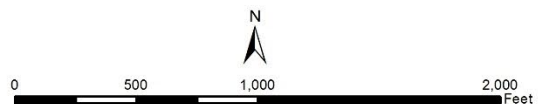
# Alternative 2 Unit: 712



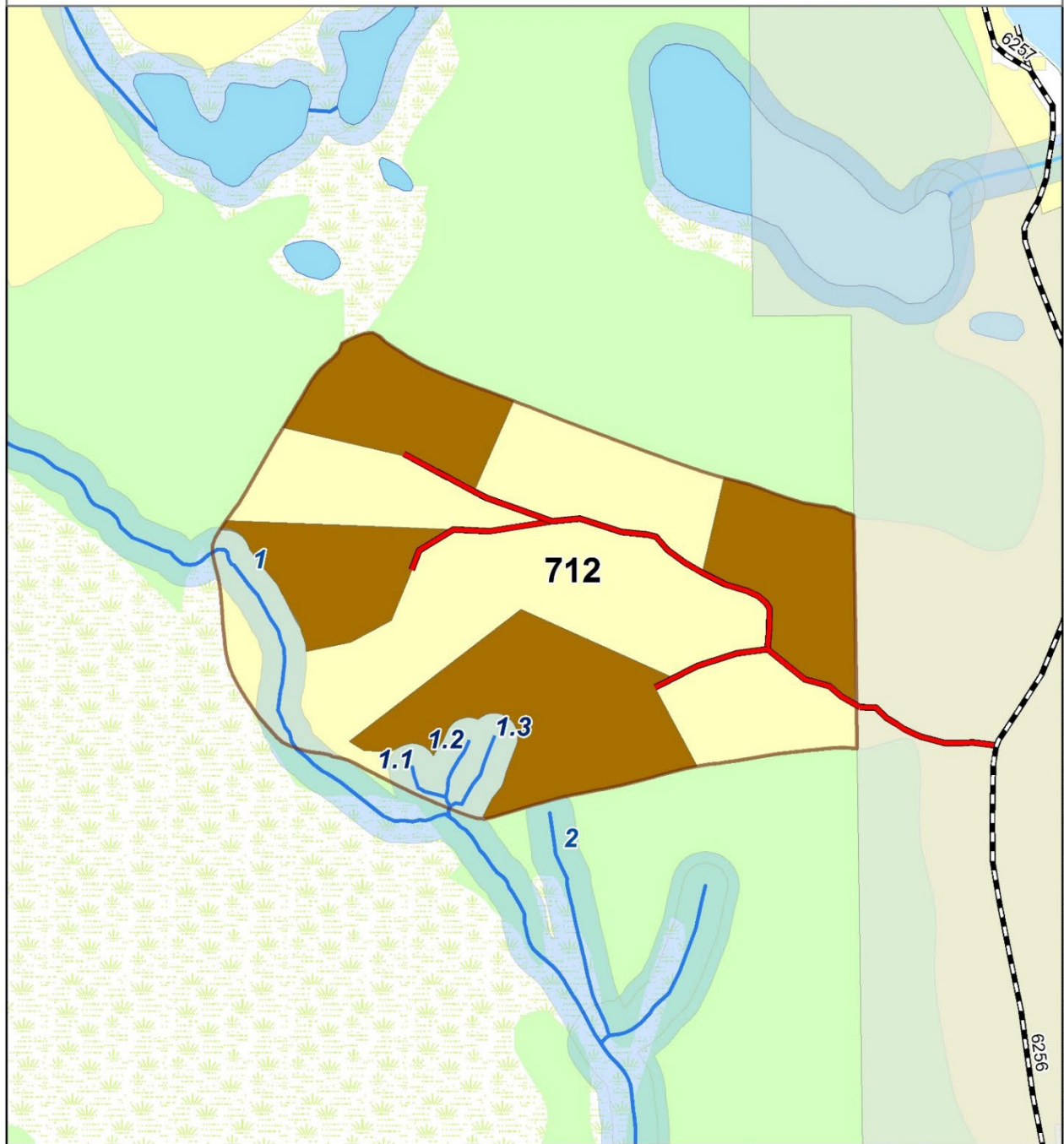
Document Path: T:\FSNFS\Tongass\Project\PRD\ThomasBay\GIS\MapProducts\UnitCards\A12\Units.mxd

- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Even-aged Management  | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   | Stream Class II          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District

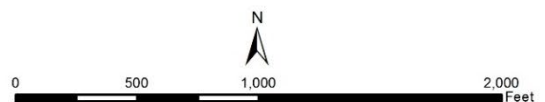


# Alternative 3 Unit: 712



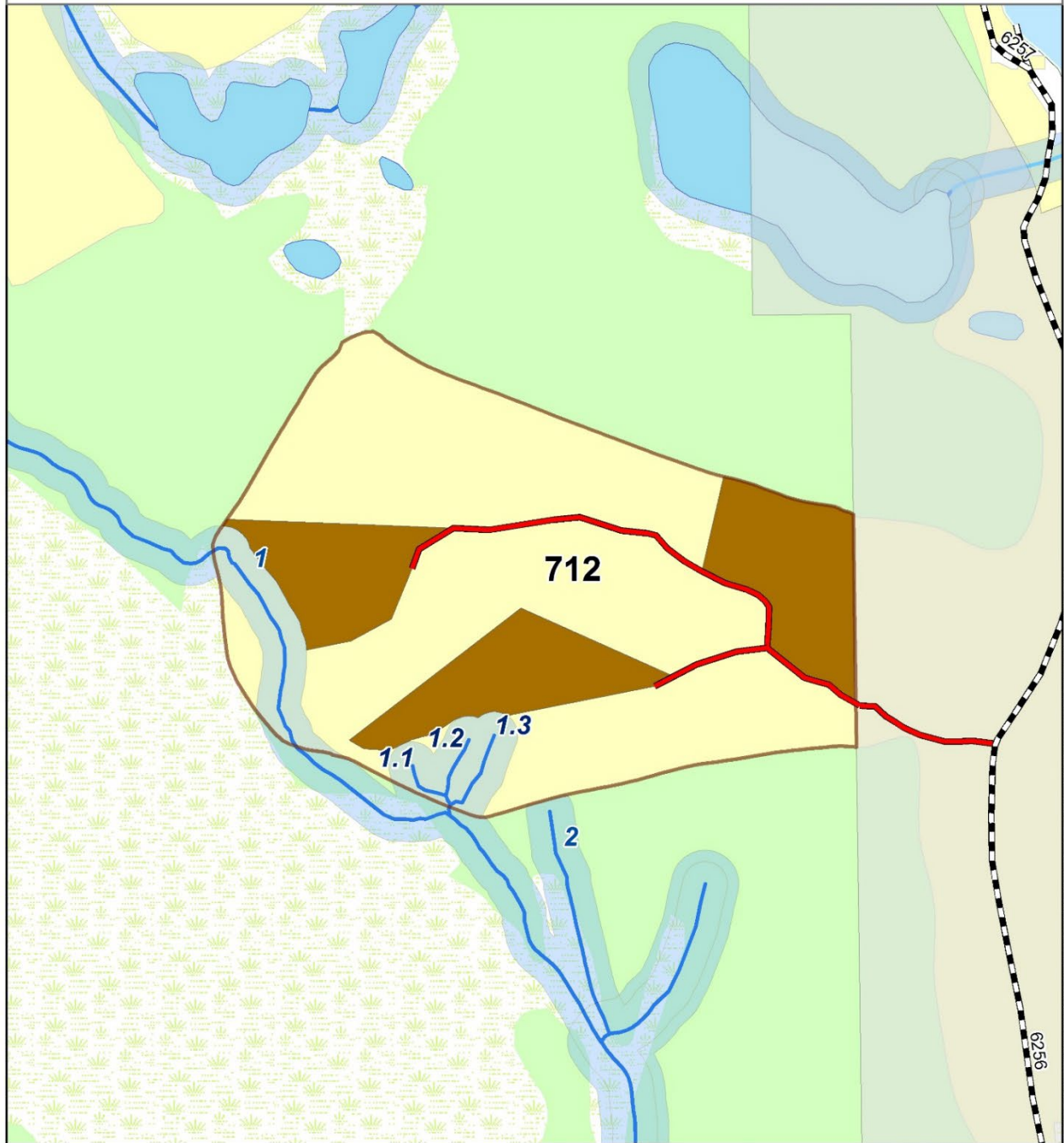
- |                       |                          |
|-----------------------|--------------------------|
| Two-aged Management   | Riparian Management Area |
| Unit Boundary         | Old-Growth Habitat LUD   |
| Productive Old-Growth | System Road              |
| Non-Productive Forest | Proposed Temporary Road  |
| Young-Growth          | Stream Class I           |
| Non-National Forest   | Stream Class II          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District



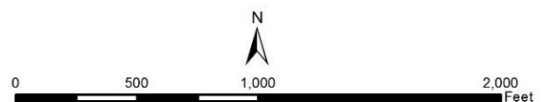


# Alternative 4 Unit:712



- |                       |                          |
|-----------------------|--------------------------|
| Unit Boundary         | Riparian Management Area |
| Two-aged Management   | System Road              |
| Productive Old-Growth | Proposed Temporary Road  |
| Non-Productive Forest | Stream Class I           |
| Young-Growth          | Stream Class II          |
| Non-National Forest   |                          |
| Lake                  |                          |

## Thomas Bay Young Growth Timber Sale Petersburg Ranger District





## Thomas Bay Young-Growth Unit 712

| Harvest Acres | Prescription      | Net Harvest Volume (MBF) | Harvest System | VCU  | LUD             |
|---------------|-------------------|--------------------------|----------------|------|-----------------|
| Alt 2: 96     | Alt 2: EA-CC      |                          | Shovel         | 4870 | Scenic Viewshed |
| Alt 3: 48     | Alt 3: 2A-PCC 50% | Alt 2: 1,651             |                |      |                 |
| Alt 4: 30     | Alt 4: 2A-PCC 25% | Alt 3: 832               |                |      |                 |
|               |                   | Alt 4: 514               |                |      |                 |

### SILVICULTURE:

History: Stand originated from even-aged harvest in 1961 and was precommercially thinned in 1977 and 1992.

Current condition: Spruce-hemlock single-story, closed canopy with moderate understory development.

Alt 2 Prescription: Even-aged clearcut to avoid stem decay and defect, to minimize damage from windthrow, reduce the occurrence of dwarf mistletoe and to provide for the establishment of desirable, less shade tolerant species such as Sitka spruce (USDA Forest Service 2016<sup>95</sup>, p. 5-2, DC-YG-01). Opening size must not exceed 100-acres per Forest Plan restrictions (USDA Forest Service 2016, p. 4-69).

Alt 3 Prescription: Two-aged patch clearcut removing up to 50% of the stand area in openings each up to 30 acres distributed throughout the stand.

Alt 4 Prescription: Two-aged patch clearcut removing up to 25% of the stand area in openings each up to 10 acres distributed throughout the stand.

### HARVEST SYSTEMS/TRANSPORTATION:

Alts 2, 3, 4: This unit is planned for shovel yarding. The unit is accessed by existing NFS road 6256 and proposed new temporary roads.

### RESOURCE-SPECIFIC REQUIREMENTS

**AQUATICS (WATERSHED/FISHERIES):** *Only streams requiring buffers included in this summary. All Class IV streams are marked in the field with G/W striped flagging and receive C-protection. Split yard where practicable, minimum partial suspension, when yarding across channels clean stream of logging debris (BMP 13.16) per FSH 2409.18 direction.*

Stream 1: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 1.1: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 1.2: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 1.3: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Stream 2: Class I - Channel Type: PAB (buffer width: 100 ft). (BMP 12.6, 13.16)

Review all buffers to provide reasonable assurance of wind firmness. (BMP 12.6a)

### NO RESOURCE-SPECIFIC REQUIREMENTS

Botany/Invasive Plants, Heritage, Lands, Recreation, Scenery, Soils/Wetlands, Wildlife

<sup>95</sup> USDA Forest Service. 2016. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-769j. USDA Forest Service, Alaska Region, Juneau.