Dan Thin Project
Decision Notice (DN)
and
Finding of No Significant Impact (FONSI)

USDA Forest Service
Mt. Baker-Snoqualmie National Forest
Darrington Ranger District
Snohomish County, Washington
DECISION

After reviewing the Dan Thin Environmental Assessment (EA), Terrestrial, Aquatic and Plant Biological Evaluations, specialist reports, applicable Forest Plan direction, and public comments for the proposed Dan Thin Project, it is my decision to implement **Alternative C**.

This alternative is described in Chapter 2 of the EA. Figure 1 (below) is a map of the Selected Alternative. Table 1 is the Management Requirements and Mitigation Measures that are integral parts of the Selected Alternative. This decision implements forest thinning treatments on approximately 415 acres of second growth with commercial thinning of approximately 270 acres of the 36 to 56 year old timber stands, thinning treatments within 65 acres of the Riparian Reserve and pre-commercially thinning of approximately 80 acres of 20-year-old timber stands on the north end of Gold Hill. Alternative C would include up to 17 acres of wildlife openings in two to five acre gaps in the second growth thinning across five different stands. This option will produce an estimated 4.9 MMBF of commercial timber in the matrix and the potential for additional volume from the riparian thinning (< 1 MMBF). This decision will also upgrade or reconstruct approximately 11.5 miles of existing forest road (Maintenance Level 1 to 3) and replace up to 20 culverts along Road 24 and 2420. There will be 0.9 mile of the stored roads returned to storage following thinning activities, and approximately 1.5 miles of temporary road obliterated. Specifically this decision will implement:

- **Commercial thin of approximately 150 acres within 300 acres of 50 to 55 year old forest stands located in Stands #2, #3, #5, #7, #9 and #12 (see Figure 1.).**

- **Commercial thin of approximately 120 acres of 200 acres of 36 to 46 year-old stands of forest stands acres found in Stands #1, #4, #6, #8, #10, #11 and #13 (see Figure 1).** Many of these stands originated following salvage of blown down timber after the 1962 Columbus Day Wind Storm.

- **Pre-commercial thin 80 acres of 20-year-old forest stands located on the top of Gold Hill. These stands (Stands #14 and #15) originated after timber harvest in the mid to late 1980s (see Figure 1).**

- **Wildlife openings or patch cuts of 2 to 5 acres would provide gaps for wildlife forage in the following stands (see Figure 1):**
  - Stand #1–Remove trees in a root rot pocket with group tree retention–approximately 2 acres
  - Stand #3–Approximately 2 to 3 acre opening with leave trees
  - Stand #4–Removal of 2 to 3 acres of leaning alder at risk of blow down
  - Stands #6 and #8–Approximately 5 acre opening along ridge with leave tree groupings (2.5 acre in each stand)
  - Stand #11–Approximately 4 acre opening in the flat below Road 24-011 and above Road 24
• Riparian treatment with thinning of approximately 65 acres of Riparian Reserve in the outer portions of the 150-foot stream buffers on perennial and intermittent streams.

• Roads (Maintenance Level 1 to 3) will be upgraded on approximately 11.5 miles of existing roads for the haul route, including approximately 0.9 miles of the existing Level 1 (stored) roads. Approximately 1.4 to 1.5 miles of temporary road will be constructed (using former road prisms or cat trails from previous timber harvesting where possible). All temporarily constructed roads will be obliterated following this project.

• Fuels treatment following timber harvest will include removing slash as chips or burning of the slash piles in landing areas and slash accumulations along Roads 24 and 2420. (see EA pp. 53-55).

• Removal of hazard trees and overhanging hardwood trees from within 25 feet of the road edge on approximately 10 miles of existing open Roads 24 and 2420 to increase public safety, decrease road maintenance costs and avoid potential blocked drainage (see EA p. 45).

• KV Projects within the Dan Thin project area would include:
  1. Pre-commercial thinning: thin approximate 80 acres to desired stocking levels.
  2. Noxious weed treatments: Treatment for control of the noxious weeds: herb robert and English holly.
  3. Supplemental planting in wildlife openings: There are 17 acres of wildlife openings projected to have natural regeneration. KV funding provides for supplemental planting with seedlings if needed to meet Forest plan regeneration goals.

• Roads 24 and 2420 and associated spurs will not be kept open to the public during thinning operations so as to allow for full utilization of existing roads for landing locations which will minimize the need for temporary spur roads in some locations, and will provide for safety of the public.

My decision also includes:

• Implementation of the mitigation measures listed in Table 1 of this Decision Notice, and listed in Table 2 in the EA.

• Implementation of the monitoring plans in Appendix A of this Decision Notice, and Appendix F of the EA.

RATIONALE FOR THE DECISION

I selected Alternative C because it best meets the purpose and need (objectives) for the project as described on pp. 1 and 6 of the EA, and best responds to key issues (see EA p. 9). Alternative C provides the same commercial thinning as Alternative B, but also provides the opportunity to meet Forest Plan standards and guidelines in regards to forage creation for a Management Indicator Species and to meet Aquatic Conservation Strategy objectives with Riparian Reserve Management. In particular, the Selected Alternative:
• Thins approximately 270 acres of second growth stands to maintain or promote increased growth and vigor of forest stands while providing commercial wood fiber consistent with the Forest Plan (see EA pp. 39 to 45).

• Retains a 60 percent canopy cover in the matrix that would not materially slow vegetation recovery in Dan Creek (see EA p. 46), while allowing for the project to better meet the economic viability needs (Issue #1, EA p. 9). Provides additional volume from the thinning (see EA p. 106), and meet silvicultural objectives of increased growth of individual trees, reduced density-mortality, and a shift in species composition within the stand to a more even distribution of species mix (see EA pp. 48 to 50).

• Retains 100 percent of current canopy cover in the inner gorge and a 70 percent canopy cover in the outer Riparian Reserve to maintain appropriate shade and temperature of stream flows into Dan Creek (see EA pp. 66 to 67, and pp. 76 to 80).

• Thins 65 acres within the Riparian Reserves to promote desired vegetation characteristics and species diversity to help attain Aquatic Conservation Strategy objectives. In contrast, no Riparian Reserve treatment would be accomplished with Alternative B (see EA p. 94)

• Utilizes a thinning prescription to support a broad range of tree species and moderate forest stand stocking to provide forest stand diversity and resiliency. This provides for potential adaptations of the forest stand to shifts in climate or other disturbances such as insects and disease (see EA pp.45 and 49, and Appendix E, Climate Change Implications).

• Creates 17 acres of wildlife opening as gaps within five thinned stands for forage to support local deer and bear populations. This supports Forest Plan standards and guidelines for wildlife (see EA p. 15) . No wildlife treatments would be accomplished with Alternative B. (see EA pp. 85 to 86 and pp. 92 to 93).

• Upgrades 11.5 miles of road (Maintenance level 1 thru 3), resulting in reduced potential for road related erosion and sedimentation (see EA pp. 60 to 63).

• Returns 0.9 mile of road to long term storage with improved storage techniques to reduce the potential for road related erosion or sedimentation (see EA pp. 60).

• Obliterates approximate 1.5 miles of temporary road constructed to provide access to sale units. This removal of temporary roads will reduce the potential for road related failures and sediment delivery to streams (EA p. 62 and p. 77)

• Pre-commercially thins approximate 80 acres to desired stocking levels.

This decision does not change existing open classified road access on the mainline Road 24 and 2420, and maintains open travel routes for dispersed recreational opportunities.

A detailed description of The Selected Alternative (Alternative C) can be found in Chapter 2 of the EA.
OTHER ALTERNATIVES CONSIDERED

Two other alternatives were considered in detail—Alternative A (No Action), and Alternative B.

I did not select Alternative A (No Action) because it failed to achieve the project’s Purpose and Need, or Forest Plan goals and objectives (Chapter 1 of the EA). Specifically, Alternative A would not: (1) decrease stocking to promote stand growth and development, (2) manage Riparian Reserves for desired vegetation characteristics, (3) provide commercial wood fiber products or (4) manage high risk roads with potential to contribute sediment to streams in the area.

Alternative B was developed to respond to the need to reduce second growth stocking levels in matrix stands and to provide the least risk of sediment delivery to streams from ground disturbance within the Riparian Reserve. Alternative B defers treatments in the outer Riparian Reserve to promote desired stand characteristics. I did not choose Alternative B primarily because of the lack of treatment in these second growth stands in the Riparian Reserve and due to the low risk of sediment delivery to streams from all action alternatives where no ground disturbance would occur on areas identified as having potentially unstable soils. I also did not choose Alternative B because no wildlife openings would be created within a forest management allocation (Matrix) that provides opportunities for multiple benefits from stand management activities. And, given that all action alternatives were economically viable, the economic issue was met in the design of all action alternatives. Alternatives B provided similar road upgrade, storage and treatment as Alternative C so there were no differences in miles of road treatment and therefore no differences in the alternatives’ treatment of high risk roads.

The ID (interdisciplinary) Team and public comments did not identify other issues that would have led to development of an additional action alternative that would meet the project objectives (Chapter 1 of the EA).

MITIGATION AND MONITORING

My decision also includes the design features and mitigation measures specific to this project to avoid adverse effects on soils, streams, wildlife, cultural sites and for limiting the spread of noxious weeds. In addition, this decision includes monitoring of design features and mitigation measures to evaluate their implementation and their effectiveness on canopy cover, stand stocking levels, and increasing species diversity. Descriptions of project elements and mitigation measures are provided in Table 2 of the EA and in Table 1 (pages 17 to 23) of this DN. Monitoring plans are included in Appendix A of this DN, and Appendix F of the EA.

Specifically, related to the purpose and need and key issues analyzed in the EA, the ID Team review found the following:

**Purpose & Need Element 1: Manage forest stocking to maintain or promote increased growth rate in dense stands, promote horizontal and vertical diversity, and retain diversity, health, and vigor of the residual stands.**

*Present Conditions.* The health and vigor of trees in these stands are beginning to show decline and suppression-related mortality due to competition is evident. High stocking...
levels can result in trees with narrow crown widths, limited live crown ratios, and decreased diameter growth due to competition. These stands are more susceptible to insects and pathogens compared to stands with lower stocking levels. High stocking levels encourage height growth, without sufficient proportionate diameter increase, leading to instability during windstorms or snow loading (Oliver and Larson 1996). The closed canopy limits understory vegetation development and limits the structural and species diversity. The thinning activity in the Selected Alternative was chosen to reduce competition and promote conditions that support tree growth and stand vigor.

Environmental Effects. The effects of implementing thinning and road treatments proposed in this project would be to reduce stand stocking on an estimated 340 acres (EA pp. 42 to 51, 58 to 64, 66 to 71, 76 to 81, 83 to 94, and 96 to 97), resulting stocking levels that promote growth and diversity in both stand structure and species mix across the watershed. Alternative C is the alternative that would provide the most acres of forest stands treated to achieve recommended stocking levels (Purpose and Need, EA p. 6). Alternative C also promotes diversity in stand structure with the gaps created for wildlife forage openings (see EA p. 94).

Purpose & Need Element 2: Manage Riparian Reserves for desired vegetation characteristics to attain Aquatic Conservation Strategy objectives.

Present Conditions. The project area includes Riparian Reserves with western redcedar in the understory, but few redcedar as dominant or co-dominant trees within the stand. The close spacing of trees within the Riparian Reserve is similar to the rest of the second growth stands in the project area (high stocking levels; see EA Appendix D, Silvicultural Information, pp.D-1 to D-7). Such stands experience slower growth in tree diameter and volumes (USDA Forest Service 2001, p. 69). Development of large woody material for riparian areas is delayed. In this forest type, closely spaced trees also become susceptible to damage from forest insects, diseases, windstorms, and snow breakage (Oliver & Larson 1996). Management objectives for the Riparian Reserve include development of desired vegetation characteristics as per ROD p.32: “Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives”

Environmental Effects. Alternative C was selected for the thinning treatment on 65 acres in the second growth stands of the Riparian Reserve. All riparian thinning would be in the outer portions of the Riparian Reserves and outside of the inner gorge of the drainage features (see Figure 5 in the EA and Figure 1 of the DN). This represents approximately 6.5 percent of the Riparian Reserve within the project area (based on approximate 50% of the 2000 acre project area modeled as riparian areas either due to stream buffers or potentially unstable soil types). This limited treatment of Riparian Reserve provides both for diversity and untreated areas with abundant recruitment of small diameter snags and down wood across the landscape.

Riparian treatments would favor the retention of dominant and co-dominant trees, with a target of over 70 percent canopy retention and creation of snags and downed wood. Current biomass growth rate would be maintained by capturing growth on fewer
stems. The retention of 70 percent canopy would fully meet the desired conditions for spotted owl dispersal, maintain buffers areas for amphibian re-colonization of treated areas, and retain plant or forest associations that provide diverse habitat and microclimatic conditions with temperature and moisture regimes that favor riparian associated species such as amphibians, mollusks, and bats (Aquatic Conservation Strategy objective No. 9, ROD p. B-11).

Alternative C provides an opportunity to release western redcedar to a more dominant position within the forest stands, promoting diversity in the residual stand mix and meeting Forest Plan direction to favor western redcedar (see EA p.15). The riparian thinning would promote development of western redcedar as an important part of the diversity of the residual stand. This would contribute to meeting Aquatic Conservation Strategy (ACS) objective No. 8 to maintain and restore the distribution, diversity, and complexity of the watershed and landscape. Diverse forest stands with healthy stocking levels are expected to be resilient and able to cope with disease, insects, and climatic changes (see EA pp. 112-113 and Appendix E).

Hardwood components retained within the Riparian Reserve would provide diversity in the short-term. Hardwoods would eventually be surpassed in growth by the conifers, and would become snags as they are shaded out and die. The treatments would open the stand conditions slightly for understory development that could provide additional cover and forage for Riparian Reserve species of concern (mollusks, amphibians, American marten, bats, marbled murrelets and northern spotted owls). This would meet ACS objective No. 9 “Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species”.

Within treated acres of Riparian Reserves (65 acres), there would be a trade-off of short-term disturbance (10 to 50 years) and loss of a portion of small snags, for long-term (more than 50 years) benefits of structural development and adjustment of species mix. Long-term, over the next 100 years, large trees would mature, die, and become large pieces of down wood. As the large wood decays, these pieces provide a buffered environment from drying climatic conditions and moist environments favored by some amphibians and mollusks. In steep inner gorges, these large trees help dissipate the scouring energy from peak flows of storm events.

Alternative C would meet the intent of this purpose and need element as described on page 6 of the EA with 70 to 100 percent canopy cover, and the reduction of stand stocking to promote the desired species composition and structural diversity. The Selected Alternative would have 65 acres of Riparian Reserve treated versus 0 acres in Alternative B, increasing the amount of forest stands with a more even mix or distribution of tree species. Species richness and reduced stocking density in the residual stand would promote resiliency to shifts in climate or disturbances such as insect and disease (see EA pp. 112-113 and Appendix E).

Purpose & Need Element 3: Provide commercial wood fiber products consistent with the Forest Land Management Plan, as amended in 1994 by the Northwest Forest Plan.

Present Conditions. The stands within the project area are considered prime forestland based on site class and forest associations. The Forest Plan, as amended, includes a
Forest-wide goal to “maintain prime forestlands in timber production” (USDA 1990, pp. 4–5).

Environmental Effects: Alternative C would produce an estimated 4.9 mmbf of commercial timber by thinning in the matrix, and it provides for potential additional 1.0 mmbf volume from the thinning in the Riparian Reserve. The timber sale offering in both Alternative B and C would be economically viable, and Alternative C is the more likely of the two action alternatives to remain viable in case of large decreases in wood market value. Of the 2000 acre project area, the alternative would thin 270 acres of second growth (< 60- year old stands) in Matrix, thin 65 acres (< 60- year old stand) in the Riparian Reserve and pre-commercially thin 80 acres (approximately 20-year old stands).

Purpose & Need Element 3: Meet road maintenance needs in the project area consistent with regional and forest direction.

Present Conditions. The roads within the area were built between the 1940’s and 1970’s to provide access for timber harvest and haul. Open roads (Road 24 and 2420) are single lane gravel roads with many of the culverts in need of upgrade. Roads in storage (2400017 and 2420011) have residual culverts and road fill that do not meet current standards for 100 year flows. The District road maintenance in and around the project area consists of logging out roads, slump and slide removal, culvert replacement, spot rocking, blading, brushing and ditchline clean-out.

Environmental Effects: The Selected Alternative will have the effects of providing upgrades for open Roads 24 and 2420. The planned reconstruction will create a safer travel way and reduce the risk of hydrologic drainage failures. The selected alternative will also provide for the use of Level 1 roads (storage) and the return of these roads to storage in a condition less susceptible to drainage failure than the current condition. At project completion, the 0.90 mile of upgraded Level 1 road (Roads 2400017 and 2420011) will be closed and returned to Level 1, with the removal of existing culverts and restoration of drainage crossing. The project provides road maintenance through the project’s funding and allows the District to use annual road maintenance funds elsewhere on the District.

FOREST PLAN CONSISTENCY

I have reviewed the Environmental Assessment (EA) for the project including the environmental effects and Forest Plan Consistency sections for each affected resource (EA Chapter 3). I find Alternative C, the Selected Alternative, to be consistent with the goals, objectives, standards and guidelines of the Land and Resource Management Plan for the Mt. Baker-Snoqualmie National Forest (Forest Plan), as amended (see EA pp. 9 and 10 for major amendments). The action will not alter the multiple-use goals and objectives for long-term land and resource management.

Sensitive and Other Rare and Uncommon Species: My decision is consistent with current direction contained in the January 2001 Record of Decision that amended the standards and guidelines for Sensitive and other rare and uncommon plant and animal
species (including protection of buffer species and other mitigation measures), as modified or amended as of March 21, 2004. The last modification was the December 2003 Interagency Annual Species Review (This 2001 ROD was reinstated by a U.S. District Court order on January 9, 2006). Several Sensitive plant species were found during surveys and under all action Alternatives, there would be “No Impact” to Sensitive and other rare and uncommon species (EA pp. 81, 84, 93, and 96).

Implementation of my decision will not contribute to a trend toward Federal listing or cause a loss of viability of these species (EA pp. 81 to 82, 84, 93, and 96 to 97).

Surveys were completed for targeted mollusk species and none were found. With implementation of my decision, variable density thinning will provide a range of canopy closure, and increase light to the understory, stimulating low-growing vegetation that could provide mollusk cover and forage. Implementation of my decision will retain mesic conditions within the Riparian Reserves and retain down wood to provide cover for amphibians and mollusks. Bats will utilize openings within and above the thinned stands for foraging, while roosting sites will remain limited by lack of large diameter trees within the stand with suitable bark characteristics or snags (EA pp. 92 to 94).

**Tier 1 Key Watershed** (EA p. 11): The Sauk River is a Tier 1 Key Watershed, designated for its direct contribution to conservation of at-risk anadromous salmonids, bull trout, and resident fish species, and for its high potential for restoration. The Sauk River Watershed Analysis was completed in 1996 (USDA Forest Service 1996) (EA p. 19). Forest Plan, as amended, standards and guidelines for Tier 1 Key Watershed call for a reduction of existing system and non-system road mileage in Key Watersheds. Currently there are stored roads and non-system roads within the project area that have inadequate drainage crossings. By storing sections of Road 2400017, 2420011, and 2420020 to updated storage standards, Alternative C will result in the treatment of 0.9 miles of road and contribute to watershed restoration in the Sauk River drainage. The approximate 1.5 miles of temporary road has half of the temporary road construction on non-system roads previously used for timber harvest. All of the temporary road will be obliterated (see EA pp. 60 to 65) resulting in a reduction of existing, non-system roads in a Tier 1 Key Watershed.

Key Watersheds are the highest priority for watershed restoration. Reconstruction of existing roads will improve road drainage and stabilize unstable sections of roads. This will reduce the risk of road mass failure and reduce the amount of surface erosion by draining water off the road more frequently. Reconstruction will also increase the capacity of culverts to prevent plugging and the erosion that occurs as a result. Overall, less sediment will be delivered to streams. After the sale is completed, there will be approximately 10 miles of open road with upgraded culverts and 0.9 mile of road in upgraded storage. Road treatments will reduce hydrologic concerns, including erosion associated with these roads (EA pp. 60 to 65, 69 to 75, 77, 79 to 82).

**Riparian Reserves** (EA pp. 76 and 112 to 118): My decision will be consistent with Riparian Reserve standards and guidelines. The Selected Alternative will treat 65 acres of the stands within Riparian Reserves, a very small percentage of the riparian area within the project area. The Selected Alternative minimizes the amount of temporary
road within Riparian Reserve. As with Key Watersheds, above, reconstruction of existing roads will improve road drainage and stability, reducing the risk of road failure and surface erosion. Capacity of culverts will be increased, reducing the risk of culverts plugging and contributing sediment to streams. There will be some sediment generated in the first two years of the project from system road reconstruction and temporary road construction. However, after the sale is completed, decommissioning of temporary roads and placing Roads 2400017, 2420011 and portions of 2420020 in storage will in the long-term reduce hydrologic impacts, including erosion associated with these roads (Riparian Reserves standards and guidelines RF-2, 3, 4, and 5) (EA pp. 16, 60 to 65, 69 to 75, 77, 79 to 82).

During system road reconstruction and temporary road construction, erosion control methods, consistent with Best Management Practices (BMPs), will be used to prevent silt-laden water from entering a stream. For all temporary roads where surface water has the potential to enter drainage, the road will be treated for energy dissipation prior to closure. Construction activities in or adjacent to perennial streams will be conducted during summer low-flow season. Design, construction, and maintenance procedures to limit sediment delivery to streams from the road surface will be applied. Road drainage will be routed away from channels and potentially unstable slopes. Where necessary, water bars will be used to route water away from streams to allow removal of fine sediment and other contaminants. Reconstruction activities will avoid sidecasting of loose material. Culvert installation or replacement will accommodate at least the 100-year flood, including associated bedload and debris. Large woody material removed from an existing culvert inlet will be put back into the stream channel downstream of the culvert unless doing so would cause habitat degradation (Riparian Reserves Standards & Guidelines RF-2, 3, 4, and 5) (EA pp. 16, 60 to 65, 69 to 75, 77, 79 to 82).

To protect stream bank integrity and aquatic resources, the Selected Alternative will require directional felling and yarding of trees away from streams unless full suspension of trees can be achieved over both banks during yarding. No landings will be located within Riparian Reserves. Trees accidentally felled into a wetted channel will be left in place, and no other instream logs will be removed. Haul along all roads will be inspected by a Forest Service officer during rainy periods and restricted as necessary to minimize the potential for downstream sedimentation (Riparian Reserve Standards & Guidelines RF-2 and 5) (EA p. 16).

Matrix (EA p. 17): The Dan Thin project area currently meets expected values for second growth stands of 40 to 70 years of age, and exceeds expectations for large down wood in portions of the stand where there are concentrations of large woody material as a consequence of past timber harvest. My decision, Alternative C, will meet Matrix land allocation objectives of retention of the large diameter down wood. The recruitment of future large wood down logs will continue, and concentrations of larger rotten logs will be left undisturbed on-site to retain their habitat values (see EA Table 2-Mitigations p. 34 and EA pp. 91 to 95). The selected alternative will also retain down wood from the thinning activities on site (see EA p. 54). The District has a long history of successfully retaining slash on site with dispersal of tree tops and limbs within the
units. In the wildlife openings as well as the thinned units, slash would be retained on site contributing to down woody material and cover for rodents and other wildlife.

Snags and green trees will be designated for retention to meet green tree and snag retention requirements. Small clumps of hardwoods will remain un-thinned in portions of the project (as determined through the Silvicultural Prescription marking guidelines) to provide for diversity of species, and future snag recruitment (EA p 91 to 95). The Selected Alternative’s level of snag retention will meet the Mt. Baker-Snoqualmie National Forest standards for snag and wildlife leave trees. It will also contribute to meeting the 30% to 50% tolerance level for cavity nesting species within the analysis area and the 80% tolerance level on the landscape (fifth-field watershed) scale as described in the DecAID analysis process for species associated with snags and down wood. The thinned units will contribute to conditions with snag densities in the 30% to 50% tolerance level as stands mature over time through mid-seral to late seral stages.

**ISSUES ADDRESSED BY ALTERNATIVE C**

**Issue 1: Timber Sale Economics.**

The commercial timber sale portion of this project may prove uneconomical for a purchaser to harvest.

**Present Conditions.** The proposed timber harvest could potentially result in a deficit timber sale. A deficit sale occurs when the “average indicated advertised rate” results in a value less than the “average base rate” at the current cost and value of the timber. Depending on actual market conditions at the time of sale, the sale may not receive viable bids, and therefore remains unsold. The market value for timber fluctuates seasonally and yearly. In a changing market, price scenarios vary, and small changes in wood product values may turn a deficit sale into a positive one, or vice versa. Financial analysis of the proposed project includes a calculated estimate of timber sale viability by estimating bid rates for the timber sale based on log values, estimated logging costs, and contractual requirements.

**Environmental Effects.** A timber sale offered under Alternative B or C will result in 4.9 mmbf of timber produced from the second growth stands (<60-year-old matrix) and is projected to be an economically viable sale. Alternative C provides approximately 1.0 mmbf additional volume from the wildlife openings and the Riparian Reserve thinning. Alternative C had the higher expected bid rate of the two alternatives, indicating that it is the more likely of the two alternatives to remain viable in the event of large decreases in the market value of wood products. Alternative C also had the higher PNV and benefit: cost ratios of the two alternatives, indicating that it would provide the greater financial benefits for each dollar spent.

Alternative C has harvest volumes similar to Alternative B for the forest stands outside of the Riparian Reserve. The thinning in the Riparian Reserve has the potential to add some additional volume that is not reflected in Alternative B. This additional volume may assist in covering KV costs associated with the projects such as noxious weed treatment and pre-commercial thinning. These items are not essential, but are desirable
elements to meeting watershed processes and future forest stand conditions. Road costs in the selected alternative are the same as Alternative B.

**Issue 2: Watershed Processes—Peak Flows and Sediment Yield.**

*Thinning and road building activities may affect soil erosion and water quality and quantity in the project area and downstream.*

**Present Conditions.** The Selected Alternative will conduct thinning on 270 acres of second growth stands (<60 year-old), and an additional 65 acres of thinning in the Riparian Reserve. It will reconstruct 11.5 miles of existing road, and construct or reconstruct 1.5 mile of temporary road.

Particularly in areas susceptible to rain-on-snow events, the above activities can influence the timing and quantity of flows, soil erosion, and the rate and quantity of sedimentation in aquatic habitats. Reconstruction of roads and associated drainage features, especially those that currently pose a risk to aquatic resources, can also help restore natural drainage patterns and benefit aquatic and riparian conditions. Decommissioning of roads with continuing hydrologic risk can have long-term benefits to watershed conditions.

**Environmental Effects.** Vegetation canopy retention in the 40 and 60-year old stands at 60 percent and greater, would minimize the effect of rain-on-snow processes. The percent of forest stands in the subwatershed in young age classes (immature canopy cover attributed to stands less than 25 years of age) would not drop below 12 percent immature forest cover for more than a decade. Current channel and slope conditions observed in the field do not indicate that rain-on-snow effects are occurring at the current 16.8 percent disturbance level (see EA p. 71). No appreciable increase in rain-on-snow peak flows would occur in the small drainages in the project area or Dan Creek by implementing this alternative because the vegetation would continue to recover, but at a slower rate. At the 5th field watershed scale, the vegetation disturbance level, or maturity of canopy cover, in the lower Sauk River watershed would not measurably change from the no action alternative. There would be no appreciable delay in hydrologic canopy recovery with this alternative.

Storage of Roads 2400017, 2420011, 2420020 and decommissioning of 1.5 mile of temporary road reconstructed on previous road routes will lessen the effects of the road network on interception and re-routing of surface flow (EA p. 77). Treatment of Roads 2400017, 2420011, and 2420020 after the sale will correct surface water drainage that is causing erosion along the road and downslope in at least one location. Decommissioning will reduce the overall risk of mass wasting from the short spur roads.

There will be no measurable effect to water quality. Retaining 70 to 100 percent canopy closure in the Riparian Reserves (compared to 80 to 100 percent in Alternative B), and 60 to 70 percent canopy in the matrix stands would maintain shade levels, provide for adequate filtering by vegetation near streams, maintain a continuous root network to protect stream banks, and maintain a source of woody debris for the channels. Percentage of vegetation disturbance (maturity of canopy closure used in assessing risks from rain-on-snow events) will also be minimized by the retention of 60 to 70
percent canopy closure in treated areas (see EA pp. 66 to 75). Percentage of soil disturbance will be limited by Best Management Practices (see Table 2 EA pp. 29 to 34).

Within the Dan Creek subwatershed any erosion would experience dilution and mixing so any sediment would be limited to a small, transitory plume of suspended sediment, or not be detectable (see Ea pp. 76 to 82). At the Lower Sauk River watershed scale, the erosion from the project would be un-detectable. Erosion control BMPs will minimize that potential of sediment delivery during road upgrades and roads into storage (see Table 2 EA pp. 29 to 34). Only small amounts of sediment will enter streams as a direct result, and the closed roads would begin to revegetate within a year (see hydrology and fisheries sections of EA, pp. 66 to 82).

Alternative C would address Issue 2, Watershed Processes Measures (pp. 9 and 10 of the EA). The length of the haul road reconstructed is the same for both alternatives with approximately 10 miles of upgraded open road. Both alternatives would removing overhanging trees along Roads 24 and 2420 to reduce road saturation, and dropped branches on the road and ditchline that contribute to blocked culverts. Alternative C will create a safer travelway, reduce risk of hydrologic drainage failure and allow the District to use limited maintenance funds elsewhere on the District. The length of new temporary road is limited with the use of previously constructed roads and roadways. The selected alternative will store 0.90 miles of road and will obliterate approximately 1.5 miles of temporary road, including portions of road prisms and cat trails previously used in initial 1950 to 1960 timber harvest activities.

PUBLIC INVOLVEMENT

In October 2008, the Forest Service mailed letters to Tribes and then to persons on the Forest mailing list, requesting comments on the proposed Dan Thin Project. In November of 2008, District staff organized a field trip to the Dan Thin Project area. Representatives from the Upper Skagit Indian Tribe, Pilchuck Audubon Society, North Cascades Conservation Council, local timber interests and local citizens attended this field review. Previously, additional scoping with Tribes and interested public took place in 2008 during an open house hosted by the Darrington Ranger District to discuss this and other projects. The Forest Service received a total of 6 written responses to the 2008 scoping efforts. (Refer to Appendix A of the EA for a summary of the public comments and how they contributed to the issues).

In March 2009, the Darrington District conducted scoping on the proposed action. On March 5, 2009, a legal notice of the availability of the environmental assessment (EA) was published in the Seattle-Post Intelligencer, initiating the 30-day pre-decisional comment period. Copies of the EA were mailed to those who had previously participated in the scoping process or who had requested a copy of the EA, including individuals, groups, and Tribal councils. The EA was released for the 30-day period ending April 6, 2009. Five comment letters were received. Response to these comments can be found in Appendix A of the Decision Notice.
TRIBAL CONSULTATION

In October, 2008, letters describing the proposed action and requesting comments and concerns were sent to the Tribal Chairpersons of the Sauk-Suiattle, Upper Skagit, Samish, Stillaguamish, Swinomish, and the Tulalip Tribes. There was participation by the Upper Skagit in the 2008 field trip, and comments were received on the scoping information from Skagit River System Cooperative staff that represents the Sauk-Suiattle and Swinomish Tribes on fisheries and sediment issues. In March of 2009, copies of the environmental assessment were mailed in both hard copy and CD format to the Sauk-Suiattle, Upper Skagit, Stillaguamish, and the Tulalip Tribes, and to representatives of the Skagit River System Cooperative.
Figure 1. Map of Selected Alternative
<table>
<thead>
<tr>
<th>Mitigation Measure or Project Design Feature</th>
<th>Objective</th>
<th>Effectiveness and Basis</th>
<th>Forest Plan Standard &amp; Guideline</th>
<th>Enforcement</th>
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<tbody>
<tr>
<td><strong>Soil &amp; Aquatic Resources</strong></td>
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<tr>
<td>Reduce erosion and sediment transport using: straw bales, silt fencing, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas</td>
<td>Prevent silt-laden water from entering streams</td>
<td>MODERATE (Brown 2002)</td>
<td>Best Management Practices (BMPs): R-9 (USDA Forest Service 1988)</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>When obliterating temporary roads where runoff has potential to enter surface waters, apply treatments including water-barring, pulling culverts, scarifying to depth of 12 inches, mulch with weed-free mulch, and/or seeding with approved seed mix. Erosion control measures must be in place prior to normal heavy rainfall period.</td>
<td>Increase road water energy dissipation prior to closure; reduce or eliminate erosion; improve water filtration</td>
<td>MODERATE: (Luce 1997) Burroughs (1989) (Erosion and Sediment Delivery Following Removal of Forest Roads. Earth Surface Processes and Landforms, Brown 2002)</td>
<td>ROD Standard and Guidelines (S&amp;Gs) RF-2, RF-3, RF-5; BMPs R-3, R-12, R-23, T-13; and Fish Biological Assessment Forest Plan S&amp;Gs for Water Res. and Riparian Reserves #3</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Use existing skid trails and landings to the extent practicable</td>
<td>Minimize soil disturbance and compaction from skid trails in the project area</td>
<td>HIGH (Avoids additional compaction from equipment)</td>
<td>BMPs: T-11 (USDA Forest Service 1988)</td>
<td>Timber sale contract, sale Administrator</td>
</tr>
<tr>
<td>Ground-based yarding would be performed with low ground pressure equipment (less than 12.5 psi ground pressure). Travel on slash to minimize soil disturbance where possible.</td>
<td>Protect soil resources; minimize soil compaction, and displacement.</td>
<td>MODERATE (Experience elsewhere on the Forest)</td>
<td>ROD p. C-44</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Directionally fall away from streams.</td>
<td>Protect stream bank integrity and aquatic resources</td>
<td>HIGH (Avoidance)</td>
<td>Forest Plan S&amp;Gs for Water Resources and Riparian Reserves #s 2, 5, 8; BMPs T8, T11, T12</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
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<tr>
<td>Do not locate any landings within Riparian Reserves.</td>
<td>Protect stream bank integrity and aquatic resources</td>
<td>HIGH (Avoidance)</td>
<td>Forest Plan Standards &amp; Guidelines for Water Res. and Riparian Reserves #s 2, 5, 8; BMPs T10; ROD S&amp;G: RF-2</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Do not remove instream logs. Leave in place trees accidentally felled or dropped into a wetted channel.</td>
<td>Protect stream bank integrity and aquatic resources</td>
<td>HIGH (Avoids damage that would occur if trees were removed)</td>
<td>Forest Plan Standards &amp; Guidelines Water Res. and Riparian Reserves #s 2, 7, 8</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Pull back approach fill to an angle of natural repose when removing culverts.</td>
<td>Protect stream bank integrity and aquatic resources</td>
<td>MODERATE (MBS Forest roads experience)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Do not yard logs through stream channels.</td>
<td>Protect stream resources</td>
<td>HIGH (Fact; MBS Forest roads experience)</td>
<td>ROD RF-2, BMPs T-8, 11 and 12; Forest Plan S&amp;Gs Water Resources and Riparian Reserves #2</td>
<td>Timber sale contract</td>
</tr>
<tr>
<td>Haul along all roads restricted during rainy periods as necessary to minimize the potential for downstream sedimentation.</td>
<td>Disconnect road drainage from stream channels</td>
<td>MODERATE (Sale Administrator has used for many years on, numerous sales with good results)</td>
<td>ROD RF-5, 7, BMPs R-3, 20; T-5 and 13</td>
<td>Timber sale contract</td>
</tr>
<tr>
<td>Curtail harvest operations when soils are excessively wet (when rutting and other damage are occurring greater than 6 inches depth for a length of 10 feet or more as determined by the Sale Administrator) unless a thick mat of slash can be maintained to run equipment over.</td>
<td>Avoid rutting and compaction damage to susceptible wet soils</td>
<td>MODERATE (Avoid activity when impact would occur)</td>
<td>Forest Plan S&amp;Gs Soils; #s 1, 2, 3</td>
<td>Timber sale contract, Sale administrator</td>
</tr>
<tr>
<td>Mitigation Measure or Project Design Feature</td>
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<tr>
<td>Minimize roads in Riparian Reserves. The location, design, and reconstruction of necessary crossings should minimize disruption to natural hydrologic paths and adverse effects to aquatic resources. Avoid sidecasting of loose material. Accommodate at least the 100-year flood, and associated bedload and debris.</td>
<td>Maintain surface hydrology and Riparian Reserve function and integrity</td>
<td>HIGH (Avoidance)</td>
<td>ROD S&amp;G RF-2, RF-4; BMPs T-8, T-10, T-11, R-1, R-6, R-11, R-12, R-14; Forest Plan S&amp;Gs Water Resources and Riparian Reserves #6</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Place large woody material removed from an existing culvert inlet into the stream channel downstream of the culvert unless doing so would cause habitat degradation</td>
<td>Maintain routing of large wood in channel network</td>
<td>LOW (Experience shows wood is often broken during removal and placement is often difficult)</td>
<td>ACS Obj. 6</td>
<td>Road maintenance or timber sale contract, and timber sale administrator, Engineering COR</td>
</tr>
<tr>
<td>For temporary roads identified to remain in place over the winter, use drainage features (culverts and/or water bars) that would accommodate a 100-year flood</td>
<td>Prevent erosion and/or mass wasting and road damage</td>
<td>MODERATE (Relatively new requirement, but based on permanent road requirements)</td>
<td>ROD S&amp;G RF-4</td>
<td>Timber sale administrator, Timber sale Contract</td>
</tr>
<tr>
<td>Conduct construction activities in or adjacent to wetted streams within one-fourth mile of Dan Creek during WDFW MOU work-window of July 15th to August 15th or an alternative work-window negotiated between USFS and WDFW fisheries biologists.</td>
<td>Limit sediment delivery to streams from the road surface. Meet WDFW MOU requirements.</td>
<td>HIGH</td>
<td>BMPs R-12; Forest Plan S&amp;Gs Water Resources and Riparian Reserves #2</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>When constructing or obliterating roads or landings: Outslope the roadway surface unless outsloping would increase sediment delivery to streams or where outsloping is infeasible Route road drainage away from channels and potentially unstable hill slopes. Crown landings and staging areas to prevent concentrated runoff. No side cast construction within inner-gorge or within 100 feet of streams. Where necessary, install water bars to route water away from streams to allow removal of fine sediment and other contaminants before discharge to the stream</td>
<td>Limit water accumulation and/or concentration, erosion, sediment delivery to streams, protect water quality</td>
<td>MODERATE (Years of use by agency)</td>
<td>ROD S&amp;G RF-5; BMPs R-1, R-3, R-4, R-5, R-7, R-8, R-9, R-11, R-12, R-14; BA</td>
<td>Timber sale contract, Sale Administrator</td>
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<tr>
<td>When heavy equipment is present: Make a hazardous spill plan and clean-up materials available on-site. Conduct any machinery maintenance involving potential contaminants (fuel, oil, hydraulic fluid, etc.) at an approved site or outside the Riparian Reserve. Prior to starting work each day, check all machinery for leaks and make all necessary repairs.</td>
<td>Prevent and minimize effects to water quality</td>
<td>MODERATE (Implementation of spill plans are an industry standard)</td>
<td>BMPs T-21, W-4; BA</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Install waterbars or other structures (including scattered woody material) on temporary roads and skid trails at a spacing and number determined by the Forest Service. Require all drainage treatment and controls to be in place by the end of normal operating season (November 1).</td>
<td>Control water discharge from temporary roads and skid trails, and disperse water on the hill slope</td>
<td>HIGH (Water bars are an industry standard and have been shown to be effective on closed roads and skid trails)</td>
<td>BMPs T-16, T-18, T-19, R-1, R-2, and R-9</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Alternative B: Designate timber sale unit boundary/Riparian Reserve boundaries on the ground in consultation with aquatic specialists. Ground based equipment cannot enter these areas except on established and temporary roads.</td>
<td>Maintain water and aquatic conditions in Riparian Reserves</td>
<td>HIGH (10+ years District thinning experience), Sufficiency Analysis for Stream Temperatures (USDAFS, BLM 2004)</td>
<td>BMPs T-6, 7, 8, 12</td>
<td>Boundaries established during layout</td>
</tr>
</tbody>
</table>
| Alternative C: In units where riparian thinning would occur, there would be no cutting or ground disturbance in the following Riparian Reserves components.  
- 30 foot buffers on either side of intermittent streams  
- 30 foot buffers on either side of inner gorges (note: this includes all three perennial streams and some ephemeral streams)  
- Potentially unstable ground  
- Wetlands to the extent of riparian vegetation,  
- Riparian Reserves which are not adjacent to an existing non-Riparian Reserve harvest unit | Maintain water and aquatic conditions in Riparian Reserves | HIGH (10+ years District thinning experience), Sufficiency Analysis for Stream Temperatures (USDAFS, BLM 2004), Effectiveness of timber harvest practices for controlling sediment related water quality impacts (Rashin et al. 2006) | BMPs T-6, 7, 8, 12 | Boundaries established during layout. |
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</thead>
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<tr>
<td>Alternative C: For ground-base operations in Riparian Reserves, skid trails should be oriented across the slope to prevent water concentration and surface erosion post-harvest.</td>
<td>Maintain water and aquatic conditions in Riparian Reserves</td>
<td>HIGH (10+ years District thinning experience)</td>
<td>BMPs T-6, 7, 8, 12</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Alternatives B and C: For ground-base operations in Stand 2, skid trails should be angled across the slope as much as possible to prevent water concentration on unstable soils in the unharvested portion of the stand downslope.</td>
<td>Maintain water and aquatic conditions in Riparian Reserves</td>
<td>HIGH (10+ years District thinning experience)</td>
<td>BMPs T-6, 7, 8, 12</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Alternatives B and C: For skyline operations, except during lateral yarding, logs would be fully suspended over Riparian Reserves, with logs fully suspended over all streams channels. This measure applies to all skyline units, but it is especially important in Stand 12.</td>
<td>Maintain water and aquatic conditions in Riparian Reserves</td>
<td>HIGH (10+ years District thinning experience)</td>
<td>BMPs T-6, 7, 8, 12</td>
<td>Timber sale contract, Sale Administrator</td>
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<tr>
<td><strong>Wildlife</strong></td>
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<tr>
<td>Activities generating noise above ambient levels and occurring between April 1 and September 15 in units within stands # 2, 3, 4, 5, 9, 11, 12, 13, 14, and 15 would occur between two hours after sunrise and two hours before sunset.</td>
<td>Minimize sources of disturbance during the critical breeding period for marbled murrelets</td>
<td>HIGH (MBS Forest experience, references in Biological Opinion [USDI USFWS 2002])</td>
<td>Biological Assessment (USDA USFS 2002) Biological Opinion (USDI USFWS 2002, 2007 extension)</td>
<td>Timber sale contract, Sale Administrator</td>
</tr>
<tr>
<td>Suspend thinning activities in the spring when sap flow begins</td>
<td>Minimize harvest impacts to residual trees during sap flow. Avoid additional disturbances to adjacent stands during critical breeding period of spotted owl and murrelets</td>
<td>HIGH (USDI USFWS 2002)</td>
<td>Forest Plan (USDA USFS 1990) p.4–245 Commercial Thin harvest protection</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
<tr>
<td>Leave on-site specified down logs and especially concentrations of larger rotten undisturbed logs if possible</td>
<td>Retain down woody material diversity and habitat values</td>
<td>HIGH (10 previous thinning sales on the District)</td>
<td>Forest Plan ROD p. C-40, Forest Plan S&amp;G p4-124</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
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<tr>
<td>Contract specification CT6.25#, protection of habitat of Endangered, Threatened, and Sensitive Species</td>
<td>Provide for protection of any proposed, endangered, threatened or sensitive species found during operations</td>
<td>HIGH MBS experience</td>
<td>Forest Plan S&amp;G p4-127</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
<tr>
<td>Vegetation And Plants</td>
<td>Prevent introduction of weeds</td>
<td>MODERATE (USDA Forest Service 2005)</td>
<td>Forest Plan S&amp;G #2, USDA Forest Service 2005</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
<tr>
<td>Actions conducted or authorized by written permit by the Forest Service that would operate outside the limits of the road prism require the cleaning of all heavy equipment prior to entering National Forest System Lands.</td>
<td>Prevent weed spread</td>
<td>HIGH (Logic)</td>
<td>Forest Plan Best Management Practices, USDA Forest Service 2005</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
<tr>
<td>If weeds are present in the project area, all equipment and gear must be cleaned before leaving the area to avoid spreading the infestation further.</td>
<td>Prevent weed spread</td>
<td>MODERATE (USDA Forest Service 2005)</td>
<td>Forest Plan S&amp;G #3, USDA Forest Service 2005</td>
<td>Timber sale contract; Sale Administrator</td>
</tr>
<tr>
<td>Use only weed free straw and mulch for revegetation or restoration.</td>
<td>Prevent introduction of weeds</td>
<td>HIGH (USDA Forest Service 2005)</td>
<td>Forest Plan Best Management Practices, USDA Forest Service 2005</td>
<td>Timber sale contract; Sale Administrator Coordination with District Botanist</td>
</tr>
<tr>
<td>Seed identified exposed soil with the approved seed mix (seed mix “C”) followed by one to two inches of weed free mulch or straw. Seed in the fall, or completion of all project activities.</td>
<td>Prevent introduction and spread of weeds</td>
<td>HIGH (USDA Forest Service 2005)</td>
<td>Forest Plan Best Management Practices, USDA Forest Service 2005</td>
<td>Timber sale contract; Sale Administrator Coordination with District Botanist</td>
</tr>
<tr>
<td>Use only gravel, fill, sand, and rock from sites judged to be weed-free sources by the District or Forest weed specialist.</td>
<td>Prevent introduction of weeds</td>
<td>MODERATE (USDA Forest Service 2005)</td>
<td>Forest Plan S&amp;G #7, USDA Forest Service 2005</td>
<td>Timber sale contract, Sale Administrator Coordination with Dist. Botanist</td>
</tr>
<tr>
<td>For known infestations of noxious weeds, schedule appropriate weed treatments including R6-approved herbicides, using KV funds if available until noxious weeds are gone.</td>
<td>Eradicate known noxious weed infestations</td>
<td>HIGH (USDA Forest Service 2005)</td>
<td>Forest Plan S&amp;G #16, USDA Forest Service 2005</td>
<td>District Botanist</td>
</tr>
<tr>
<td>Establish buffers of 100 feet radius around all Sensitive and Other Rare and Uncommon Plant sites</td>
<td>Protection for Sensitive and Other Rare and Uncommon Plant</td>
<td>High (MBS experience with other timber sale)</td>
<td>Forest Plan S&amp;G, USDA Forest Service 1990</td>
<td>Timber Sale Administrator, District botanist</td>
</tr>
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<tr>
<td>Heritage Resources</td>
<td>Protect heritage resources</td>
<td>Moderate (MBS Forest experience)</td>
<td>Pursuant to Stipulation III.C of the Programmatic Agreement. USDA 1990, Forest-wide S&amp;G, p. 4-99, Archaeology Protection</td>
<td>Timber sale contract; Timber Sale Administrator</td>
</tr>
<tr>
<td>If a previously unidentified cultural resource(s) is discovered during project implementation, or if an identified resource(s) is affected in an unanticipated way, the activity shall be stopped in the area of the find and a reasonable effort to secure and protect the resource(s) be made. The Heritage Specialist shall be notified and the Forest would fulfill its responsibilities in accordance with the Programmatic Agreement and other applicable regulations.</td>
<td>Maintain access to recreational resources</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
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</table>

*All other applicable Forest Plan Standards and Guidelines relating to this project have been met, and the analysis and justification is documented in the Project Record*
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

I have evaluated the effects of the project relative to the definition of significance established by the Council on Environmental Quality (CEQ) Regulations in 40 CFR 1508.27. I have reviewed and considered the Environmental Assessment for the Dan Thin Project (March 2009), which is incorporated by reference herein. Based on the above, I have determined that the Selected Alternative (Alternative C) will not have a significant effect on the human environment. For this reason, no environmental impact statement (EIS) will be prepared. My rationale for the FONSI follows, organized by subsection of the 40 CFR 1508.27 definition of significance.

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial [40 CFR 1508.27(b) (1)].

The proposed project context (society as a whole, affected region, affected interests, and locality) was reviewed, and the intensity (severity) of the negative impacts as a result of implementing Dan Thin Project is minor. Short term negative impacts for a long-term benefit are found in the potential for temporary increases in sediment associated with harvest and road actions (including road storage and decommissioning), short-term noise disturbance on wildlife habitat due to harvest activities, a loss of small-diameter snags in thinned areas, and short term spread of noxious weeds. Adverse effects of sediment delivery would be minimized by application of soil and water project design features and mitigation measures (Table 2, pp. 29 to 34 and pp. 59 to 65 of the EA). Impacts to wildlife will be minimized through application of timing restrictions and other wildlife project design features described on page 34 of the EA, and long-term benefits to threatened and endangered species, important MIS species, and other wildlife are anticipated (EA pp. 83 to 95).

The project will provide long-term improvements in the health and resiliency of the forest vegetation across the landscape by:

- Reducing stand stocking to maintain or promote increased growth and vigor of forest stands while providing commercial wood fiber consistent with the Forest Plan.
- Moving 65 acres towards desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives in the Riparian Reserve.
- Thinning to accelerate tree growth and improve tree species composition.

The project will provide long-term improvements in the hydrologic conditions by:

- Upgrading culverts on 10 miles of Road 24 and 2420, reducing the potential for road related failure and sediment delivery to fish bearing waters
- Treating 0.9 mile of road for long term storage to reduce the potential for road related erosion or sedimentation
- Obiliterating 1.5 miles of temporary road
• Removing overhanging trees along Roads 24 and 2420 to reduce road saturation, and dropped branches on the road and ditchline that contribute to blocked culverts.

(2) **The degree to which the proposed action affects public health or safety** [40 CFR 1508.27(b) (2)].

Public health will be protected by keeping emissions expected from prescribed burning to a level below the National Ambient Air Quality Standards. Smoke may be noticeable particularly during the morning hours, but the effects will be short-term and within the Clean Air Act standards (EA pp. 53 to 57).

(3) **Unique characteristics of the geographic area such as the proximity to historical or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas** [40 CFR 1508.27(b) (3)].

A cultural resource inventory and report was completed and submitted to the Forest Archeologist, who coordinates with the State Historic Preservation Officer (SHPO). As no heritage resources were located, there would be no effects. Mitigation measures are included for protection of cultural resources if a previously unidentified cultural resource is discovered during project implementation (EA Table 2, p. 36 and DN Table 1 p. DN-25).

There are no parklands, wild and scenic rivers, prime farmlands, or ecologically critical areas within the project area (EA p. 111).

(4) **The degree to which the effects on the quality of the human environment are likely to be highly controversial** [40 CFR 1508.27(b) (4)].

The degree to which the effects on the quality of the human environment are likely to be highly controversial is considered low. Common issues of controversy over effects on past Mt. Baker-Snoqualmie NF vegetation management projects include impacts on the large tree component, Riparian Reserves and associated aquatic and wildlife habitat, impacts on peak flows, and road management actions that change public access or have negative impacts on water quality and aquatic habitat.

The project is designed to maintain and promote stand vigor and diversity, and respond to opportunities to meet Forest Plan standards and guidelines such as providing wildlife habitat within the area and management of Riparian Reserve to meet ACS objectives. No existing large tree stands will be harvested, and all proposed thinning is designed to facilitate development of future forest structural conditions, and diversity and resiliency of stands.

Impacts on peak flows have been analyzed and a variety of project design features incorporated to protect and maintain soil productivity (EA Table 2 pp. 29 to 34). In addition, road upgrade, storage of roads, and decommissioning of temporary road will reduce risk of sediment delivery to streams (EA pp. 59 to 65).

The Selected Alternative will not change existing mainline road access for the public. The Selected Alternative will store 0.9 mile of road and decommission 1.5 miles of
temporary road. Decommissioning, road storage, and road improvements will result in long term improvements in water quality and aquatic habitat, and better align the actively managed road system with budgets (EA pp. 59 to 65, and Appendix C, Cumulative Effects).

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks [40 CFR 1508.27(b) (5)].

This decision will not have effects that are highly uncertain or involve unknown risks. Activities included in this decision have been implemented numerous times in the Forest on similar terrain and forest conditions. This type of project has become a routine project for the Mt. Baker-Snoqualmie National Forest. While any action carries some degree of risk, the proposed action was designed and the analysis summarized in the EA was carefully completed to minimize unique or unknown risks. In addition, the Mt. Baker-Snoqualmie National Forest implementation procedures for timber sales, including sale preparation, administration (standard timber sale contract), and prescribed burn plans will ensure that the effects will be similar to those predicted in the EA. The effects on the human environment of implementing the Dan Thin Project are not expected to be highly uncertain or involve unique or unknown risks (Chapter 3 of the EA).

Project design features and mitigation measures have been developed to ensure adverse effects to the human environment are reduced or eliminated (Chapter 2 of the EA), and monitoring has been included to evaluate the implementation and effectiveness of key project design features (EA Appendix F, Monitoring Forms, and Appendix A of this EA).

(6) The degree to which the action may establish precedent for future actions with significant effects or represents a decision in principle about a future consideration [40 CFR 1508.27(b) (6)].

There are no foreseeable timber sale plans for this same project activity area for the next 5 to 10 years. At the end of that time period, the Forest Service could choose to use additional silvicultural treatments to keep conditions in the younger aged stands (20 to 40-years-of-age) moving toward the desired conditions of old forest characteristics. There is also the possibility of meeting Forest Plan objectives for timber management with future regeneration harvest within the >50-year-old stands in the Matrix. There is also the possibility of no action. In any case, this project does not establish binding precedent.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by wording an action temporary or by breaking it down into small component parts [40 CFR 1508.27(b) (7)].
For an action to contribute to cumulative effects there has to be some kind of additive or interactive effect. The cumulative effects of the alternatives and the past, present, and foreseeable future actions are disclosed in Chapter 3 of the EA, in conjunction with Appendix C, Cumulative Effects Information, of the EA. The EA discloses there will be no significant cumulative impacts by implementing the Dan Thin Project, including foreseeable future actions (Chapter 3, Environmental Effects, under each resource section, and Appendix C of the EA).

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)].

Cultural surveys of the project area were conducted with a review by the Forest Archeologist, and no resources were recorded. If new sites are found during project implementation, they will be protected through mitigation (EA table 2, p.36).

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 [40 CFR 1508.27(b) (9)].

Informal Section 7 consultation on the Dan Thin Project was completed in April of 2009 with National Marine Fisheries Service and U.S. Fish and Wildlife Service staff. The Level 1 Team met on 4/14/09 with representatives from the Forest Service, Fish and Wildlife Service, and National Marine Fisheries Service who concurred with the risk determinations below (see project record for Project Consistency Effects Forms and Level 1 meeting notes)

There was concurrence on the following effects determinations for the selected alternative. Alternative C would result in “no effect” to lynx, gray wolf, grizzly bear, and would result in “no effect” to critical habitats designated for the recovery of the spotted owl and marbled murrelet.

Alternative C would result in a “may affect, likely to adversely affect” risk assessment for two species federally listed as threatened or endangered: marbled murrelet and spotted owl. There exists a potential for noise disturbance to murrelets and spotted owls during the breeding season from activities in thinning units adjacent to old-growth forest which is suitable nesting habitat. The Forest Service has consulted in April 2009, with U.S. Fish and Wildlife Service on this potential disturbance for conservation measures to minimize the potential impacts (see wildlife mitigation and effectiveness in Chapter 2. of the EA, p. 34).

The fish species and special habitats of management interest in the Dan Creek subwatershed are assessed in the EA on pp. 76 to 82, and with additional detail in the Fisheries Specialist Report found in the Project Record. The Project Consistency Effects Form records the risk assessment from the project for federally listed fish and special habitats. The Selected Alternative would result in a risk determination of “may effect, not
likely to adversely effect” to federally listed Puget Sound Chinook salmon, steelhead, and Puget Sound bull trout; “no effect” to designated Puget Sound Chinook salmon and Puget Sound bull trout critical habitat; and this alternative “would not adversely affect” essential fish habitats for Chinook salmon, Coho salmon, and Puget Sound pink salmon.

For other fish species with special status (FS Sensitive and MBS management indicator species), there would be “no impact” to Coho salmon, sockeye salmon, Puget Sound pink salmon, and chum salmon. The action alternatives were rated as “may impact individuals and habitat, but not contribute to a trends toward federal listing” for the Coastal cutthroat trout.

The Biological Assessments prepared for consultation with FWS and NMFS, and the Biological Evaluation assessing impacts to the Regional Forester’s Sensitive Species can be found in District files and the Project Record at the Darrington Ranger District office.

On May 7, 2009, NMFS concurred with the USFS determination of “may affect, not likely to adversely affect” for Puget Sound chinook and Puget Sound steelhead. The concurrence letter can be found in the Project Record at the Darrington Ranger District office.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment [40 CFR 1508.27(b) (10).

The project is designed to meet all applicable Federal, State, and local laws (Chapter 3 of the EA, Clean Water Act, Federal Consistency, page 76). Therefore no violation of law or other requirements would result.

Findings Required by Laws and Regulations

National Forest Management Act

NFMA and its regulations (36 CFR 219) established guidelines for National Forest management. As required by NFMA regulations, I find that this project will be consistent with the Mt. Baker-Snoqualmie Land and Resource Management Plan, as amended. The Selected Alternative will meet standards and guidelines for lands allocated to:

• Riparian Reserve – There are a total of 225 acres of Riparian Reserves within the 500 acres of forest stands that were considered for proposed thinning treatments. The project area is approximately 2000 acres and based on the assessments of the proposed treated areas, approximately 50 percent of the project area would meet stand and guideline definitions for inclusion in Riparian Reserves. Riparian Reserves overlay all other land allocations.

• Matrix – Of the 500 acres of forest stands considered for proposed thinning treatments, matrix acres overlay 490 acres of Management Area (MA) 17-Timber Management Emphasis and approximately 10 acres of MA-12 Old Growth Wildlife Habitat for American marten. Within the 2000 acres of project area, the MA-12 area is approximately 60 acres.
The Mount Baker-Snoqualmie Land and Resource Management Plan (USDA 1990a) was developed and approved using the provisions of the 1982 planning rule, which was the planning rule in effect prior to November 9, 2000. The USFS now has a new planning rule (36 CFR 219, published in the Federal Register on April 21, 2008) referred to as the 2008 planning rule. The 2008 rule specifically states at 36 CFR 219.14(b)(4) that, for plans developed under the 1982 rule, the 1982 planning rule is without effect. There remain no obligations from that regulation, except those that are specifically in the Plan. The only requirement specifically provided in the 2008 rule related to projects is at 36 CFR 219.8(e), requiring that projects and activities must be consistent with the applicable plan components. As required by 36 CFR 219.8(e), I found above that this project is consistent with the Mount Baker-Snoqualmie Land and Resource Management Plan, as amended.

The NFMA statute requires that: “9) Clearcutting will be used as a cutting method where it is determined to be the optimum method. Seed tree and shelterwood silvicultural prescriptions, which are designed to regenerate an even-aged stand of timber, will be used where determined to be the appropriate methods to meet the objectives and requirements in the Forest Plan” (16 USC 1604 (g)(3)(F)(i)). In this project, however, clearcutting, seed tree cutting, shelterwood cutting, and other cuts designed to regenerate an even-aged stand of timber are not prescribed (EA p. 22, 26 to 27, 37 to 52, and Appendix D).

I have determined that the Selected Alternative is consistent with the Standards and Guidelines for Riparian Reserves, as described in the Northwest Forest Plan ROD (see EA pp. 16 to 17, and Chapter 3 pp. 39 to 102). I have also determined that the Selected Alternative is consistent with the Aquatic Conservation Strategy objectives, as described on pp 112 to 118 of the EA.

**Best Available Science**

My conclusion is based on a review of the record that shows a thorough consideration of relevant scientific information, a consideration of responsible opposing views, and the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk. The Project Record includes scientific papers and reports as well as demographic, biological, and economic data used in the FEIS analysis.

**National Environmental Policy Act**

NEPA and its implementing regulations establish the basis, process, and content requirements for the preparation of detailed statements for proposed actions. The entire process for the FEIS followed the regulations and direction outline in 40 CFR Parts 1500 to 1508 (CEQ Regulations), Forest Service Manual (FSM 1950), and Forest Service Handbook (FSH) 1909.15. A range of alternatives was examined in detail, including a No Action Alternative, to allow the reader to clearly compare the alternatives. There were several opportunities for public involvement during the NEPA process. The Forest Service used the comments received both during scoping and in response to the pre-
decisional EA to refine the environmental analysis and develop this decision. Therefore, I find this decision fully complies with NEPA.

**ADMINISTRATIVE APPEAL**

This decision is subject to administrative appeal pursuant to 36 CFR Part 215, only by those individuals and organizations who provided comments or otherwise expressed interest during the 30-day comment period on the EA. The appeal must meet the requirements at 36 CFR 215.14.

The appeal must be filed with the Appeal Deciding Officer, Regional Forester, Pacific Northwest Region. Appeals filed by regular mail or express delivery must be sent to:

Appeal Deciding Officer, Attn: 1570 Appeals, 333 S.W. First Avenue, P.O. Box 3623, Portland, Oregon, 97208-3623.

They may be faxed to (503) 808-2255, sent electronically to appeals-pacificnorthwest-regional-office@fs.fed.us, or hand delivered to the above address between 7:45 AM and 4:30 PM, Monday through Friday except legal holidays.

Appeals, including attachments, must be filed within 45 days after the publication date of this notice in newspaper of record, The Everett Herald, Everett, Washington. The publication date in the newspaper of record is the exclusive means for calculating the time to file an appeal. Those wishing to appeal this decision should not rely upon dates or timeframe information provided by any other source.

Electronic appeals must be submitted in a rich text format (.rtf), or Microsoft Word (.doc) format, .pdf format, or as an email message. E-mailed appeals must include the project name in the subject line. In cases where no identifiable name is attached to an electronic message, a verification of identity will be required. A scanned signature is one way to provide verification.

It is the responsibility of each individual and organization to ensure their appeal is received in a timely manner. For electronically mailed appeals, the sender should normally receive an automated electronic acknowledgement from the agency as confirmation of receipt. If the sender does not receive such an automated acknowledgement, it is the sender’s responsibility to ensure timely receipt by other means.

**PROJECT IMPLEMENTATION**

Implementation of project activities is expected to begin in 2009.

Implementation of this project decision cannot begin until the 15th business day after the disposition of any appeal, depending on the nature of that resolution. If no appeal is filed, implementation of the decision may begin on, but not before, the 5th business day after the close of the appeal period.
CONTACTS
For further information, contact Peter Forbes, District Ranger; or Phyllis Reed, ID Team Leader, at the Darrington Ranger District, 1405 Emens Street, Darrington, WA 98241 (360) 436-1155.

/s/ CYNTHIA TENCICK - acting for 5/13/09
Y. ROBERT IWAMOTO Date
Forest Supervisor

ATTACHMENTS
Appendix A – Monitoring Summary Sheets
Appendix B - Public Comment and Responses from 30 Day Comment Period
Appendix C – Corrections to Predecisional EA Sheet
Appendix A – Monitoring Plan Summary Sheets

DISTRICT: Darrington Ranger District

PROJECT NAME: Dan Thin

MONITORING OBJECTIVE: Assess effectiveness of intended stocking level reduction

MONITORING TYPE: Effectiveness

PRIORITY: High

PARAMETER: Growth rates of residual stand (radial growth rate in inches per decade)

METHODOLOGY: Systematically locate 1 plot per ten acres across all units treated; measure radial growth rate per decade on each tree over 7 inches dbh within 1/40th acre plot. GPS the plot location.

FREQUENCY/DURATION: Once, five years after treatment

DATA STORAGE: SO Vegetation Files

REPORT: Once, after five years

PROJECTED COSTS: 2 GS-7. $12.50/ plot including overhead x 40 plots = $500.00, total. Assumes combined monitoring with Species Diversity item, below, using the same plot locations.
DISTRICT: Darrington Ranger District

PROJECT NAME: Dan Thin

MONITORING OBJECTIVE: Assess effectiveness of treatment on increasing species diversity across treated stands

MONITORING TYPE: Effectiveness

PRIORITY: High

PARAMETER: Vegetation Species Diversity

METHODOLOGY: Systematically locate 1 plot per ten acres across all units treated, (including Riparian Reserve and Matrix land allocations), and estimate percent cover of all species present on 1/40th acre plot. GPS plot location

FREQUENCY/DURATION: Once, five years after treatment

DATA STORAGE: SO Vegetation Files

REPORT: Once, after five years

PROJECTED COSTS: 2 GS-7. $12.50/plot including overhead x 40 plots = $500.00, total. Assumes combined monitoring with Radial Growth monitoring item, above, using the same plot locations.