

CHAPTER 2. ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

INTRODUCTION

This chapter is the heart of the environmental impact statement. It presents four alternatives in detail, including no action, based on the significant issues described in Chapter 1. The alternatives are presented in comparative form, defining the differences between each alternative and providing the basis for choice among options by the decision maker and the public.

In developing this Final Environmental Impact Statement, an interdisciplinary team, including a Wildlife Biologist, Silviculturist, and Fuels Specialist, was formed to develop a proposal that would address the Purpose and Need for action (as defined in Chapter I). The team followed the regulations outlined by the Council on Environmental Quality (CEQ) for implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1970, as amended.

This chapter begins by describing the steps in the process used by the interdisciplinary team to create the alternatives, followed by descriptions of each alternative, and concluding with a summary table of the environmental impacts for each alternative associated with the significant issues identified in Chapter I. The full disclosure of the impacts is discussed in Chapter IV.

BASIS FOR THE PROPOSED ACTION (ALTERNATIVE B) AND OTHER ALTERNATIVES

Over the course of the past seven years, the District has proposed, analyzed, and in some cases, implemented actions to address the spruce budworm and related hazardous fuel conditions in the Gotchen Planning Area. The projects are identified in Table 2-1. The environmental documents for these projects are available at the Mt. Adams Ranger District and the Gifford Pinchot National Forest Headquarters in Vancouver, Washington.

Table 2-1. Past and on-going fuel reduction projects within the Gotchen Planning Area.

Project Name	Year of Decision	Implemented?
East Timber Sale	1997	Yes
Gotchen Fuels Project	1998	Partially
2000 Biological Pesticide Btk [Bacillus thuringiensis kurstaki] Spray Project	2000	No. Decision was withdrawn in light of new information regarding the mardon skipper butterfly.
Fuels Reduction Project	2001	Began in 2002; will be completed in 2003

During this time, the conditions in the Gotchen Planning Area have changed, data has been collected and analyzed, research as been conducted and published. All of these efforts have

increased our knowledge of the area specifically, and brought recent scientific findings into focus.

A pertinent example of notable change in the Gotchen Planning Area is the declining level of spruce budworm activity over the past two years. At the time the Notice of Intent for this FEIS was published in the Federal Register in November 2001, the budworm activity was at its height. The Proposed Action, Alternative B, was developed to address the conditions occurring at that time; more emphasis was put on reducing the risk (threat) of fire than reducing the risk of losing late successional function. With the change in conditions and identification of issues, Alternatives C and D correspondingly include more emphasis on reducing the threat of losing late successional function due to ecological disturbances.

Every acre proposed for habitat-disturbing treatment is subject to surveys for cultural resources, survey and manage species. In order to implement risk reduction activities in a timely manner, it was necessary to determine “up-front” which areas were thought to be the highest candidates for proposed treatment as defined by the project’s Purpose and Need, and schedule the required surveys. This approach “limited” the areas that would be considered in developing the alternatives. The surveys are costly and can take several seasons to complete, depending on weather and environmental conditions.

The areas selected for treatment were the portions of the Gotchen Planning Area most directly affected by the spruce budworm defoliation, with the highest fire hazard. The most severely impacted areas are located on the south and west sides of Smith Butte. Two maps highlight the areas most affected: “Spruce Budworm Defoliation by Aerial Detection”, and “Fire Rating Classes” Map Packet -- Maps 3 and 4, respectively. The Defoliation map shows the levels of defoliation from spruce budworm within the Gotchen Planning Area from 1994 to 2001. (This is discussed more fully in Chapter 3 under “Western Spruced Budworm,). The Fire Rating Classes map compiles a general fire rating (very low to very high) for five fire variables: fuel consumption, rate of spread, flame length, fire line intensity, and crown fire potential (Wenatchee FSL 2000). This map reflects the areas with the highest fire hazard.

The proximity of a potential action to any of the six known spotted owl nest sites in the Gotchen Planning Area was a key factor in determining the prescription and location of a given proposal. No activities were proposed within the 100 acres surrounding any of the known nest sites (Northwest Forest Plan S&Gs, pp. C-10 – C-11). There are very limited proposed activities with 0.7 mile of any known nest site; where they do occur, canopy closure—an important element of spotted owl habitat—was kept at 50% or greater. (Habitat modifications within 0.7 mile of a nest site may lead to an “incidental take” of a spotted owl, per the Endangered Species Act. Exceptions occurred where the existing primary road corridors intersect 0.7 miles of a nest site and associated roadside treatments were deemed desirable within the context of the alternative.

The following subsections describe “common” elements that occur in each of the alternatives, though they may vary by extent of application, location, or specific prescription. These common elements are described here to give an overview of the types of treatments that are included in the alternatives and to reduce repetition later in this Chapter.

The alternatives are described in detail—in terms of these elements—in the following section. The specific details for each alternative are located in “Alternative Details” in Appendix E.

Late Successional Reserve Assessment (LSRA)

The original basis for an overall treatment strategy and a majority of the specific proposed treatment prescriptions in the Late Successional Reserve are derived from the 1997 Gifford Pinchot Late Successional Reserve Assessment, updated in 1999, pp. 5-14 – 5-21. The LSRA identifies “management options” including underburning; risk reduction and underplanting; thinning to enhance resiliency; legacy tree (remnant old-growth) culturing, roadside fuel reduction, and lodgepole pine density reduction management.

Due to changes in conditions, new information, new findings, not all of the LSRA “management options” are proposed in these alternatives. There will be no further attempt in this analysis to link the specific actions identified in the LSRA with the proposed action and alternatives. The LSRA is available on the Gifford Pinchot website (<http://www.fs.fed.us/gpnf/>).

This Statement is a more rigorous analysis than the LSRA; therefore the Gotchen Risk Reduction and Restoration Project Record of Decision will be used to update the LSRA. Projects in the LSR subject to review by the Regional Ecosystem Office will be reviewed by said office prior to a decision being made by the Responsible Official.

Prescriptions

The prescriptions described below provide the foundation for the Action Alternatives. The Alternatives differ in the extent to which each prescription is applied. Not every prescription is utilized in every alternative.

Matrix Harvest Prescriptions

In all of the Action Alternatives (B, C, D), mature stands within the Matrix with a large component of grand fir were identified for treatment with the intent to remove dead, dying or diseased trees before their commercial value for timber is lost. Healthy, live trees would be cut, where needed, to allow adequate light to promote early seral species. The harvest prescriptions vary among the proposed Matrix units based on stand age, species composition, and past treatments. Remaining ground fuels would be grapple piled and burned after harvest to lower fine fuel levels and prepare the sites for reforestation. Tree planting would occur in all of the units proposed for a “regeneration” cut to promote early seral species. Snags and downed logs would be maintained at or above the minimum levels specified by the Northwest Forest Plan for Matrix lands.

The majority of commercial products that would potentially result from this FEIS come from these Matrix areas.

Treatment of the Matrix units adjacent to the LSR boundary complements and augments the hazardous fuel reduction proposals in the LSR, directly and indirectly. Removing the dead and dying trees and portions of the grand fir understory in the Matrix units results in a direct

reduction in the on-site fuel hazards. The opened canopy conditions created by the Matrix treatments also serve to expand the area of altered fire behavior (similar to a Fuelbreak, described below) within the landscape should a fire occur. The 1993 FEMAT report acknowledges that treatments within the Matrix contribute to management of the LSRs and should consider reducing the risk of fire and other large-scale disturbances that would jeopardize the reserves. "...fire and fuels management in the Matrix are compatible with management objectives for Late Successional Reserves when they reduce the risk of fire entering the Reserves from adjacent managed lands". (FEMAT, IV-36).

The proposed unit size, location, and silvicultural treatment prescriptions identified above within the Matrix do not vary between the action alternatives.

Light, Medium, and Heavy Forest Retention (Regeneration)

These prescriptions involve the cutting of all trees except those retained at various canopy densities to produce an exposed microclimate for the planting of seedlings (ponderosa pine, Douglas-fir, western larch). The Light Forest Retention (LFR) prescription is applied to areas with a heavy component of grand fir with the intent to remove most of the grand fir; the Medium and Heavy Forest Retention (MFR, HFR) prescriptions are applied to Units with a greater component of ponderosa pine and Douglas-fir.

Uneven-aged Management (UAM)

This prescription regenerates and maintains a multi-aged structure by removing some trees in all size classes and creating gaps for natural ponderosa pine reforestation. This prescription is applied to the only Unit in the Gotchen Planning Area that has an adequate seed source for successful ponderosa pine regeneration. Trees 8-21" dbh, comprised of the most diseased and damaged grand fir and Douglas-fir, would be removed.

Sanitation Thinning (ST)

Removes trees to improve stand health by reducing the actual or anticipated spread of insects and disease. Recently killed and declining grand fir and Douglas-fir would be removed.

Fuelbreaks (FB), Shaded Fuelbreaks (SFB)

The Aiken Lava Bed serves as a natural fuelbreak to aid in fire suppression. Created Fuelbreaks are proposed to insulate, or "compartmentalize" the larger tracts of mature forest that comprise the greatest fire threat, and facilitate ground-based fire suppression tactics. "A well-designed fuelbreak would alter the behavior of wildland fire entering the fuel-altered zone. Both surface and crown fire behavior may be reduced. Landscape-level treatments such as prescribed fire can use Shaded Fuelbreaks as anchor points, and extend the zone of altered fire behavior to larger proportions of the landscape" (Agee, et al. 1999). An "anchor point" is a safe area from which fire suppression activities can be taken.

Given the area's gentle topography, proposed Fuelbreaks are located primarily along existing roads and in conjunction with young plantations. The roads make the Fuelbreak more effective by increasing its overall width, provide access for suppression crews, and may

minimize the extent of fires unintentionally ignited by people using the road. "...fuelbreaks are never designed to stop fires but to allow suppression forces a higher probability of successfully attacking a wildland fire." (Agee, et al. 1999.)

In addition to aiding in fire suppression, fuelbreaks can also aid managers when utilizing prescribed fire in adjacent areas. Fuelbreaks can be used as barriers or containment lines in prescribed fire activities. Prescribed fire can be directed towards these fuel-altered areas or ignited from them in order to burn specific areas.

The use of fuelbreaks varies between alternatives in terms of location, extent, and prescription. The Fuelbreaks in the proposed action (Alternative B) are deemed "Shaded Fuelbreaks" (SFB), a recognized fire management tool used to modify fire behavior. "A shaded fuelbreak is created by altering surface fuels, increasing the height to the base of the live crown, and opening the canopy by removing trees,"(Agee, et al. 1999.) The Fuelbreaks proposed in Alternatives and C and D do not significantly open the canopy and thus did not fit the definition of a shaded fuelbreak. Hence, the team opted to make a distinction between a "Shaded Fuelbreak"(SFB) and the more closed canopy "Fuelbreak" (FB). (Using this distinction, a "Fuelbreak" is more "shaded" than a "Shaded Fuelbreak", contrary to what the terminology implies.)

The Shaded Fuelbreaks are proposed primarily in the LSR with a very small percentage in the Matrix. Within the SFB, live trees would be removed to reduce the canopy cover to approximately 40%. Live and dead trees would be cut. The diameter of trees to be removed varies between the alternatives. Remaining live trees would be "limbed" to a height of 10 feet. Snags and ground fuels would be reduced through chipping, piling and/or prescribed burning. Shaded Fuelbreaks generally convert multistory forest to a single story open forest, degrading spotted owl habitat.

Fuelbreak (FB) prescriptions would remove live understory trees up to a 10" dbh limit, reducing the canopy cover to no less than 50%. The limbing of remaining trees and treatment of snags and ground fuels would be treated the same as the Shaded Fuelbreaks.

Fuels Reduction and Reforestation (FRR)

Units with mature forest stands in the LSR severely affected by spruce budworm would be treated to reduce hazardous fuel loads, reduce the grand fir understory and reforest with early seral species. These Units have an abundance of standing dead trees (snags) that would be cut to a specified level, which varies by alternative. In some instances, dense sapling grand fir patches would be thinned, with an emphasis of reducing the grand fir component in the understory. The ground fuels would then be piled and burned as needed, followed by an underburn to further reduce the fine fuels.

Reforestation of early seral species (ponderosa pine, Douglas-fir, and western larch) completes the Fuels Reduction and Restoration prescription. In these treatment units, ponderosa pine, western larch, and Douglas-fir are proposed for planting to promote resiliency to insect and disease disturbances. These trees, maintained over time through thinning and under burning, would potentially comprise future late-successional stands in the LSR.

One treatment area also removes a small component of dying trees (primarily grand fir) to open the canopy to facilitate reforestation success of early seral species. The upper diameter size limit on live trees that would be cut varies by alternative.

The level of treatment varies by stand condition as well as by alternative. Some of these Units contribute directly to the continuity of the Shaded Fuelbreak. Others contribute to the overall effectiveness of the risk reduction strategy by reducing the fire hazard on that site.

Legacy Tree Culturing (LTC)

All of the action alternatives address the threat of losing large trees by removing trees around the base of remnant old-growth ponderosa pine (“legacy” trees). The alternatives vary in the intensity of treatment around the remnant trees and the overall extent of the application of this treatment.

This treatment, in some cases, is used in conjunction with other prescriptions where it is compatible with the primary stand treatment objectives. For instance, within the Fuelbreaks proposed in all of the action alternatives, and within one fuel reduction and reforestation unit, the legacy tree culturing prescription is also applied. In order to reduce the confusion on number of acres treated, only the primary prescription is identified in the alternative summary tables to avoid double counting of acres.

The “Remarks” portion of the Summary tables that follow each Alternative description indicate where the legacy tree culturing prescription is applied, and the unit-specific prescriptions in Appendix E (Alternative Details) outline the specific treatments.

Ponderosa Pine Understory Thin (PPUT)

All three action alternatives propose thinning the understory of an old-growth stand of ponderosa pine and Douglas-fir in the vicinity of Cherry Flats dispersed camping area, though the alternatives vary in the acreage of the Unit actually treated. The understory layer of grand fir is composed of trees sapling-size to 20-inch diameter trees that have established due to the exclusion of fire. The prescription calls for thinning 2/3 of the 6-20” diameter understory trees. The overstory would be retained at 60% canopy or greater. Fuels in excess of 12/tons/acre would be piled and burned.

Lodgepole Pine Understory Thin (LPUT)

In all action alternatives, a 57-acre unit of lodgepole pine within the LSR to the north and east of Smith Butte would be thinned to reduce the potential for mountain pine beetle. Down wood would be retained at a minimum of 2% cover. The alternatives differ in the diameter-limit of live trees than would be cut. The mountain pine beetle attacks lodgepole pine, ponderosa pine, and western white pine, though most damage occurs in mature, overstocked lodgepole pine stands. The lodgepole pine Unit proposed for treatment has not experienced large-scale mountain pine beetle infestations, but exams show this Unit is overstocked and approaching maturity.

Understory Density Reduction (UDR) and Landing Gap Sap Thin (LGST)

Thinning the understory of dense sapling and pole-sized trees within the LSR is proposed in all alternatives, albeit at various levels of intensity and extent of treatment. In all instances, excess down wood (fuel or “slash”) generated from the thinning would be treated.

In Alternatives B and D, this treatment is located primarily in gaps and log landings (Landing Gap Sapling Thin) that resulted from logging operations in units that were partial cut in the 1980’s. Most of these gaps seeded in with trees, and are now crowded with sapling sized grand fir, Douglas-fir, and a few ponderosa pine and western larch. Grand fir within these gaps would be cut to promote a more resilient species mix.

In Alternative C, this tree density reduction is proposed over a much greater area and trees up to 10” dbh would be thinned to an 18’ to 20’ spacing. This prescription is referred to as Understory Density Reduction (UDR).

Plantation Maintenance (PM)

Managing young forest stands (plantations) is essential for promoting a forest composition and structure that is resilient to fire, insects, and disease. Two plantations, each around 30 years of age, have been identified for thinning followed by prescribed fire (underburning). These treatments are proposed in all three action alternatives.

Aspen Restoration (AR)

All of the action alternatives include a 10-acre quaking aspen restoration project at Gotchen Creek Guard Station. Quaking aspen historically occupied more of this landscape, but have been out-competed by conifers; conifers are now overtopping aspen saplings. Small lodgepole and ponderosa pine (to 10” dbh) competing with these aspen in the vicinity of Gotchen Creek Guard Station would be cut. Hazard trees near Gotchen Creek Guard Station would also be removed. A fence would be constructed around the perimeter of the meadow to facilitate aspen regeneration.

Prescribed Fire

The southern third of the Gotchen Planning Area historically experienced high frequency, low intensity fires. Prescribed fire is proposed in all alternatives in conjunction with mechanical removal of vegetation/fuels, as a means of “reintroducing” fire into the landscape. Underburning, piling and burning, and burning concentrations of fuels are the treatment methods used to reintroduce fire. Currently, the fuel conditions are too high to utilize prescribed fire without a mechanical “pretreatment” of the vegetation. The ultimate goal (beyond the scope of this document) would be the ability to emulate vegetation conditions that occurred under a natural fire regime, through the use of prescribed fire.

Within the Units identified for treatment, trees and fuels would be removed by mechanical and manual methods, followed by post treatment of the remaining fuels to achieve the fire hazard reduction objective. This is accomplished by hand piling and burning the slash, underburning, and mechanical piling and burning of existing and created slash. Chipping small diameter fuels is also proposed in areas of visual concern.

Hand Piling and Burning (HPB): Used when the amount of created or natural surface fuel volume is too great to underburn without resulting in adverse effects to the residual forest stand and soil. Concentrated areas of existing and created slash are hand cut with chainsaws and piled. The piles of vegetative debris are allowed to cure (dry) are covered and burned under favorable weather and atmospheric conditions.

Machine Piling (grapple piling, GPB) and Burning: Used when the amount and size of the fuel created or existing is too great to manually hand pile. Large diameter fuels and branch wood is piled with ground based equipment. These piles are up to 10'x 10' in size, are allowed to cure, are covered and burned in the late fall or early winter under favorable weather and atmospheric conditions.

Underburning (UB): Used where there is a more continuous fuel bed of created or natural fuel buildup across the forest floor. Burning would occur following an extended period of dry weather in the spring, or after certain moisture conditions are met during late fall. Underburning is also used as a maintenance tool to mimic the natural fire regime. Much of the existing surface fuel loads in the Gotchen Planning Area would require multiple fuel treatments in order to reduce the fire intensity and risks of escape. The purpose of underburning is to reduce the accumulated fuels (needles, branches), kill some of the smaller trees in order to reduce competition and density and to reduce ladder fuels within the Unit. Larger trees would survive low intense fires due to the insulating values of its thick bark.

Heavy Equipment

The proposed treatments that require the use of heavy equipment to implement the prescriptions utilize ground-based logging equipment due to the flat topography. This includes tractors and log loaders for logging the commercial timber/wood fiber products and tractor-mounted grapple pilers for subsequent fuel treatments.

Temporary Road Construction and Reconstruction

Temporary roads, utilizing existing skid trail and existing “temporary” road locations, are needed to provide for heavy equipment access to implement the activities in the Matrix and LSR. For the Matrix, 3.9 miles of existing skid trails/temp roads would be “reconstructed” for temporary use in all three action alternatives. In the LSR, both construction of “new” temporary roads and reconstruction of existing skid trails/temp roads would be needed; the needs for the LSR vary by alternative. The temporary roads would be deconstructed following implementation of the treatments.

Road Closures/Decommissioning

Road management actions are proposed in all of the action alternatives within the LSR and Matrix. Specifically, the road management proposals would reduce road density, decrease maintenance costs, reduce impacts to water quality, minimize conflicts with wildlife, and reduce vehicular access to roads not essential for fire suppression.

The closure proposals limit non-essential motorized vehicle access on selected roads to improve resource conditions while reducing the potential for accidental human-caused,

roadside fire starts. Decommissioning eliminates the road by removing drainage structures, encouraging revegetation of the roadway and otherwise making it impassible.

While the District did not receive any comments that noted concerns with the road proposals outlined with the original proposed action, changes affecting public access in general tend to be controversial. Therefore, the environmental consequences of one action alternative—Alternative C—are analyzed with and without the road proposals. This alternative is identified as C-1.

Two closure methods are proposed:

- Close roads by gate, allowing administrative or permitted access: 18.4 miles
- Decommission unnecessary roads: 6.4miles

One road proposed for decommissioning, Forest Road 8225-731, would be converted to a trail to link to the existing Snipes Trail as mitigation for decommissioning of Forest Road 8225-170. The proposed decommissioning of Forest Road 8225-170 eliminates vehicle access to the existing Snipes Trailhead.

Refer to Map Packet – Map 5 for location of proposed road actions.

Table 2-2 identifies the roads proposed by gates, either directly, or indirectly by a gate on another road. Table 2-3 identifies the roads proposed for decommissioning; all decommissioned roads would have a non-gate barrier to deter motorized use. These barriers would be set back approximately 100 feet from the road junction to allow dispersed camping. This table is not repeated in this Chapter since the road proposals remain constant.

Table 2-2. Roads proposed for closure by gates.

Closed By Gate or Other Device		
Road Number 'Gated'	Road Number 'Behind Gated Road'	Length (in miles)
	8200-768	0.6
8031-017		2.5
	8031-706	0.2
	8031-708	0.3
8040-125		0.7
8200-160		0.8
	8200-727	0.2
8200-190		2.1
	8200-191	0.2
	8200-745	0.9
	8200-746	0.5
	8200-749	0.2
	8200-753	0.4
8200-170*		1.4
	8200-737	0.9
	8200-740	0.5
	8200-743	0.4
	8200-731	0.5
8200-200		1.0
	8200-220	0.7
	8200-761	0.3
	8200-762	0.1
	8200-763	0.1
8040-031		0.6
8225-071		1.0
	8225-150*	1.3
Total		18.4

*Identified for decommissioning in the Upper White Salmon River Watershed Analysis. The lower portion of Forest Road 8225-150 is proposed for decommissioning (Table 2-3).

Table 2-3. Roads proposed for decommissioning.

Decommissioned	
Road Number	Length (in miles)
8225-150*	1.7
8040-040	0.2
8040-050	0.1
8225-791	1.2
8000-200	0.2
8020-747	0.1
8040-027	0.7
8040-101	0.4
8040-726	0.5
8040-728	0.2
8040-764	0.1
8200-705	0.3
8200-736	0.3
8200-748	0.3
8225-731	0.1
Total	6.4

*Identified for decommissioning in the Upper White Salmon River Watershed Analysis. The upper portion of this road is proposed for closure by gate (Table 2-2x).

Future “Maintenance” of Risk Reduction Strategies

The Interdisciplinary Team recognizes that the hazardous fuel and forest resiliency concerns in the Gotchen Planning Area cannot simply be remedied with one treatment. For example, Fuelbreaks would need to be actively managed over time to maintain effective fuelbreak conditions. “The efficacy of many past fuelbreaks has been largely lost because of inadequate or no maintenance.” (Agee et al., 1999). For the proposed Fuelbreaks in the Gotchen Planning Area, the team recommends that underburning occur 6-10 years after their initial creation, and again in 20 years or so, as needed.

Future treatments are identified for most of the risk-reduction activities to portray a more complete picture of what would be needed to maintain the lowered risk condition as viewed from today’s perspective. These outyear (6 – 30 years) proposals are identified in the summary tables that accompany the alternatives descriptions and are part of the detailed prescriptions referenced in Appendix G (Gotchen Treatment Prescriptions, Methods and Priorities). The cumulative effects analyses assume these activities take place. The forthcoming Record of Decision associated with this FEIS, however, will not actually include decisions on these future activities; additional documentation and decisions will need to be made for the future projects.

ALTERNATIVES CONSIDERED IN DETAIL

The Forest Service developed three alternatives, including No Action, in response to issues raised by the public regarding the proposed action (Alternative B). Each alternative is described in narrative form, accompanied by a brief summary table of the acres treated by prescription, and a more detailed “Alternative Summary” table. The Summary Tables for Alternatives C and D highlight the differences between the respective alternative and the proposed action. A composite “Mitigation Measures” table is provided for the action alternatives. The alternative maps are located in the attached Map Packet.

The following descriptions focus on the theme of each alternative and highlight the application of the various prescriptions that make up the “building blocks” of the respective alternative. Proposals common to the action alternatives—proposed Matrix Harvest Prescriptions, road-related actions, and aspen restoration—are summarized to avoid repetition; the reader can refer back to the details in the previous section, if needed.

The intent is for the reader to gain a general understanding of each alternative. For some readers, this level of detail will be adequate. Others will want to know more of the details associated with each alternative. This additional detail is provided in two appendices (previously referenced) accompanying this FEIS: A unit-by-unit narrative description “Alternative Details” (Appendix E) for each alternative is provided, along with the set of charts titled “Gotchen Treatment Prescriptions, Methods, and Priorities” (Appendix F).

Both gross and net acreages have been calculated for each proposed treatment unit. The *gross* acreage reflects the total area included within the boundaries of a given unit. The *net* figure reflects an estimate of the acreage that would be treated within the unit. In some cases, gross and net are one-in-the-same—where a prescription is applied uniformly across

the treatment unit. With other prescriptions, portions of the unit are left untreated; the net acreage reflects an estimate of the acreage treated within the unit. The net acreages best reflect the differences between the alternatives and are the basis for the environmental consequences.

Where the proposed unit acreages are noted within the narrative, the *net* unit acreage is provided, unless otherwise noted. The alternative maps reflect the gross area within the treatment unit boundaries; the accompanying tables provide both gross and net acreage.

Alternative A — No Action Alternative

Alternative A is the No Action alternative. The No Action alternative is included in accordance with the National Environmental Policy Act, (CFR 1502.14 (d)) and provides a baseline to evaluate the action alternatives.

This alternative assumes that none of the proposed activities would occur, including: LSR risk reduction actions; the removal and sale of dead and dying merchantable trees from the Matrix; the road-related proposals; and the aspen restoration.

Alternative B

Alternative B was originally the proposed action for this project and was designed to address each of the objectives for the project to some degree (page 16). Shaded Fuelbreaks are the centerpiece of this alternative which implements risk reduction treatments across 1,684 acres, including 1,139 acres within the LSR. Shaded Fuelbreaks are strategically located along existing roads to “compartmentalize” large blocks of forest that have heavy fuel loads. This strategy reduces the threat of stand-replacing fire moving freely over the landscape by reinforcing potential containment area lines along these major roads. In a wildfire situation, the Shaded Fuelbreaks would be used as a primary fireline to hold and contain the spread of fire to within their boundaries.

Additional Units that complement the Shaded Fuelbreaks are treated to reduce stand densities and fuel loads to break up the continuity and arrangement of the stands and fuel beds. In most cases, these treatments also serve to reduce the component of the grand fir understory. In general, though, Alternative B takes a somewhat conservative approach in reducing the understory grand fir within the areas in the LSR hardest-hit by the spruce budworm.

The need for temporary road access to implement the proposed activities totals 7.5 miles. This requires construction of 3.1 miles of new temporary road and reconstruction of 0.5 miles of existing skid trails/ temp roads in the LSR to grapple-pile slash and remove any merchantable wood. For the Matrix, 3.9 miles are reconstructed. Most of the new temporary road construction is associated with the Shaded Fuelbreaks; temporary road placement and use is “designed” to meet the Visual Quality Objectives associated with the roadside treatments along Forest Roads 80 and 82 Visual Corridors.

A total of 44 acres within riparian zones within the LSR are treated with risk-reduction activities. The riparian acres are included within a unit only where the prescription calls for cutting trees 6-10” dbh. Seven acres of riparian habitat are also included in the aspen

restoration in Gotchen Meadow. None of the treatments cut within 25' of the streams. Within the Shaded Fuelbreaks, multistory forest is converted to single-story open forest, degrading spotted owl habitat. Outside of the Shaded Fuelbreaks, large blocks of forest habitat remain untreated, and therefore, undisturbed by any treatments associated with this decision.

Refer to Map Packet – Map 6.

Shaded Fuelbreaks (SFB)

Creating the Shaded Fuelbreaks (SFB) in this alternative involves removing live trees up to 20" dbh to lower the canopy closure to approximately 40-50%, depending on the particular Unit; limbing remaining trees to 10'; and immediate treatment of ground fuels, followed by intermittent prescribed fire treatment. Within the riparian area—Unit V—the diameter limit for cut trees is 8"; there would be little change in the canopy closure, currently around 60%.

The Shaded Fuelbreaks also provide the opportunity for legacy tree culturing within the SFB. While the culturing is a secondary objective in the Shaded Fuelbreaks, the SFB prescription calls for cutting all intermediate grand fir within 50' of old growth ponderosa pine where consistent with the canopy closure objectives. Unit V is the exception; there is no culturing of legacy pines within the riparian zone.

Out of the 475 acres proposed for this prescription, 445 acres are within the LSR.

SFB: Units N, O, P, Q, S, T, U, V W

Fuels Reduction and Reforestation (FRR)

Proposed treatments in the LSR target approximately 346 acres for Fuels Reduction and Reforestation (FRR). These Units are severely degraded by spruce budworm and have an abundance of standing dead and dying trees that contribute to the overall fuel hazard in the Gotchen Planning Area.

In this alternative, only dead overstory trees are cut with this prescription, with the exception of 53 acres. On these 53 acres, overstory trees—primarily grand fir—would be reduced to a 35% canopy closure creating "gaps" < 2 acres each to facilitate reforestation of early seral species.

Dense understory sapling patches would be thinned, where prescribed, with an emphasis of removing the grand fir. The excess ground fuels would be treated by piling and burning, followed by an underburn. These units would then be planted with ponderosa pine, Douglas-fir and western larch. Some of these Units contribute directly to the continuity of the Shaded Fuelbreak. Others are in locations complimentary to the Shaded Fuelbreak system and contribute to the overall fire suppression effectiveness by reducing the fire hazard on that site.

Legacy tree culturing is a secondary treatment objective in Unit I.

FRR Units: H, I, J, K, L

Legacy Tree Culturing (LTC)

The Legacy Tree Culturing (LTC) prescription is applied to an estimated 81 acres within the LSR with the explicit intent of reducing tree competition to old-growth ponderosa pine. The targeted Unit is primarily 80 – 100-yr old grand fir, with scattered large ponderosa pine and Douglas-fir, 150+ years of age. The prescription calls for cutting _ of the understory grand fir tree, up to 20" dbh, within 50 feet of every other old-growth ponderosa pine.

Legacy Tree Culturing is a secondary treatment within Units I, N, O, P, Q, S, T, U, W.

LTC: Unit Y

Landing Gap Sap Thinning (LGST)

Alternative B takes a relatively conservative approach in reducing the understory grand fir within the areas in the LSR hardest-hit by the spruce budworm. An estimated 100 acres are treated by the Landing Gap Sap Thin (LGST) prescription to remove the understory of grand fir saplings in old logging landings.

LGST: Units AA and BB

Ponderosa Pine Understory Thin (PPUT)

This alternative treats the entire 68-acre Unit of old-growth ponderosa pine, thinning 2/3 of the 6 – 20" diameter understory trees.

PPUT: Unit M

Lodgepole Pine Understory Thin (LPUT)

Alternative B thins 57 acres of lodge pole pine understory (LPUT), up to a 20" dbh.

LPUT: Unit X

Plantation Maintenance (PM)

Two plantations, each around 30 years of age, are thinned, followed by prescribed underburning.

PM: Unit R

Quaking Aspen Restoration (AR)

Restores 10 acres of quaking aspen within Gotchen Meadow and cuts hazard trees around Gotchen Creek Guard Station. No treatment within 25' of stream.

AR: Unit Z

Matrix Prescriptions

Light Forest Retention (LFR)

Cuts and removes most trees on 80 acres; retains a 15% canopy cover (green tree retention) and plants early seral species.

LFR: Unit A

Medium Forest Retention (MFR)

Cuts and removes trees, retaining a 30% canopy cover in Units B and D (47 acres, combined); and a 40% canopy cover in Unit C (184 acres). Plants early seral species.

MFR: Units B, C, D

Heavy Forest Retention (HFR)

Cuts and removes trees, retaining a 40% canopy cover on 65 acres. Plants early seral species.

HFR: Unit F

Uneven-aged Management (UAM)

Cuts and removes trees on 48 acres in all size classes and creates gaps (<2 acres) for natural regeneration.

UAM: Unit E

Sanitation Thinning (ST)

Cuts and removes only trees that are dead, damaged, or in poor health across 91 acres.

ST: Unit G

Road Closures/Decommissioning

The road-related proposals consist of:

- 18.4 miles of open road closed by gates
- 6.4 miles of road decommissioned

Refer to Table 2-2 and Map Packet -- Map 5 for description and location of proposed road actions.

Summary of Alternative B by Prescription Acres

Table 2-4, below, summarizes Alternative B by acres treated by prescription. A more complete summary of this Alternative is shown in Map Packet – Table 1, Alternative B Summary” table and the Alternative B map are located in the Map Packet.

Table 2-4. Alternative B Prescription Acres.

UNIT	PRESCRIPTION		ACRES Gross / Net	COMMERCIAL HARVEST VOL. (CCF/MBF)
A	LFR	Light Forest Retention	89 / 80	3538/1840
B-D	MFR	Medium Forest Retention	258 / 231	1519/790
E	UAM	Uneven Aged Management	54 / 48	738/384
F	HFR	Heavy Forest Retention	73 / 65	1000/520
G	ST	Sanitation Thin	102 / 91	1400/728
H –L	FFR	Fuels Reduction and Reforestation	364 / 346	815/424
M	PPUT	Ponderosa Pine Understory Thin	68 / 68	523/272
N-Q ,S-W	SFB	Shaded Fuelbreak	469 / 469	4533/2358
V	SFB -R	Shaded Fuelbreak (Riparian)	7 / 6	0/0
R	PM	Plantation Maintenance	38 / 38	0/0
X	LPUT	Lodgepole Understory Thin	57 / 51	392/204
Y	LTC	Legacy Tree Culturing	162 / 81	0/0
Z	AR	Aspen Restoration	11 / 10	0/0
AA, BB	LGST	Landing Sap Sapling Thin	1327 / 100	0/0
Total			3079 / 1684	14458/7520

Changes to Proposed Action Issued with Scoping Notice

Alternative B differs from the original proposed action in three categories: The risk reduction activities proposed along Forest Road 8040, adjacent to the Gotchen Creek Inventoried Roadless Area; the riparian treatment within the Shaded Fuelbreak; and the miles and locations of proposed road closures and decommissions.

In the original proposed action, Unit R created a 211 acre Shaded Fuelbreak along Forest Road 8040 adjacent to the Gotchen Creek Inventoried Roadless Area. This is within the subalpine fir area that historically experiences a low frequency (60 – 200 year interval), high intensity fire regime. Subsequent to issuing the proposal for public scoping, the team concluded that a Shaded Fuelbreak in that location was inconsistent with the need to reduce the risk (threat) of a stand-replacing fire in the dry grand fir zone, which historically experienced a high-frequency, low intensity fire regime. Rather than create another alternative, this Shaded Fuelbreak was dropped from the proposed action as presented here.

The prescription for Unit V, a riparian Shaded Fuelbreak adjacent to Gotchen Creek, was modified to cut trees no greater than 8” dbh (down from 21”dbh) and to eliminate treatment within 25’ of Gotchen Creek. The change was made based on discussions with the public during the July 14, 2002, field trip that included a visit to that particular unit. The changes were not great enough to warrant a separate alternative.

Several changes were also made regarding the road proposals: District fire program managers determined that several roads originally proposed for decommissioning were needed for potential fire suppression access. These roads are now proposed to be closed with gates. Portions of Forest Road 8225-150 were recommended for decommissioning/storm proofing in the Upper White Salmon River Watershed Analysis. It is one of the roads the fire has determined is needed for fire suppression access.

The original proposed action maps and accompanying tables are provided in Appendix B.

Alternative C – Preferred Alternative

The emphasis of Alternative C is to reduce fire risk and improve late-successional function and resiliency by *directly* treating fuels and reducing understory density in high-risk areas. The alternative targets a large block of contiguous acreage within the LSR, which contains a large component of grand-fir understory that has experienced repeated defoliation/mortality resulting in high levels of standing and surface fuels. This alternative treats a total of 2,220 acres, of which 1,701 acres are within the LSR.

From a fuels-management perspective, this Alternative utilizes a more “traditionalist” approach by directly modifying vegetation and fuel profiles in areas of high fire hazard and high stand densities. Alternative C reduces the fuels within this large, contiguous area by thinning grand fir understory up to 10” dbh (ladder fuels), removing snags in excess of Gifford Pinchot Forest Plan S&Gs, and treating residual fuels by piling and burning, followed by underburning. In addition, a combination of Shaded Fuelbreaks and Fuelbreaks are created /reinforced by utilizing natural features (Aiken Lava Bed), and tying into areas with an existing lower fire hazard.

Alternative C does not treat all areas of heavy fuel or high risk; however, it results in a landscape that has a range of vegetative and fuel mosaics that isolate hazardous fuels, and reduce fire spread, and improves stand conditions. Dead trees and surface fuels are removed and burned across larger areas than that of the other alternatives.

The relatively aggressive treatment of reducing the grand fir understory plays a dual role: in addition to reducing the ladder fuel component, it reduces stand density and host to the spruce budworm. This alternative also applies the legacy tree culturing prescription directly to a greater number of acres than the other, potentially alleviating the tree-competition related stress to a greater number of the old-growth ponderosa pine.

Impacts to suitable owl/late successional habitat are minimized within the LSR by restricting green tree removal within the majority of treatment units to 10” dbh, or less. Wildlife habitat is maintained by utilizing treatments that maintain a multi-story forest structure in treated areas, while leaving large blocks of forest habitat untreated, and therefore, undisturbed by any treatments associated with this decision. Alternative C treats more acres of suitable habitat than the other action alternatives, but converts fewer acres to non-suitable habitat than Alternative B.

Alternative C treats 57 acres of riparian habitat. Where a riparian area falls within a proposed treatment unit, the prescription for that unit is applied to the riparian area. (The exception is Unit EE, where it’s anticipated that the net area treated would not include the

riparian area encompassed within the gross unit boundary.) None of the prescriptions propose treatment within 25' of any stream.

A total of 4.3 miles of temporary roads are needed to implement the proposals: 0.4 miles of new temporary road in the LSR and 3.9 miles of temporary road reconstruction in the Matrix. Most of the new temporary road construction is associated with the Shaded Fuelbreaks; temporary road placement and use is “designed” to meet the Visual Quality Objectives associated with the roadside treatments along Forest Roads 80 Visual Corridor.

Refer to Map Packet – Map 7.

Understory Density Reduction (UDR) and Landing Gap Sapling Thin (LGST)

Within the LSR, thinning the grand fir understory treats many of the spruce budworm-damaged Units. These Units are treated with a combination of “Understory Density Reduction” (UDR), 756 acres; and “Landing Gap Sapling Thin” (LGST), 30 acres. (All but one acre is within the LSR.) Tree cutting in the UDR areas are limited to trees that are 10” or less in dbh; and limited to 6” or less in the LGST. The “slash” resulting from these actions is piled and burned.

UDR: Units AA, CC, DD

LGST: Units BB

Fuels Reduction and Reforestation (FRR)

Similarly, the 335 acres of Fuels Reduction and Reforestation (FRR) removes snags in excess of 10/acre and thins the understory grand fir to an approximate 18 – 20 foot tree spacing. Fuel concentrations are piled and burned, followed by underburning and reforestation. To compensate for the loss of habitat associated the understory vegetation, 10.5% of the unit acreages are left uncut.

Implementing these prescriptions removes a large component of ground and “ladder fuels” as well as reduces a large component of the spruce budworm host species (grand fir). These actions contribute to both reducing the risk (threat) of stand-replacing fires and reducing the risk of losing late successional function and resiliency

Legacy Tree Culturing is a secondary objective of Unit I.

FRR: Units H, I, J, K, L

Fuelbreaks (FB) and Shaded Fuelbreaks (SFB)

In addition, two small Fuelbreaks and a Shaded Fuelbreak are created in strategic locations to augment the fuel mosaic created by the Units noted above. Two small Fuelbreaks (FB) are created north of the meadow at the Gotchen Creek Guard station, to tie in more closely with the Aiken Lava Bed. The aspen restoration (AR) in the Gotchen Meadow—common to all action alternatives—coupled with the Fuelbreaks described above, would complete the tie into the Aiken Lava Bed.

This contributes to the nearly contiguous north-south break-up of fuels from the lava bed on the north to the Forest boundary on the south. Again, the cut trees are limited to 10" or less dbh.

A road-related Shaded Fuelbreak (**SFB**) is proposed along Forest Road 82. This action is designed to break up the fuel concentrations on the east side of the Gotchen Planning Area, tying into the National Forest/Yakama Indian Reservation boundary on the east, further facilitating the break in fuels.

Legacy Tree Culturing is a secondary objective in the Fuelbreaks and the Shaded Fuelbreaks.

FB: Units EE, FF

SFB: Unit S

Legacy Tree Culturing (LTC)

Legacy tree culturing (**LTC**) is proposed on 252 contiguous acres within the Matrix and LSR. In this unit, all grand fir 10" dbh and less, within 50 feet of all old growth ponderosa pine is cut. This action is augmented with thinning the grand fir understory to an approximate 18' – 20' spacing throughout the unit. Again, these treatments play a dual role in reducing the fire threat as well as reducing the risk of losing late successional function.

LTC: Unit Y

Ponderosa Pine Understory Thin (PPUT)

The Ponderosa Pine Understory Thin (**PPUT**) prescription is applied across 68 acres (gross) of old-growth ponderosa pine. The prescription calls for thinning 2/3 of the 6 – 20" understory trees. To mitigate the loss of habitat associated with the loss of understory vegetation, 10.5% of the unit (7 acres) is left untreated, for a net of 61 acres treated. The slash is grappled piled and burned.

PPUT: Unit M

Lodgepole Pine Understory Thin (LPUT)

This alternative thins 57 acres of lodge pole pine understory (**LPUT**), up to a 20" dbh. The "slash" resulting from this activity is piled and burned.

LPUT: Unit X

Plantation Maintenance (PM)

Two plantations, each around 30 years of age, are thinned, followed by prescribed underburning.

PM: Unit R

Quaking Aspen Restoration (AR)

Restores 10 acres of quaking aspen within Gotchen Meadow and cuts hazard trees around Gotchen Creek Guard Station.

AR: Unit Z

Matrix Prescriptions**Light Forest Retention (LFR)**

Cuts and removes most trees on 80 acres; retains a 15% canopy cover and plants early seral species.

LFR: Unit A

Medium Forest Retention (MFR)

Cuts and removes trees, retaining a 30% canopy cover in Units B and D (47 acres, combined); and a 40% canopy cover in Unit C (184 acres). Plants early seral species.

MFR: Units B, C, D

Heavy Forest Retention (HFR)

Cuts and removes trees, retaining a 40% canopy cover on 65 acres. Plants early seral species.

HFR: Unit F

Uneven-aged Management (UAM)

Cuts and removes trees on 48 acres in all size classes and creates gaps (<2 acres) for natural regeneration.

UAM: Unit E

Sanitation Thinning (ST)

Cuts and removes only trees that are dead, damaged, or in poor health across 91 acres.

ST: Unit G

Road Closures/Decommissioning

The road-related proposals consist of:

- 18.4 miles of open road is closed by gates or other devices (boulders, berms)
- 6.4 miles of road is decommissioned

Refer to back to Table 2-2 and Map Packet – Map 5 for description and location of proposed road actions.

Summary of Alternative C

Table 2-5, below, summarizes Alternative C by acres treated by prescription. A more complete summary of this Alternative is shown in the Map Packet – Table 2, Alternative C Summary and Comparison table and the Alternative C map are located in the Map Packet.

Table 2-5. Alternative C Prescription Acres.

UNIT	PRESCRIPTION		ACRES Gross / Net	COMMERCIAL HARVEST VOL. (CCF/MBF)
A	LFR	Light Forest Retention	89 / 80	3538/1840
B-D	MFR	Medium Forest Retention	258 / 231	1519/790
E	UAM	Uneven Aged Management	54 / 48	738/384
F	HFR	Heavy Forest Retention	73 / 65	1000/520
G	ST	Sanitation Thin	102 / 91	1400/728
H -L	FFR	Fuels Reduction and Reforestation	385 / 335	0/0
M	PPUT	Ponderosa Pine Understory Thin	68 / 61	469/244
R	PM	Plantation Maintenance	38 / 38	0/0
S	SFB	Shaded Fuelbreak	145 / 145	0/0
X	LPUT	Lodgepole Understory Thin	57 / 51	392/204
Y	LTC	Legacy Tree Culturing	280 / 251	0/0
Z	AR	Aspen Restoration	11 / 10	0/0
AA, CC, DD	UDR	Understory Density Reduction	890 / 756	0/0
BB	LGST	Landing Gap Sapling Thin	354 / 30	0/0
EE, FF	FB	Fuelbreak	36 / 28	0/0
Total			2840 / 2220	9056/4710

Alternative D

Alternative D emphasizes treatment of ground and ladder fuels to minimize the spread of fire. It treats a total of 1,645 acres, 1,100 within the LSR. The fire-suppression strategy utilizes fuelbreaks within the LSR and treats dead or dying stands to break up the continuity and arrangement of fuels across the landscape. Impacts to suitable owl habitat are minimized by restricting live tree removal within proposed Fuelbreaks to 10" dbh, or less thereby maintaining overstory canopy cover near current levels. This alternative also maintains wildlife habitat by implementing less-intensive risk reduction treatments within the areas encompassed by the Fuelbreaks.

Treatments within the riparian zones (38 acres) are limited to risk reduction prescriptions that cut either snags or live trees equal to or less than 6" dbh. The aspen restoration treatment occurs on approximately 7 acres of riparian habitat within Gotchen Meadow. No treatment occurs within 25' of the streams in any of these treatments.

A total of 4.1 miles of temporary roads are needed to implement the proposals: 0.2 miles of new temporary road in the LSR and 3.9 miles of temporary road reconstruction in the Matrix.

Refer to Map Packet – Map 8.

Fuelbreaks (FB)

The Fuelbreaks (**FB**) are developed within the same “footprint” as the Shaded Fuelbreaks in Alternative B—along the road system—for a total of 469 acres. Trees up to 10” dbh are removed to reduce tree density and ladder fuels. Remaining live trees are “limbed” to a height of 10 feet. Snags and ground fuels are reduced through chipping, piling and/or prescribed burning. Under a wildfire situation, the Fuelbreak would be used as a primary fireline to hold and contain the spread of fire to within its boundary. This alternative reduces the threat of stand-replacing fire moving freely over the landscape by reinforcing potential containment area lines along major roads.

Legacy tree culturing is a secondary treatment objective in all Fuelbreak units, and would be applied as long as a 50% target canopy closure is maintained.

FB: Units N-Q; S-W

Fuels Reduction and Reforestation (FRR)

Within the LSR, many of the spruce budworm-damaged Units are treated through a combination of prescriptions aimed at reducing the grand fir understory component as well as reducing fuel loads. Three hundred and twenty (320) acres are proposed for Fuels Reduction and Reforestation (**FRR**). Of this total, no live trees—only excess snags—are cut on 228 acres. The remaining FFR units cuts a portion of the grand fir understory, with either a 6” or 10” dbh live cut-tree limit. In all of the FFR units, 10% of the area is left untreated in small patches. “Slash” is piled and burned, where needed, followed by a prescribed underburn and planting of early seral species.

Legacy tree culturing is a secondary treatment objective in Unit I.

FRR: Units I, J, K, L, and H

Legacy Tree Culturing (LTC)

The Legacy Tree Culturing (**LTC**) prescription is applied to an estimated 81 acres within the LSR with the explicit intent of reducing tree competition to old-growth ponderosa pine. The targeted Unit is primarily 80 – 100-yr old grand fir, with scattered large ponderosa pine and Douglas-fir, 150+ years of age. The prescription calls for cutting _ of the intermediate grand fir trees within 50 feet of every other old-growth ponderosa pine.

LTC: Unit Y

Landing Gap Sapling Thin (LGST)

The “Landing Gap Sapling Thin” (**LGST**) prescription is applied to 100 acres to reduce grand fir under story component as well as reduce fuel ladders. The live-tree cutting is limited to 6” or less in the LGST. The “slash” resulting from these actions is piled and burned.

LGST: Units AA, BB

Ponderosa Pine Understory Thin (PPUT)

The Ponderosa Pine Understory Thin (**PPUT**) prescription is applied across 68 acres (gross) of old-growth ponderosa pine. The prescription calls for thinning 2/3 of the 6 – 10” understory trees. To mitigate the loss of habitat associated with the loss of understory vegetation, 10.5% of the unit (7 acres) is left untreated, for a net of 61 acres treated. The slash is grappled piled and burned.

PPUT: Unit M

Lodgepole Pine Understory Thin (LPUT)

This Alternative thins 51 acres of lodgepole pine understory (**LPUT**). There is no diameter size limit of the trees that are cut. The slash is grappled piled and burned.

LPUT: Unit X

Plantation Maintenance (PM)

Two plantations, each around 30 years of age, are thinned, followed by prescribed underburning.

PM: Unit R

Quaking Aspen Restoration (AR)

Restores 10 acres of quaking aspen within Gotchen Meadow, and cuts hazard trees around the Gotchen Creek Guard Station.

AR: Unit Z

Matrix Prescriptions**Light Forest Retention (LFR)**

Cuts and removes most trees on 80 acres; retains a 15% canopy cover (green tree retention) and plants early seral species.

LFR: Unit A

Medium Forest Retention (MFR)

Cuts and removes trees, retaining a 30% canopy cover in Units B and D (47 acres, combined); and a 40% canopy cover in Unit C (184 acres). Plants early seral species.

MFR: Units B, C, D

Heavy Forest Retention (HFR)

Cuts and removes trees, retaining a 40% canopy cover on 65 acres. Plants early seral species.

HFR: Unit F

Uneven-aged Management (UAM)

Cuts and removes trees on 48 acres in all size classes and creates gaps (<2 acres) for natural regeneration.

UAM: Unit E

Sanitation Thinning (ST)

Cuts and removes only trees that are dead, damaged, or in poor health; applied across 91 acres.

ST: Unit G

Road Closures/Decommissioning

The road-related proposals consist of:

- 18.4 miles of open road closed by gates
- 6.4 miles of road decommissioned

Refer to back to Table 2-2, 2-3, and Map Packet -- Map 5 for description and location of proposed road actions.

Summary of Alternative D

Table 2-6, below, summarizes Alternative D by acres treated by prescription. A more detailed summary of this Alternative is shown in Map Packet – Table 3, Alternative D Summary and Comparison table, and the Alternative D map are located in the Map Packet.

Table 2-6. Alternative D Prescription Acres.

UNIT	PRESCRIPTION		ACRES (gross / net)	COMMERCIAL HARVEST VOL. (CCF/MBF)
A	LFR	Light Forest Retention	89 / 80	3538/1840
B-D	MFR	Medium Forest Retention	258 / 231	1519/790
E	UAM	Uneven Aged Management	54 / 48	738/384
F	HFR	Heavy Forest Retention	73 / 65	1000/520
G	ST	Sanitation Thin	102 / 91	1400/728
H -L	FFR	Fuels Reduction and Reforestation	364 / 320	0/0
M	PPUT	Ponderosa Pine Understory Thin	68 / 61	0/0
N-Q ,S-W	FB	Fuelbreak	469 / 469	0/0
R	PM	Plantation Maintenance	38 / 38	0/0
X	LPUT	Lodgepole Understory Thin	57 / 51	392/204
Y	LTC	Legacy Tree Culturing	162 / 81	0/0
Z	AR	Aspen Restoration	11 / 10	0/0
AA, BB	LGST	Landing Sap Sapling Thin	1327 / 100	0/0
Total			3072 / 1645	8587/4466

Comparison of Alternatives by Prescription Acres

Table 2-7. compares the three Action Alternatives by prescription acres.

Table 2-7, Comparison of Action Alternative by Prescription Acres.

		ALT B Net Acres	ALT C Net Acres	ALT D Net Acres
LFR	Light Forest Retention	80	80	80
MFR	Medium Forest Retention	231	231	231
UAM	Uneven Aged Management	48	48	48
HFR	Heavy Forest Retention	65	65	65
ST	Sanitation Thin	91	91	91
FFR	Fuels Reduction and Restoration	346	335	320
PPUT	Ponderosa Pine Understory Thin	68	61	61
SFB	Shaded Fuelbreak	469	145	0
SFB	Shaded Fuelbreak (Riparian)	6	0	0
FB	Fuelbreak	0	28	469
PM	Plantation Maintenance	38	38	38
LPUT	Lodgepole Understory Thin	51	51	51
LTC	Legacy Tree Culturing	81	251	81
AR	Aspen Restoration	10	10	10
LGST	Landing Gap Sapling Thin	100	30	52
UDR	Understory Density Reduction	0	756	0
TOTAL NET ACRES		1684	2220	1645

Mitigation Measures

The mitigation measures identified here are an integral part of the alternatives; the alternatives are analyzed with the mitigation measures in place.

The Regulations define mitigation in CFR 1508.20 as:

Avoiding the impact altogether by not taking a certain action or parts of an action

Minimizing impacts by limiting the degree or magnitude of the action and its implementation

Rectifying the impacts by repairing, rehabilitating, or restoring the affected environment

Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action

Compensating for the impact by replacing or providing substitute resources or environments

The mitigations noted in this section are generally those that would be required to carry out the actual risk reduction and restoration activities, or are post implementation mitigation measures; they are generally not a direct component of a *prescription* for a given activity.

Many “mitigations” are built into the alternatives in several ways: by design to address a particular issue; as part of the silvicultural and fuels prescriptions for a given treatment; and by incorporating Forest Plan S&Gs.

	REQUIRED MITIGATION MEASURES - SOILS -	Apply to
S1	Ground-based machinery will be operated during the dry season. Machinery will not be operated where soil water content is high, or in areas where rutting exceeds 6 inches in depth for a length of ten feet or more. This measure will limit the degree of soil compaction, rutting, and puddling as well as reduce the potential for offsite stream sediment.	All units except Y, Z and R
S2	Ground-based machinery will not be permitted on slopes over 30%. This measure will limit the amount of soil compaction and displacement associated with use of equipment on steep slopes.	C, J, T, U, BB and R
S3	Skid trails will be pre-designated for all ground-based equipment operations, and will be spaced a minimum of 150 feet apart for tractor units and 400 feet apart for loader units. Use of existing roads must be used if possible rather than creating new roads. Timber will be felled to lead to the skid trail locations. Rubber tire tractors will remain on skid trails and winch logs as necessary. Loaders operating off of designated skid trails must operate over slash beds that are as thick and continuous as practicable. The objective of this measure is to limit the extent and the degree of soil damage, displacement, and disturbance.	All units except Y, Z and R
S4	Machine piling of slash will be accomplished with as light a track machine as is practicable, equipped with a swivel grapple. Piling will begin at the end of the unit furthest from the access road and work its way back, operating on top of the slash.	All units except R, V, and Z
S5	Rock will be used only when necessary on landings and temporary roads, and applied only where needed ("spot rocking"). Rock will be incorporated into the roadbed by ripping or scarification following harvest activities (see following mitigation measure). The objective is to allow better substrate for vegetative growth and water infiltration following logging and harvest activities.	All units except R, V, and Z
S6	Temporary roads and landings will be subsoiled to a depth of 18 inches (minimum). Subsoiling must be done immediately following treatment. Any proposed alternative methods to subsoiling must be approved by a qualified earth scientist in consultation with the contract administrator. To prevent re-compacting the treated roadways and landings, no ground-based equipment will be operated on subsoiled portions of roads and landings after subsoiling is completed. Cross drains or waterbars will be installed every 150 feet or more frequently where slopes exceed 5%. Logging debris will be placed across the subsoiled road and landing surface. Subsoiled landings and roads would be seeded with local native grasses, fertilized, and covered with a straw mulch. (Acceptable grass seed mix, type of mulch, and fertilizer, along with application rates will be specified by a qualified earth scientist.) Subsequent vehicular access to these areas will be prevented by construction of a 4-foot high earth berm backed up by a 4-foot deep trench at the entrance to the road or landing. The objective of this measure is to rehabilitate areas compacted during logging activities, accelerate recovery of compacted soils, and facilitate water infiltration and revegetation on those disturbed areas. Closure to vehicles is required to prevent these areas from being re-compacted and to allow vegetation to develop.	All units except R, V, and Z. AA & BB not subsoiled unless compacted by ground based equipment.
S7	Prescribed burns will be designed to preserve (not consume with burning) at least fifty percent of the depth of the thin organic litter and duff layer in ninety percent of the treated area. Burn prescriptions will be designed to prevent the complete consumption of more than ten percent of the surface area of duff layer in a treatment unit. This measure will limit losses of soil fertility and soil organic matter due to prescribed burning.	Unit R
S8	Subsequent to burning machine piled slash, soil under piles greater than 100 square feet will be seeded and fertilized. This measure will mitigate the effects of severe burning on the soil.	All units except R

REQUIRED MITIGATION MEASURES - FIRE -		
F1	Prescribed Fire (underburns, slash pile burns) will be conducted under specific environmental conditions and intensity levels, in accordance with pre-determined management objectives and guidelines. Risk assessment will be prepared as part of the burn plan in order to ensure minimal threat of fire escape. Treatment periods are generally early spring (early Mar through late May) and late fall (late Oct-early Dec).	All units
F2	Post prescribed fire treatment monitoring will be conducted by the unit fire program manager (AFMO) and unit Silviculturist. Planned versus applied management standards will be compared, analysis of results and quantitative record of accomplishments maintained over time	All units
F3	Hand pile and machine (grapple) piling of slash will be completed on a sequential basis as it is being created in order to minimize the amount of high fire hazard areas	All units
F4	Piles created by manual and mechanical means will be free of soil and non-flammable materials. Piles will not be constructed under or near residual trees that would be at risk to fire/ignition when burned	All units
F5	Piles will be created and burned within the same season with adequate time for curing and drying. Piles will be covered when cured and burned during a low risk and favorable weather condition.	All units

REQUIRED MITIGATION MEASURES - CULTURAL RESOURCES -		Apply to
C1	No mechanized equipment (with the exception of chainsaws) will be used in treatment activities in Gotchen Meadow. No tree-length skidding of logs will occur.	All alternatives : Z
C2	Vegetative manipulation within 50' of the Gotchen Creek Guard Station will be minimized, in order to protect the historic setting of the structure. Aspen and mature grand fir within 50' of the structure will be retained.	All alternatives : Z
C3	No carved aspens will be cut. Carved aspens will be protected from indirect impacts during fuel reduction activities by ensuring slash piles are kept at a minimum of 50' from carved trees.	Alt. B: G, AA, Y, Q, T, V, Z; Alt. C: G, AA, Y, EE, Z; Alt. D: G, AA, Y, Q, T, Z
C4	Carved aspens will be protected from direct impacts during underburning operations by manually removing all fuel material within 50 ft. of individual carved trees.	Alt. C: Y
C5	The historic corrals and the pine log trough will be protected through directional felling.	Alt. B: AA, M, Q; Alt. C: AA, M; Alt. D: AA, M, Q

REQUIRED MITIGATION MEASURES - BOTANY -		
B1	Weed Prevention: To prevent the introduction of noxious weeds into the Gotchen Planning Area, all heavy equipment, or other off- road equipment used in the project is to be cleaned to remove soil, seeds, vegetative matter or other debris that could contain seeds. Cleaning should be done before entering National Forest Lands, and when equipment moves from units or areas known to be infested into other areas, infested or otherwise. An inspection will be required to ensure that equipment is clean before work can begin. (Equipment cleaning clause Wo-C6.35).	All units where soil is disturbed
B2	Weed Control: Mitigation to control and eradicate noxious weeds (Class A and B and selected C) in project areas will be accomplished by following the guidelines outlined below. 1. To control the introduction and spread of noxious weeds, landings and skid trails are to be ripped, seeded and fertilized as soon as judged reasonable (based on implementation constraints as well as proper seeding season) after project completion. Native seed derived from seed lots collected on the District or Forest should be used when appropriate (based on availability and location). The following native seed mixture, fertilizer, and application rates are recommended: blue wildrye (<i>Elymus glaucus</i>) 65%, slender hairgrass (<i>Deschampsia elongata</i>) 35% by weight. Apply mixture at 100 lbs/acre. Fertilize using 20/20/0 fertilizer at 300 lbs/acre. Native seeds from other species may be available in the future and could be used if agreed to by the District Botanist. The District Botanist should be consulted for alternate seed mixture options in situations where use of native seed is not deemed practical based on availability or project location. 2. To control known populations of weeds within project areas, on adjoining and/or access roads, and other areas with potential for dispersal within the vicinity of project areas, weeds will be removed by hand pulling or by other methods determined to be appropriate. 3. Any new populations of weeds located during project development or implementation will be documented and treated, as specified in 2. 4. Areas with concentrated cattle use (including near water sources) within the Gotchen Planning Area will be surveyed and treated annually. 5. Identified weed populations will be revisited after initial treatment as deemed appropriate, to check for and control re-occurrence (see weed monitoring mitigation B3).	All units, access roads, landings or areas adjacent to project areas with known weed infestations
B3	Weed Monitoring: Treatments will be repeated up to 5 years after completion of the project as necessary to control or eradicate weeds in the area. A brief report documenting the species found, their abundance, treatments applied, and results of treatments is to be filed with the District Botanist.	All units
B4	Survey and Manage mitigation: Apply a 300-foot no-harvest buffer around located populations of Survey and Manage species.	Units BB, V,
B5	Survey and Manage mitigation: Mitigate for effect of culvert removal on <i>Schistostega pennata</i> sites downstream of Forest Road 8225-150, by controlling silt flow into stream using methods mutually agreed to by District Hydrologist and District Botanist.	<i>Schistostega</i> sites downstream of Forest Road 8225-150.
B6	Survey and Manage mitigation: Monitor known sites of <i>Botrychium montanum</i> and selected known sites of <i>Schistostega pennata</i> periodically after treatments, to monitor effects of treatment and possible increase in grazing impacts.	Unit BB, L, Q, V, Z.

	REQUIRED MITIGATION MEASURES - RECREATION -	Apply to
R1	For open roads that are to be closed or decommissioned, leave a nominal portion of the road (first 50 feet) in an open condition to provide for dispersed camping opportunities. This mitigates loss of dispersed campsites that typically occur at the end of infrequently used gravel roads.	All Closed and Decomm Roads
R2	Relocate Snipes Trailhead to Road 8225060 prior to the decommissioning of Road 8225150. Approximately 0.3 miles of trail would be constructed to facilitate this change. This mitigates loss of motorized access to the existing Snipes Trailhead.	FS road 8225150
R3	Coordinate the cutting in and around Cherry Flats (Unit M) with the recreation planner to meet the fuels objectives of the treatment, yet minimize site disturbance and loss of vegetative screening. Logging operations would not occur around the major holiday weekends of Memorial Day, July 4 th , and Labor Day. This site receives a lot use on these weekends.	M
R4	Restrict log haul on Road 80 and 82 on the major holiday weekends of July 4 th and Labor Day. This would reduce the traffic hazard associated with log haul concurrent with recreational traffic to South Climb and Bird Creek Meadows.	A – Z, AA, BB
R5	Close summer trails to public use that are within or adjacent (300 feet) to stand management activities for the duration of tree felling and operation of heavy equipment. Closures would be posted on trailheads and communicated through the GPNF's media outlets (e.g. web site).	Q, Z
R6	Protect trailheads, trails, sno-parks, interpretive sites, and other recreation buildings adjacent to or within treatment areas during implementation. These features would be noted on contract maps as improvements to protect. Trees must be felled away (directional felling) from these improvements. Should one of these improvements be damaged during logging, it would be reconstructed or restored.	A – Z, AA, BB
R7	Manage vegetation, skid roads, landings, slash, and stumps to minimize the appearance of disturbance within cutting units adjacent to Roads 80 and 82 to mitigate short-term adverse scenic impacts. The primary area of concern is the immediate foreground (100 feet) next to Roads 80 and 82. Leave tree paint marking should be avoided if possible. If necessary, paint only the tree side that faces away from the road. Tree stumps would be cut low or flush with the ground (maximum 4 inches high, uphill side). Landings and skid roads should not be created within 100 feet of either Road 80 or 82. Landings should be created off adjoining side roads. Slash should not be piled within 100 foot of either Road 80 or 82. Young tree thinning slash should be chipped or dispersed 100 feet away from Roads 80 and 82.	C, G, N, O, S, U, X
R8	Conduct prescribed burning of slash or underburning so that smoke would not intrude into Mt. Adams Wilderness on visibly sensitive days. Mt. Adams Wilderness is a Class I airshed located just north of the Gotchen Planning Area. The primary sensitive days are weekends from Memorial Day to Labor Day. Burning generally would not be conducted during these weekends, unless weather conditions will prevent smoke drift to the north.	A –Z, AA, BB

	REQUIRED MITIGATION MEASURES - HYDROLOGY -	Apply to
H1	Riparian Reserves and associated aquatic features that lie within or adjacent to cutting units will be designated on the ground during sale layout, and included on all sale area maps. The objective of this measure is to ensure that Forest Service staff and purchasers are aware of the location of these areas. (BMP T-4, T-7, T-8) *This measure will apply to all treatment areas listed in the column to the right, and any other treatment areas in which riparian areas are found.	Alt B:L,V, Z,AA,BB, Alt C:Z, AA,BB, EE,FF Alt D: Z
H2	Thinning will be permitted in Riparian Reserves, but no trees will be cut within 25-foot of stream channels. No heavy equipment will be permitted to operate in the Reserves for logging or fuels treatment purposes. The objectives of this measure are to retain all vegetation that is important in providing bank stability or in protecting streambanks; and to protect soils, vegetation, stream channels, microclimate, and water quality in the Riparian Reserves. (BMP W-3, T-8)	Alt B:L,V, Z,AA,BB, Alt C:Z, AA,BB, EE,FF Alt D: Z
H3	Cross drains, water bars, and grade breaks will be incorporated into the design of temporary roads and approved by the contract administrator. Drainage features on temporary roads will be checked and maintained as necessary before the expected seasonal period of precipitation and before abandoning the work area for over one month. This measure is intended to minimize the transport of sediment into surface channels. (BMP T-8, T-13, R-9)	All units, All alternatives
H4	Erosion control work on roads will be accomplished before the end of the dry season. For areas requiring erosion control seeding, work will be completed to allow seeding prior to September 30. This measure is necessary to insure that erosion control features are in place and to allow germination and establishment of erosion control species prior to snowfall. (BMP T-13, R-2)	All units, All alternatives
H5	Roads to be decommissioned under this project will include the following treatments: road surface will subsoiled, waterbarred, seeded and fertilized; culverts will be removed and will have excavations shaped to a stable configuration; unstable fills will be stabilized and shaped for proper drainage; road entrances will be blocked to prevent subsequent vehicular access. Specific protocols for these treatments will be described in the decommission contracts. The objective of these standards is to ensure that sediment delivery during and following implementation of the decommissions will be minimized, and that streams and drainageways are stabilized	Alt C: All roads identified for decommission
H6	The following prescription will be followed within the Riparian Reserve of unit AA under Alternative C. 0 – 25 feet from the stream channel – No treatment. 25 – 60 feet from the stream channel – Conduct young stand thinning in areas where the average diameter of the trees is 6 inches or less. Retain all ponderosa pine, western larch, and western cedar. Space the remaining trees species (Douglas-fir and grand fir) (6" dbh or less) 12'x 12' apart. Reduce the fuels by hand piling the slash and burning the piles. 60 – 170 feet from the channel – same as above, except widen the spacing to 14'x 14'. The objectives of this measure focus on meeting Aquatic Conservation Strategy Objectives for treatments in the Riparian Reserve: 1) Retain all trees within the immediate area of the stream to ensure that any trees that are integral to bank stability are retained and to avoid creating conditions favorable to ungulate access to the stream; 2) Reduce thinning intensities near the stream to retain higher levels of canopy cover; 3) Treat the outer Reserve more aggressively to reduce competition between trees and to accelerate growth of desired (remaining) trees; 4) Promote species diversity and variability in stand density and structural character.	Alt C: Unit AA

	REQUIRED MITIGATION MEASURES -SILVICULTURE-	Apply to
T1	Conduct gopher surveys (early fall) prior to planting. If 20 percent or more of the plots show a presence of fresh gopher mounds then control is needed. Control pocket gophers by grain baiting (summer/early fall) for up to 3 years after hand planting conifers in units within Matrix. Grain should be treated with no less than 0.45 percent strychnine alkaloid formulation and registered by the EPA for pocket gopher control.	Units A, B, C, D, F, H, I, J, K, and L
T2	Conduct raking or rapid mopup around large, old growth ponderosa pine trees if burning is conducted in the spring. If raking is selected as the mitigation measure, it should occur at least one growing season prior to burning in order to allow these roots to regrow before placing additional stress on the tree from burning. The rapid mopup technique consists of primarily spraying water or foam around the base of the pine, as soon as possible after the flame front passes.	Units H, I, J, K, and L
T3	Protect the Oregon white oak component during project implementation using directional felling away from oak stands.	Unit E
T4	Reduce activity fuels within 100 feet of Road 8225 by hand piling the logging slash and burning the piles.	Unit Y
T5	Utilize the current C or CT provision specification that requires the purchaser to "scribe" any cut stump that shows an infection of laminated root rot. After logging, prepare a map of the infection centers (based on the "scribes") for permanent documentation. For service contracts or force account work, require the same language within the project specifications. Only plant disease tolerant conifer species (ponderosa pine, lodgepole pine, western larch, and/or western red cedar that have some resistance to the fungus or hardwood species, which are immune, within these infection centers.	All Units
T6	In Units having low levels of annosus root disease, treat all freshly cut live true fir stumps surfaces (12" diameter or greater) with a light coating of granular Sodium Tetraborate Decahydrate or Disodium Octaborate Tetrahydrate. Utilize the current C or CT provision specification that requires the purchasers to treat stumps. For service or force account work, require the same language within the project specifications. Plant only conifer species (Douglas-fir, ponderosa pine, lodgepole pine, western larch, and/or western cedar) that are resistant to annosus root disease or hardwood species, which are immune, within infected stands.	All Units
T7	To minimize the wounding (bark slough) of residuals and site disturbance, restrict log skidding/piling operations from April 15 to July 15 in all units, except the light forest retention units (Unit A).	All Units
T8	Where armillaria is causing tree mortality, regenerate the site using species observed to be less susceptible on that site.	All Units
T9	Discriminate against highly susceptible host species (true fir) when selecting residual trees during thinning and partial harvest operations.	All Units
T10	Plant Douglas-fir in the shaded portions of the individual units while planting the ponderosa pine and western larch in the more open areas.	Units B, C, D, F, H, I, J, K, L
T11	Construct an enclosure around the Gotchen meadow perimeter, approximately 11 acres, to exclude cattle/big game and allow for the natural regeneration of aspen to occur. The enclosure will be designed to not distract or reduced the historic character of the area.	Unit Z

	REQUIRED MITIGATION MEASURES - WILDLIFE -	Apply to
W1	Protect spotted owls by restricting habitat disturbing and smoke-generating activities within harassment distance (65 yards) of the best 100 acres of suitable habitat surrounding an occupied spotted owl activity center. Timber felling, precommercial thinning, yarding, and slash-burning are prohibited during the nesting-fledging season of March 1 through August 30. Note: This mitigation is only applicable if spotted owl monitoring indicates the historic owl site in Unit BB becomes re-occupied.	Alt B & D: N, BB. Alt C: BB
W2	Protect spotted owls from potential harm and disturbance by restricting habitat –disturbing and smoke-generating activities within unsurveyed NRF habitat. Timber felling, yarding, and slash burning is prohibited during the nesting – fledging season of season of March 1 – August 31.	Matrix Units E, F, G
W3	Protect spotted owls from potential harm and disturbance by restricting habitat-disturbing and smoke-generating activities adjacent to unsurveyed NRF habitat (within 65 yards). Timber felling, yarding, or slash burning is prohibited during the early nesting season of March 1 – July 1.	Matrix Units A,B,C,E, G
W4	Retain all live trees ≥21” dbh. Large trees provide key habitat features for spotted owls, neo-tropical birds, forest bats, flying squirrels, etc.	All LSR units, all alts.
W5	Retain all hollow trees (if identifiable) for wildlife roosting/denning/nesting habitat. Hollow trees are key habitats for forest bats, Vaux’s swift, marten, black bear, etc.	All alts, all units.
W6	Snag and Down Log retention guidelines in Shaded Fuelbreaks: Snags ≥12”dbh, ≥20’ ht. Retain 7 snags/acre, select from largest snags available. Retain all PIPO and PSME, snags ≥21” dbh unless removal is required for safety purposes. Retain down logs to provide approximately 2% ground cover per acre. Logs: ≥15” dbh or largest available, approximately 8-12 whole trees/acre depending on size. Objective is to retain 50% hard, 50% soft snags and down logs if available. Snag and down log retention guidelines will meet or exceed the 100 population potential guidelines for NWFP protection species (ROD, p.45 and GPNF Management Indicator Species (ie woodpecker species, marten, pygmy nuthatch, flammulated owl, and bats).	Alt B, D. LSR Units N,O,P,Q,V, S,T,U, X Alt C: S, X, EE, FF
W7	Snag and Down Log retention guidelines in LSR fuels reduction and reforestations units: Snags ≥12”dbh, ≥20’ ht, Retain 10 snags/ acre, select from largest snags available. Retain all PIPO and PSME, snags ≥ 20” dbh unless removal is required for safety purposes. Retain down logs to provide approximately 2% ground cover per acre. Logs: ≥15” large-end diameter, dbh or largest available, approximately 8-12 whole trees/acre. Objective is to retain 50% hard, 50% soft snags and down logs if available.	Alts B,C,D: H, I, J, K, L, M. Alt C: AA, CC, DD,
W8	Snag and Down Log retention guidelines in Matrix units: Snags: ≥ 12” dbh, ≥ 20’ ht, retain 6 snags/acre. Select from largest available, favor PIPO and PSME snags for retention. Logs: ≥ 16” dbh and ≥ 16’ length, 120 linear ft/acre (1 whole trees/acre).	All Alts, All Matrix Units
W9	Retention Areas: Retain a minimum of 10.5% of the planned acreage in untreated retention patches ≥0.5 acres. Retention areas provide habitat diversity and maintain undisturbed habitat important for neo-tropical birds and small mammals.	Matrix units, Alts C & D: H, I, J, K, L, M, Y
W10	Retention Areas (continued): Retain a minimum of 15% of the planned acreage in untreated retention patches ≥0.5 acres. Retention areas provide understory habitat diversity and maintain undisturbed habitat important for neo-tropical birds and small mammals.	Alt C: AA, CC, DD

REQUIRED MITIGATION MEASURES - WILDLIFE -		Apply to
W11	Protect great blue herons from disturbance by restricting habitat disturbing and smoke-generating activities within 660 feet of the rookery during the March 1 to August 31 nesting period.	Alt: B, D: K, BB Alt C: K, AA
W12	Protect mardon skippers by prohibiting the use of vehicles or heavy equipment in open-grass habitats occupied by mardon skippers. Directionally fell timber away from identified areas to avoid yarding damage to mardon skipper habitat, and to minimize the potential for harming individuals. (Maps of specific protection areas will be provided for implementation).	All Alts: A, F, J, R, W, X, Z
W13	Protect mardon skippers from harm during prescribed-burn operations by creating a fuelbreak (handline) around open grass habitats occupied by mardon skippers, and ensure that these areas are not burned. (Maps of specific protection areas will be provided for implementation).	All alts: Unit R
W14	Vegetation and fuels management in open-grass habitats occupied by mardon skippers will be done by hand (i.e: chainsaws) to minimize ground disturbance and potential for harming individuals. Hand pile and burn fuels away from open patches of grass/forb habitat.	All alts: Units R, Z
W15	Retain 1 unburned slashpile (10'x10') per acre to provide cover habitat for marten and small mammals.	Matrix units A,B,C,D, E, F, G. LSR units: H,I, J,K,L,M,X, Y, AA, CC, DD

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on measurement methods for each of the significant issues where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2-7. Comparison of Alternatives.

Significant Issues and Associated Measurement Methods	A	B	C	D	
Issue: Effectiveness of risk reduction activities and risks associated with fire-threat reduction practices					
Hazard Reduction - Acres of surface fuels treated (includes ladder fuel treatments):	0	2121	2355	2076	
Effective Fuelbreaks - Acres of continuous Fuelbreaks created/maintained:	0	475	173	469	
Prescribed Fire Returned - Acres treated and maintained utilizing prescribed fire in high fire/frequency/low intensity areas (includes multiple treatments):	0	3014	3646	2950	
Issue: Northern Spotted Owl and Designated Northern Spotted Owl Critical Habitat Unit (CHU) WA-42					
Acres of NRF habitat treated within the Gotchen Planning Area:	0	749	1051	731	
Acres of NRF habitat converted to dispersal habitat:	0	320	83	149	
Acres of NRF habitat converted to non-suitable habitat:	0	66	76	0	
Percent of NRF habitat treated in Gotchen LSR:	0	4.4%	7.3%	4.2%	
Post-action percentage of NRF habitat in Gotchen LSR:		73.8%	75.1%	75.2%	
Post-action percentage of NRF habitat in CHU WA-42:	67	66.6%	67.0%	67.0%	
Alternative results in incidental take of spotted owls?	No	Yes	Yes	Yes	
Issue: Public Road Access and Dispersed Recreation					
Mileage of roads closed or decommissioned within the Gotchen Planning Area:	0	24.8	Alt		24.8
			C	C-1	
			24.8	0	
Number of available dispersed campsites:	30	20	20	30	20
Issue: Riparian Areas Treated					
Acres of riparian area treated:	0	44	57	38	