Gold Crown
Fuels Reduction Project

Forest Vegetation Resource Report

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Introduction

The existing condition of forest vegetation in the Gold Hill area is not sustainable. Critical vegetative components of the area are in short supply, completely lacking, and/or at high risk due to overcrowded, dense forest stands and nearly homogenous stands of Douglas-fir. These conditions are largely the result of almost a century of successful fire suppression, the effects of white pine blister rust, and past logging in the early part of the twentieth century. Root disease and bark beetles are killing trees, including large-diameter relics within the project area. Western white pine, once a significant vegetative component of landscapes across North Idaho, is now an incidental component due to blister rust disease. Historically, numerous natural openings and low-density forest stands occurred in this area due to rock outcrop complexes and the historic fire regime. Such openings provided important ecological diversity and wildlife habitat. Now these openings and low-density stands are much smaller or absent, as abundant, shade-tolerant trees have encroached upon these areas. In addition heavy fuel loading, dense stand conditions, a preponderance of shade-tolerant understory trees, and ongoing overstory mortality have significantly elevated the risk of a catastrophic wildfire event. Proposed vegetation and fuels treatments would result in more sustainable forest cover types, diverse forest stand structures, and would reduce the risk of a landscape-level, stand-replacing wildfire event in the project area.

Regulatory Framework

The legal and regulatory framework for the management of forest vegetation resources in the Idaho Panhandle National Forests includes:

- Idaho Forest Practices Act
- Multiple-Use Sustained Yield Act of 1960
- Forest and Rangeland Renewable Resources Planning Act of 1974
- National Forest Management Act (NFMA) of 1976
- National Environmental Policy Act (NEPA) of 1969
- Idaho Panhandle National Forests 1987 Forest Plan

Forest Service Regulations and Policies

The Forest and Rangeland Renewable Resources Planning Act (RPA) as amended, states, “It is the policy of Congress that all forested lands in the National Forest System be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans” (RPA 1974, sec. 3 (d)(1); NFMA 1976, sec. 4).

RPA and NFMA (sec. 6 [g]) also indicate that plans will be developed which specify guidelines to:

- Identify the suitability of lands for resource management;

- Provide for the diversity of plant and animal communities based on the suitability and capability of land areas to meet multiple-use objectives;
- Where appropriate, to the degree practicable, preserve the diversity of tree species similar to that existing in planning area;
- Insure that timber will be harvested from National Forest System (NFS) lands only where soil, slope, or other watershed conditions will not be irreversibly damaged; the lands can be adequately restocked within five years after harvest; protection is provided for streams, streambanks, shorelines, lakes, wetlands and other bodies of water where harvests are likely to seriously and adversely affect water conditions and fish habitat; and the harvesting system used is not selected primarily because it will give the greatest dollar return or the greatest output of timber.

This section of RPA and NFMA goes on to state that any cut designed to regenerate an even-aged stand of timber must be determined to be appropriate to meet the objectives and requirements of the land management plan.

Prior to harvest, stands of trees shall generally have reached culmination of mean annual increment of growth (RPA and NFMA sec. 6 (m)(l). This does not preclude the use of sound silvicultural systems such as thinning and other stand improvement measures, and allows salvage or sanitation harvest following fire, wind throw, or other catastrophe or within stands in imminent danger of insect and disease attack.

Forest Service policy (USDA Forest Service 2004, FSM 2470) and Regional guidelines (USDA Forest Service 1994, FSH 2409.17) direct land managers to:

1. Use only those silvicultural practices that are best suited to the land management objectives for the area. Consider all resources, as directed in the appropriate forest plan.

2. Prescribe treatments that are practical in terms of cost of preparation, administration, transportation systems, and logging methods.

3. Monitor practices; using procedures specified in forest plans to ensure objectives are met.

4. Before scheduling stands for regeneration harvest, ensure, based on literature, research, or local experience, that stands to be managed for timber production can be adequately restocked within five years of final harvest. Five years after final harvest means five years after clearcutting, final overstory removal in shelterwood cutting, the seed tree removal cut in seed tree cutting or after selection cutting.

5. Perform all silvicultural activities in the most cost-effective manner consistent with resource management objectives.

6. The size of tree openings created by even- aged silvicultural methods will normally be 40 acres or less. With some exceptions, creation of larger openings will require 60-day public review and Regional Forester approval.

7. For Forest management purposes, cut areas created by even –aged management will no longer be considered openings when both vegetation and watershed conditions meet management objectives established for the management area.

Forest Plan Direction

The IPNF Forest Plan provides direction for all resource management programs and resource activities on the IPNF. The Forest Plan consists of Forest-wide goals, objectives, and standards, as well as standards and guidelines specific to each Management Area, that provide for land uses and resource outputs. The IPNF Forest Plan embodied the provisions of the National Forest Management Act (NFMA) of 1976 and its implementation regulations, as well as those of other guiding documents.

Forest-wide goals and objectives related to the forest vegetation resources, and directed by the Forest Plan are as follows:

- Manage the forest resources to protect against insect and disease damage (IPNF 1987 Forest Plan, p. II-2).
- Timber management activities will be the primary process used to minimize the hazards of insects and diseases and will be accomplished primarily by maintaining stand vigor and diversity of plant communities and tree species (IPNF 1987 Forest Plan, p. II-8).
- Management activities will promote programs that provide a sustained yield of forest products consistent with the multiple use goals established in Regional Guides and the Forest Plan (IPNF 1987 Forest Plan II-8).
- Protection of timber stands from insect and disease problems will center on the silvicultural treatments prescribed for timber management activities (IPNF 1987 Forest Plan, p. II-10).
- To help provide for a diversity of plant and animal communities, habitats, and species, standards for old growth maintenance will be established. Approximately 10 percent of the Forest will be maintained in old growth as needed to provide for viable populations of old-growth dependent and management indicator species (IPNF 1987 Forest Plan, p. II-5).

Additional Forest Plan standards (USDA Forest Service 1987) that guided the development of the proposed treatments include:

Forest-Wide Timber Standards:

- Both even-aged and uneven-aged silvicultural systems will be employed on the IPNF and will meet resource and vegetation management objectives identified in the Forest Plan. Even-aged silvicultural systems will be applicable over most areas. Uneven-aged systems may be used to achieve special management objectives as determined by the ID Team during project analysis.
- Timber stands that are substantially damaged by fire, wind throw, insect or disease attack, or other catastrophe may be harvested where this salvage is consistent with

silvicultural and environmental standards. All management areas are open to this potential salvage activity except Management Areas 11 and 14.

- Recommended changes in timber resource land suitability from the approved Forest Plan will be based upon the criteria contained in 36 CFR 219.14(a). Changes from suitability classification will be done in accordance with the procedures outlined in Appendix M.
- Reforestation will normally feature seral tree species, with a mixture of species usually present. Silvicultural practices will promote stand structure and species mix that reduce susceptibility to insect and disease damage.
- Project design will provide for site preparation and slash hazard reduction practices that meet reforestation needs of the area.
- Timber harvest schedules and access will be coordinated with intermingled landowners where applicable.
- Openings created by even-aged silviculture will be shaped and blended to forms of the natural terrain to the extent practicable; in most situations they will be limited to 40 acres. Creation of larger openings must conform to current Regional guidelines regarding public notification, environmental analysis and approval.
- An area of National Forest land will no longer be considered an opening when vegetation meets management goals established for the management area in accordance with FSM 2471.1. Lands in other ownership within or adjacent to National Forest land will be included in the analysis when planning openings.
- The silvicultural prescription for each stand will establish the level of management intensity compatible with the management area goals. Preferred species management as identified in the silvicultural prescription will consider both biological and economic criteria.

Forest-Wide Old Growth Standards:

- A definition for old growth is being developed by a Regional Task Force and will be used by the Forest when completed. As an interim guideline, stands classified as old growth should meet the definition given by Thomas (1979).
- Maintain at least 10 percent of the forested portion of the IPNF as old growth.
- Select and maintain at least five percent of the forested portion of those old growth units that have five percent or more of existing old growth.
- Existing old growth stands may be harvested when there is more than 5% in an old growth unit, and the Forest total is more than 10%. Old growth stands should reflect approximately the same habitat type series distribution as found on the IPNF.
- One or more old growth stands per old growth unit should be 300 acres or larger. Preferences should be given to a contiguous stand; however the stand may be

subdivided into stands of 100 acres or larger if the stands are within one mile. The remaining old growth management stands should be at least 25 acres in size. Preferred size is 80 plus acres.

- Roads should be planned to avoid old growth management stands to maintain unit size criteria.
- A long-term objective should be to minimize or exclude domestic grazing within old growth stands.
- Goals for lands to be managed as old growth within those lands suitable for timber production are identified in the management area prescriptions.

Forest-Wide Forest Protection Standards:

- Use integrated pest management methods that provide protection of forest resources with the least hazard to humans, wildlife and the environment.
- Use silvicultural methods and schedule practices that reduce the development and/or perpetuation of pest problems.
- Vegetation management will favor the use of fire, hand treatment, natural control, or mechanical methods wherever feasible and cost effective. Direct control methods, such as chemical or mechanical, may be used when other methods are inadequate to achieve control.

The IPNF Forest Plan designated management areas (MAs) to guide the management of National Forest lands within the IPNF. Each MA provides for a combination of activities, practices, and uses appropriate to the management goals and objectives of that specific management area. Management areas are described in detail in the IPNF Forest Plan on pages III-1 through III-87. The Gold Crown Fuels Reduction Project (FRP) area is comprised of lands in three MAs and riparian habitat conservation areas (RHCAs). Summaries of the management area goals specific to the Gold Crown FRP project area are as follows:

Management Area 1: Consists of lands designed for timber production that are distributed throughout the Forests. The site-specific management goal for this MA is to provide cost-effective timber production while protecting soil productivity, adhering to State water quality standards, providing wildlife habitat, providing opportunities for dispersed recreation and meeting visual quality standards.

Management Area 9: Consists of lands designated as non-forest lands, lands not capable of producing industrial products, lands physically unsuited for timber production, and lands capable of timber production but isolated by the above landtypes or nonpublic ownership. These areas are managed to maintain and protect existing improvements and resource productive potential with minimum investments.

Management Area 4: Consists of lands designated for timber production within big game winter range. The management goal for this MA is to provide sufficient winter range requirements, through scheduled timber harvest and permanent forage areas.

Inland Native Fish Strategy (INFS) Riparian Habitat Conservation Areas: The standards and guidelines under INFS provide the management direction for RHCAs. This direction replaced previous forest plan direction for managing riparian areas using standards and guidelines described for Management Area 16 (Refer to Hydrology/Fisheries reports for further details).

Healthy Forest Restoration Act (HFRA)

As discussed in Chapter 1 of the EA, this project is an authorized project under the HFRA. As such, there is some direction regarding vegetation management. Specifically, HFRA provides direction regarding when, and under what conditions, it is appropriate to conduct treatments in old growth stands and also presents direction on what sizes of trees and types of treatments should generally be used. Because this project does not propose any treatments in old growth stands, that topic is not discussed here. However, in regards to tree sizes and treatments the HFRA says the following [HFRA, Sec. 102 (f)]:

> (f) LARGE TREE RETENTION.—
> (1) IN GENERAL.—Except in old growth stands where the management direction is consistent with subsection (e)(2), the Secretary shall carry out a covered project in a manner that—
> (A) focuses largely on small diameter trees, thinning, strategic fuel breaks, and prescribed fire to modify fire behavior, as measured by the projected reduction of uncharacteristically severe wildfire effects for the forest type (such as adverse soil impacts, tree mortality or other impacts); and
> (B) maximizes the retention of large trees, as appropriate for the forest type, to the extent that the trees promote fire-resilient stands.
> (2) WILDFIRE RISK.—Nothing in this subsection prevents achievement of the purposes described in section 2(1).

Issues

Several forest vegetation and/or forest health issues were discussed during initial scoping of the project, both within the interdisciplinary team, amongst agency peers, and at community meetings. The following issues were noted, and the project proposal, as well as the incorporated design features, addresses those pertinent issues.

- Address intensity and extent of root disease pathogens in the project area, as well as the other stressors which interrelate with root disease, including drought stress and Douglas-fir bark beetle activity;
- Address the need to treat slash created by harvest or fuel reduction activities, especially adjacent to private property;
- Address the forest successional changes (noted even by adjacent landowners) over the last thirty years, as forests have become more dense;
- Retention of old growth stands, as well as large old individual trees (outside of old-growth stands).

Methodology for Analysis

Direct and indirect effects of management activities were measured by analyzing changes to species composition and stand structure. Direct and indirect effects to the forest vegetation resource as a result of the alternatives are anticipated to persist approximately 20 years. Most effects would not only be apparent within this period of time, but would also incur enough ecological processes and disturbance to measure effects over time. Some discussion refers to the general progression of structural stages over time, which could occur over the long term, perhaps up to 200 years.

Many methods were used to consider existing conditions and past occurrences in the project area, pertaining to species composition and stand structure. Aerial photographs (both recent and historic dating back to 1944) and Geographic Information Systems (GIS) coverages were interpreted, and TSMRS and FACTS databases were utilized.

Then, in order to confirm database data, obtain additional data, and better understand and determine existing condition of forest vegetation in the Gold Crown FRP area, the project forester performed numerous walk-through stand examinations within the project area. The existing conditions of forest vegetation provided a baseline of vegetation conditions to compare differences in environmental effects between alternatives. Although some of the exams were in the general project area, most of the exams were performed within proposed treatment areas. Exams were performed with the intent to understand species composition and diversity, habitat types present, stand stocking rates, canopy closure, basal area averages, fire hazard ratings, general forest health, past ecological processes, current forest stand trends, as well as the degree/extent of decadence, disease or insect infestation within each treatment or activity area. In addition, observations were noted for various wildlife use, topography, roads, general soils and hydrologic information, cultural resources, visual resource issues, understory plant species present, as well as general stand descriptions and recommendations for silivicultural prescriptions. These walk-through examinations also helped the forester and fuels specialist determine and prioritize the areas in greatest need of treatment.

Numerous, random, variable plots were sampled within each proposed treatment unit. A cruising scale was used with varying basal area factor (BAF) (depending upon the density of the forest stand) to determine which trees would be sampled within the variable plot. Sampled trees, greater than six inches diameter at breast height (DBH), were measured utilizing a standard logger’s tape and Suunto clinometer. Each tree was recorded as to species, size and height and was evaluated for presence and extent of specific decay or damage. Trees less than six inches DBH were estimated as to diameter and height; all other observations were recorded the same as larger trees. In addition, at the center of each variable plot, fixed, 1/50-acre plots were implemented to evaluate trees/stems per acre. Within each variable plot, slope percentage, aspect, elevation, forest type, fire hazard, stand structure, percent canopy closure and approximate age class (or classes) was described. Slope percentage was measured with a clinometer by taking an average of three to five measurements per plot. Fire hazard ratings were determined by using an estimated fire model class, base canopy height, as well as types and densities of various fuel components (ground debris/fuels, understory plant composition, live ladder fuels, canopy closure and density, as well as dead and dying trees). Canopy closure was

determined by manually using a spherical densiometer to measure the actual percent of canopy closure for the first several samples. Then, because of the extreme time consumption of this method, the forester calibrated estimates to the actual measurements and began estimating canopy closure. Two times after the switch to estimation, the forester checked and recalibrated estimations to an actual densiometer measurement, with little change. Therefore, canopy closure estimations were very accurate.

After variable plot sampling was completed in the field, data was used in the office to calculate average basal areas, average canopy closure, percent species composition and average fuel models for each proposed treatment or activity area.

Existing Condition

Table 1 displays the existing forest cover type and stand structure classes in the Gold Crown FRP area. The existing condition information represents the cumulative effects of past disturbances and activities including past harvest, fire suppression, disease and insect attack, and vegetation growth to the present.

Most of the current vegetation in the Gold Crown FRP project area established following large fires in 1910, 1922, or other large unrecorded fire(s) which occurred between 1926 and 1931. Some forest stands (like a few within the northwestern aspect in the Hays Gulch drainage) escaped these last large fires in the project area. However, many stands were completely consumed and began the process of regeneration. Prior to 1910, fire had a major influence on forest vegetation in the project area [Interior Columbia Basin Ecosystem Management Project (ICBEMP) Scientific Assessment (Quigley and Arbelbide 1997), the Northern Region Overview (USDA Forest Service 1998) and data from the Pend Oreille Geographic Assessment (USDA Forest Service, unpublished report).] On drier sites, short-interval, low-intensity, underburning fires maintained stand structures such as large, open-grown ponderosa pine, western larch, and Douglas-fir. On moister sites, mixed-severity fires favored tree species like western larch, which are adapted to survive fire, and western white pine, which are adapted to reproduce and compete following fire.

Historic logging, including small sales that occurred between 1924 and 1940 likely removed both sound snags and fire-surviving trees that had high economic value. This logging removed trees that likely could have contributed both structural and species diversity to the stands that exist today.

The more recent timber sales in the project area, including the Grouse Mountain Sagle timber sale (1987), the Gold Hill timber Sale (1995), and the Big Grouse timber sale (1996) timber sale have influenced the existing condition of the forest vegetation in the Gold Crown FRP project area (see vegetation cumulative effects section). These timber sales resulted in some positive effects to both species composition and forest structure in the project area. Abundant overstory structure, generally of preferred species, was retained in treated areas. These trees are likely to continue contributing to both the structure and species diversity of the treated areas. Additionally, areas treated with regeneration harvesting were planted with western white pine, ponderosa pine, and larch. These planted trees are now sapling size and will provide resilient, sustainable forest cover as they grow.

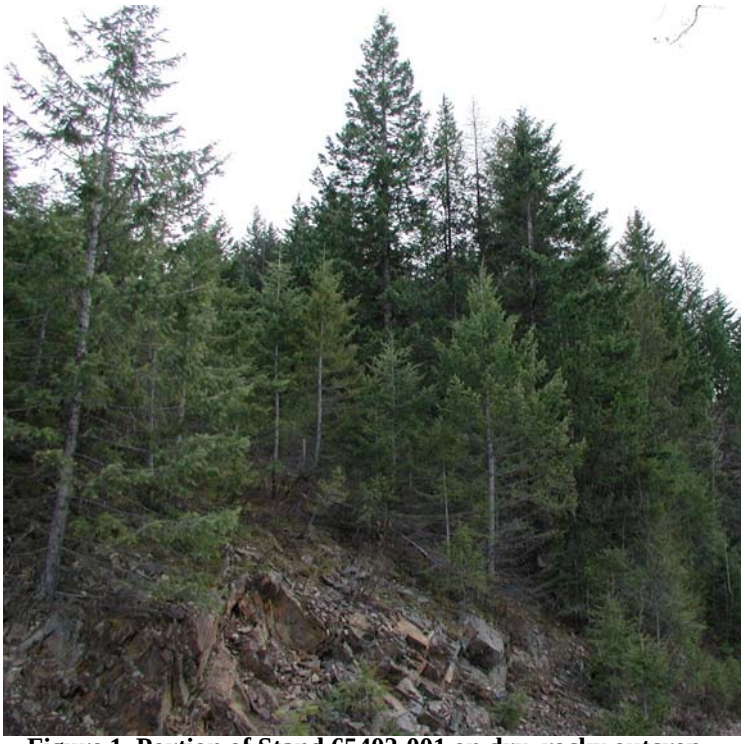

Figure 1. Portion of Stand 65402-001 on dry, rocky outcrop.

On dry sites within the project area, lack of recent fire has allowed thick stands of trees to develop and encroach upon what once were natural openings (Figure 1). As a result, natural openings that were historically kept open by fire have become smaller or absent. Most dry sites are now homogenous, over-stocked, closed-canopy stands dominated by Douglas-fir (Table 1).

Without the influence of fire to naturally thin stands, and with the added shade created by dense overstory components, Douglas-fir seedlings have a competitive advantage over ponderosa pine seedlings for germination and establishment in these stands. Increased stand densities are crowding the once open-grown ponderosa pine overstory trees that survived the last large fires in the area (in 1910, 1922, and/or 1926-31.) Competition for limited resources exacerbates drought stress and is predisposing even the relic trees to insect attack, including western pine beetles and Douglas-fir bark beetles. Moreover, intense competition in these dense stands for limited resources is causing competition-based mortality in numerous size classes. This process within forest stands is often referred to as self-thinning. However, as trees die and fall over, the accumulation of coarse, woody debris on the ground contributes significantly to increased fire hazard. Because Douglas-fir and grand fir are highly susceptible to endemic root diseases in this area, the preponderance of these species facilitates the extensive spread of root disease-caused mortality. Furthermore, during the last few years an increase in Douglas-fir bark beetle (DFBB) activity in the area has also been observed. DFBB signs are common on recent wind-thrown trees, as well as many live trees (especially those already stressed by root disease or drought stress.) All of these factors contribute to increased fuel loading and a decreased likelihood that a fire could be quickly, easily, or even successfully suppressed.

Figure 2. Portion of Stand 65401-016 illustrating competition stress, as well as insect and disease activity.

Figure 3. Portion of stand 65402-003 illustrating intense competition and substantial ground fuel accumulations. Note the fire snag in the background- the result of fires in the 1920's.

On moister sites, lack of disturbance (primarily mixed-severity fire) coupled with the unintentional introduction of white pine blister rust and subsequent widespread white pine mortality, has resulted in homogenous, over-stocked stands dominated by Douglas-fir, grand fir, and western redcedar, with lesser amounts of healthy western larch and negligible amounts of white pine (Figure 3).

As on dry sites, root diseases and bark beetles are causing extensive mortality of Douglas-fir and grand fir throughout the project area. Western larch are generally "whippy or spindly" with poor height-to-diameter ratios and small crowns due to intense competition from crowded, overstocked stands, and many larch are infested with parasitic dwarf mistletoe.

There is an increased proportion of western redcedar and grand fir on moderately-moist, mid- and upper slope sites relative to their historic landscape distribution. The presence of these shade-tolerant species on these sites increases crown densities, creates fuel ladders (or fuel continuity from the ground level up into the uppermost canopy of the forest stand), increases the risk of crown fire, and reduces the chance of successful fire suppression. Widespread mortality and fuel ladders would result in fire behavior best described by a fuel model 10 (Anderson 1982; also see Fire and Fuels Report). The distribution of these conditions across the project area has set the stage for higher risk of an intense, stand-replacing fire event if left untreated.

Desired Condition

Forests are not static things, given that trees, which comprise a forest, are living things. All living things have an expected lifespan, which is influenced by environment, disturbance, and stress. To maintain healthy, sustainable forest ecosystems in the long-term, species composition and forest structures must be adapted to disturbances such as insects, diseases, fire, and climatic variability. In an adaptable ecosystem, species diversity would be such that even as individuals, groups of species, or even entire forest stands succumb to certain stressors, the remainder of the forest can still thrive, adapt, or regenerate successfully. In other words, resiliency and diversity are very important to overall, long-term forest and ecosystem health.

To achieve these conditions, seral species such as western larch, western white pine, and ponderosa pine should be well represented across the project area. Long-lived, early seral species such as these are adapted to the disturbances common to the Gold Crown FRP area. These particular species are resistant to the root disease endemic to the area, regenerate quickly following large-scale disturbances such as fire, and both larch and ponderosa pine have especially thick bark which enables them to survive most low- or mixed-severity fires. Increases in the current composition of these early seral species, combined with a decrease in the current composition of Douglas-fir, grand fir, and western redcedar would better represent the historic species mix in this area and be better suited to adapting to changes and disturbance in the future. Furthermore, because these species are less likely to die prematurely due to insects, disease, and fire disturbances, they have a far greater potential for reaching large diameter size classes and older age classes than many of the shade-tolerant species currently proliferating in the area.

Ideally, both immediately and far into the future, forest structures would have only scattered, discontinuous ladder fuels and lighter fuel loading than at present. Future conditions should also have large diameter, and older age class trees represented at higher percentages than at present. These conditions would minimize fire damage and risk to people, private property, and natural resources values. The risk to people and property is especially important, as continued development and population within this area of wildland-urban interface is expected to increase.

Relative to existing forest conditions, desired stands on moist sites would contain more western white pine, western larch and ponderosa pine and less Douglas-fir and grand fir. These vegetation conditions would be similar to those that occurred prior to European settlement and the unintentional introduction of white pine blister rust. White pine-dominated cover types once occupied 24.3% of forestland in the Pend Oreille sub-basin of north Idaho (USDA Forest Service, unpublished report). Two percent of the Pend Oreille basin and 1.8 percent of the Gold Crown Fuels Reduction Project area are currently classified as white pine forest type. Clearly, the desired future condition includes expanding western white pine into a significant forest type component. Similarly, western larch-dominated cover types once occupied approximately 18 percent of the Pend Oreille basin of north Idaho (USDA Forest Service, unpublished report). The larch cover type currently accounts for only 3.8 percent of NFS stands in the Pend Oreille sub-basin and 3.3 percent of forest stands in the Gold Crown Project area. Hence, increasing the preponderance of healthy western larch in the project area would be very desirable.

Desired stand conditions on drier sites would resemble those found historically in the Pend Oreille subbasin when frequent, light, ground fires maintained open-grown stand structures, dominated by large ponderosa pine, western larch and Douglas-fir. Large, open-grown trees, with fewer young understory trees, would typify dry sites. Desired stands would have fewer trees, fewer (but larger) snags and less down woody fuels compared to now.

Environmental Consequences

Table 1 displays the existing forest cover type and structure, as well as changes in forest vegetation predicted for both Alternative A (No Action) and Alternative B (Proposed Action) over the course of the next 20-40 years.

Table 1. Existing forest cover type and structure compared to alternatives A and B.

Unit	Existing Forest Cover Type	Existing Dominant Stand Structure Class	No-Action Forest Cover Type	No-Action Dominant Stand Structure Class Potential	Proposed Action Forest Cover Type	Proposed Action Dominant Stand Structure Class Potential
1	Douglas-fir	small to medium	Douglas-fir/ Cedar	small to medium	Douglas-fir/ Cedar	medium to large
2	Douglas-fir/ Cedar	small to medium	Douglas-fir/ Cedar	small to medium	Larch/ white pine	large
3	Cedar	small to medium	Cedar	small to medium	Cedar/ white pine	large
4	Douglas-fir	small to medium	Douglas-fir	small to medium	Larch/ Douglas-fir	medium to large
5	Douglas-fir	small to medium	Douglas-fir	small to medium	Ponderosa pine	Large
6	Cedar	small to medium and pole-size	Cedar	medium to pole-size	Cedar/ white pine	large
7	Douglas-fir	small to medium	Douglas-fir	small to medium	Douglas-fir/ ponderosa pine	medium to large
8a	Douglas-fir	small to medium	Douglas-fir	medium	Douglas-fir/ Larch	large
8b	Douglas-fir	small to medium	Douglas-fir	medium	Cedar/ larch	large
8c	Douglas-fir	small to medium	Douglas-fir	medium	Larch	large
8d	Douglas-fir/ Cedar	small to medium	Douglas-fir/ Cedar	medium	Cedar/ White pine	medium to large
9	Cedar	small to medium and pole-size	Cedar	medium to pole-size	Cedar	large
10	Douglas-fir	small to medium	Douglas-fir	small to medium	Ponderosa pine/ Larch	large
11	Douglas-fir	small to medium	Douglas-fir/ Cedar	small to medium	Cedar/ Larch	medium to large
12a	Douglas-fir	small to medium and pole-size	Douglas-fir	medium to pole-size	Douglas-fir	large
12b	Douglas-fir	small to medium	Douglas-fir/ Cedar	medium to pole-size	Douglas-fir/ Larch	medium to large
14	Douglas-fir/ Cedar	small to medium	Douglas-fir/ Cedar	medium to pole-size	Larch/ White pine	large
15	Douglas-fir/ Grand Fir	small to medium	Douglas-fir/ Grand Fir	medium to pole-size	Douglas-fir/ Larch	medium to large
16	Grand Fir	small to medium	Grand Fir	small to medium	Larch	medium to large
17	Douglas-fir	small to medium	Douglas-fir	medium to pole-size	Douglas-fir/ Larch	medium to large
18	Douglas-fir	small to medium	Douglas-fir	small to medium	Larch	large
19	Douglas-fir	small to medium	Douglas-fir	small to medium	Larch	medium to large
20	Douglas-fir	small to medium	Douglas-fir	small to medium	Ponderosa pine/ Larch	large
21	Douglas-fir	small to medium	Douglas-fir	medium to pole-size	Larch/ Hardwoods	large
22	Douglas-fir	small to medium	Douglas-fir/ Cedar	medium to pole-size	Larch/ Cedar	large
23	Douglas-fir	small to medium	Douglas-fir/ Cedar	small to medium	Larch/ White pine	large
25	Douglas-fir	small to medium	Douglas-fir	small to medium	Ponderosa pine/ Larch	medium to large
26	Douglas-fir	small to medium	Douglas-fir/ Cedar	medium to pole-size	Larch/ White pine	large
27	Douglas-fir	small to medium	Douglas-fir	medium to pole-size	Larch/ White pine	large
28	Douglas-fir	medium to large	Douglas-fir	medium to large and brushfields	Ponderosa pine/ Larch	large
29	Cedar	small to medium	Cedar	medium to pole-size	Larch	large
30	Douglas-fir/ Cedar	small to medium and pole-size	Douglas-fir/ Cedar	small to medium and brush fields	Ponderosa pine/ Larch	large

Unit	Existing Forest Cover Type	Existing Dominant Stand Structure Class	No-Action Forest Cover Type	No-Action Dominant Stand Structure Class Potential	Proposed Action Forest Cover Type	Proposed Action Dominant Stand Structure Class Potential
31	Douglas-fir	small to medium	Douglas-fir	small to medium	Larch	large
32	Grand Fir	small to medium	Grand Fir	medium to pole-size	Grand Fir	medium to large
33	Douglas-fir	small to medium	Douglas-fir	small to medium	Ponderosa Pine	large
34	Cedar	small to medium	Cedar	medium to pole-size	Larch/ White pine	large

Alternative A—No Action

Direct Effects- No Action Alternative

Under the no action alternative, there would be no unscheduled road maintenance, road reconditioning, or road construction; no treatment of fuels; no cutting or harvest of trees; no associated precommercial thinning of young forest stands; no creation of hazardous fuel breaks; and no reforestation of desired species. Therefore, there would be no direct effects from this alternative on forest vegetation.

Indirect Effects- No Action Alternative

Indirect effects to forest vegetation would result from lack of treatment in the no-action alternative. Insect and disease-caused mortality would continue to occur throughout the project area. Hagle (2008) reported average mortality rates of approximately 20-30% per decade of Douglas-fir in root disease monitoring plots on similar habitat types in the Coeur d'Alene National Forest. Additionally, the lack of disturbance (in this case, mechanical thinning and/or prescribed burning of stands) will result in continued competition stress among plants and trees, for available water, nutrients, and sunlight. This competition stress works in conjunction with insect and disease impacts to vegetation to increase mortality rates.

Tree mortality would free individual growing space within stands, as trees die, lose their needles, and/or blow over. Shade-tolerant and fire-intolerant tree species and brush would occupy this newly available growing space, primarily because any openings created less than ¾-acre in size are generally too shaded to allow for early-seral species (ponderosa pine, larch, western white pine) germination and establishment. Furthermore, typically openings at least 6 acres (2.6 hectares) or larger are necessary to give shade-intolerant species, including white pine and larch, a competitive advantage over shade-tolerant species (Jain et al. 2004, Jain et al. 2008.) This in-growth of multiple age and size classes of shade-intolerant species would act as ladder fuels, and could make future fire suppression more difficult.

Douglas-fir and grand fir presently compete with ponderosa pine or western larch for any available growing space. As root disease-related mortality continues in the Douglas-fir and grand fir, more growing space becomes available for remnant pine and larch. However, without disturbance which specifically benefits shade-intolerant species, the regeneration of brush and shade-tolerant grand fir and Douglas-fir will proliferate. Furthermore, Douglas-fir and grand fir trees, which are highly susceptible to insects and disease, are likely to die before reaching old growth structural stages (USDA Forest Service, unpublished report; and Rockwell 1917). These conditions, coupled with high fuel accumulations from continued mortality, would make firefighting efforts more

difficult and lead to a higher risk of stand-replacing fire that would kill most trees should ignition take place (see Fire and Fuels Report).

Cumulative Effects- No Action

The added, cumulative effect of the no-action alternative on the forest vegetation resources are an impact created by considering the existing conditions (a result of past activities), coupled with future, foreseeable actions, and the no-action alternative (of not treating hazardous forest fuels in the project area.)

As stated already, the no-action alternative would indirectly influence the continuance of the trend for widespread root-disease and insect mortality in Douglas-fir and grand fir, a slow decline in shade-intolerant species, and a general increase in the risk of a landscape level, stand-replacing wildfire event.

When coupled with foreseeable, future actions including the need for continued fire suppression in this wildland-urban interface, further development of private land within the project area, and the maintenance or increase in recreational use levels, many potential cumulative impacts should also be considered. Furthermore, we must assume that in the absence of disturbance, the natural ecological processes in the forest would continue, including stem exclusion, forest insect and disease pathogens, tree mortality, and additional accumulations of coarse woody debris as trees die and fall over. The increased private land development and continued or increased recreational use in the area could increase the number of human-caused wildfire ignitions and further influence the forest vegetation across the project area. Therefore, the cumulative effect would potentially also amplify an increased risk of a landscape-level, stand-replacing wildfire event, as well as the associated widespread disturbance to existing vegetation cover types that such a wildfire would produce. In essence, a large portion of the project area could be regenerating or “starting over” from square one. With such an event, not only would widespread vegetation cover type changes occur, but there would also be potential effects to soil physical properties and productivity, which could potentially negatively influence forest vegetation.

Alternative B—Proposed Action

Overview of Proposed Action- Alternative B

The Gold Crown Fuels Reduction Project has three primary objectives:

- To reduce wildland fuels on NFS lands and lessen the risk of a landscape fire event in the area between Bottle Bay and Sagle Slough;
- To improve the health and resilience of the residual forest stands; and
- To enhance the effectiveness of future fire suppression tactics in the area.

In order to accomplish these objectives, the Sandpoint Ranger District is proposing to treat approximately 573 acres utilizing a combination of thinning, group selection harvests, regeneration harvest and subsequent reforestation, overstory removal and precommercial thinning of the understory, hand slashing and piling, and special treatments for rock outcrop areas. Methods for slash treatment proposed include mechanical piling (grapple-piling) and burning; machine piling of skyline corridors and

burning; prescribed broadcast burning; hand piling and burning; or yarding of unmerchantable material, with piling and burning to take place at landings. The fuels treatment, harvest methods, and slash abatement methods would vary, depending upon site conditions and residual stand characteristics. A summary of silvicultural and slash treatment methods is described in Table 2 below.

Table 2. Summary of treatments for the Gold Crown Fuels Reduction Project

Silvicultural Treatment	Acres	Slash/ Fuels Treatment	Acres
Thinning	128	Grapple Pile & Burn	86
		No slash treatment necessary	7
		Corridor Piles & Burn	35
Thinning with Group Selections	214	Grapple Pile & Burn	99
		Prescribed Broadcast Burn	110
		Yard Unmerchantable Material; Landing Pile & Burn	5
Regeneration Harvest	208	Prescribed Broadcast Burn	148
		Yard Unmerchantable Material; Landing Pile & Burn	39
		No slash treatment necessary	15
		Grapple Pile & Burn	6
Overstory Removal; Precommercially Thin saplings	6	Hand Pile & Burn (adjacent to road)	1
		No slash treatment necessary	5
Special- Hazardous Fuels Harvest on Rock Outcrops	11	Prescribed Broadcast Burn	11
Hand Thin	6	Hand Pile & Burn	6
Total Acres	**573**		**573**

Access to fuel reduction and forest restoration treatment areas would require new road construction, road reconstruction, and road maintenance activities. Proposed activities pertaining to roads in the project area include the following:

Table 3. Proposed Action road work summary

Transportation Activity Summary	
Action	**Miles**
Road Maintenance on 2642 and associated open road spurs	8.5
Reconditioning of Existing Roads	0.30
Permanent Road Construction	2.20
Temp Road Construction	0.13
Grand Total	**11.13**

Direct & Indirect Effects- Proposed Action

The proposed combination of thinning, thinning with group selection harvests, overstory removal, regeneration harvest, reforestation, and special hazardous fuels treatments in Alternative B would increase the acres within the project area dominated by long-lived, seral tree species (Table 1, table 4). Thinning practices would focus on removal of smaller diameter trees and those species or individuals most susceptible to pathogens in the area. Larger diameter trees and preferred, seral species would be favored for retention. As both a direct and indirect result of the proposed action, areas dominated by ponderosa pine would increase dramatically, western larch cover types would increase by approximately 354%, and white pine cover types would increase by approximately 238%. These changes would trend forest stands on NFS lands in the project area towards the desired future condition.

Table 4. Summary of forest cover type existing conditions compared to Proposed Action (Alt. B)

Forest Cover Type (acres)	Existing Condition	Alternative B	Proposed Change (Acres)	Proposed Change From Existing (%)
Birch/Hardwoods	0	8	+8	+800%
Western redcedar	422	397	-25	-6%
Douglas-fir	1698	1348	-350	-21%
Grand fir	92	87	-5	-6%
Western larch	108	383	+275	+354%
Ponderosa pine	0	59	+59	+5900%
White pine	59	141	+82	+238%
Non-forest	14	14	0	0%
Other NFS land	896	896	--	--
Project Area- Total	3,288	3,288		

The proposed action would also increase the acreage of hardwood cover types. Moreover, hardwood species such as birch, aspen, rocky mountain maple, and/or red alder would likely establish or re-establish a presence in regeneration harvest areas and those treatment areas which will be broadcast burned (as burning tends to rejuvenate hardwood sprouting.)

Indirectly, the increased vegetative diversity provided by the proposed action, would improve resistance to and resilience from insect and disease pathogens, fire, and climatic

variability. The proposed action would also enhance wildlife habitat variety (See wildlife section).

Blister-rust-resistant western white pine seedlings would be planted in regeneration harvest treatment areas. Planting of larch and ponderosa pine seedlings, which are more resistant to root disease and tolerant of fire than Douglas-fir and grand fir forest cover types, would also enhance forest diversity and increase management options, trending forest cover types towards more historic conditions.

The fuels treatments would focus on removing smaller size class trees, as well as those species most susceptible to the insect and disease pathogens in the area. Such harvesting would also remove trees competing with fire-surviving relics. Many natural openings would be restored to approximately their historic size. Treatments would increase protection of remnant trees and stands from fire.

Stand structures resulting from the 573 acres of proposed treatments (thinning, thinning with group selection harvests, overstory removal, regeneration harvests, special treatments-hazardous fuels, coupled with slash treatments through grapple-piled slash, excavator-piled corridors, or broadcast burning) would have reduced fuel loading, lower canopy density and reduced horizontal and vertical fuel continuity. These changes in fuel characteristics would result in less intense fire behavior and make a fire easier to control (See Fire and Fuels Report).

Direct effects to forest vegetation as a result of proposed road maintenance or road reconditioning activities are not expected. However, some direct effects to forest vegetation as a result of the proposed new, permanent road construction (2.2 miles) and new, temporary road construction (0.13 mile) are anticipated. Direct effects in these areas will be the approximate number of acres (either permanently or temporarily) taken out of the productive land base and placed under a road prism. For proposed, permanent road construction, this equates to approximately 3.7 acres of land currently associated with forest vegetation being cleared and permanently taken out of the productive land base in the project area. When considering the size of the project area and the need for future management of both the forest vegetation resources and hazardous fuels in the area, this affected acreage is insignificant.

When considering proposed, temporary road construction, this equates to approximately 0.2 acre of currently productive land base being cleared of vegetation. Again, this acreage is an insignificant effect when compared to the size of the project area and productive land base. Once the temporary road is decommissioned, there would be no lasting effects to the forest vegetation resource, as plants and trees can be re-established on the site.

Cumulative Effects- Proposed Action

The effects of the proposed vegetation treatments and road construction, reconditioning, and maintenance are expected to be localized to the proposed treatment units and affected area of new road construction. Therefore, the proposed actions do not individually or cumulatively affect vegetation outside of the project area. Activities on private, state, or other federal lands in the project area have also been considered within the past, present, and future foreseeable activities (see project file). The discussion in the “Existing Condition” section of this document is a determination of the cumulative effects to the

forest vegetation resource in the project area, resulting from past and ongoing activities. The past disturbances, activities, and natural occurrences have led to the existing condition.

The level of effects of each type of activity has the potential to vary due to location and implementation standards that guided the activity at the time. The following describes the effects each activity had, is having, or is expected to have on forest vegetation. A complete list of past and future foreseeable activities is located in the project file. Only the following past, present, and foreseeable actions that have been determined to have a cumulative effect on forest vegetation resources, when combined with the proposed action- alternative B, are considered here.

Timber Sales Prior to 1940

While little information about these activities exists, it is known that the Palmer Brothers' sale of 1935 to 1940 involved the salvage of blow-down trees in the Grouse Mountain area. It is likely that these small sales removed both sound snags, and valuable remnant large trees. If they hadn't been removed, these trees and snags would likely have contributed to stand structural and species diversity in the project area today. Additionally, within the project area, there is also evidence of past salvage activity in the Gold Gulch drainage. During walk-through examinations, high-stumped fire snags were clearly salvaged. No obvious skid trails in the area of this salvage activity were observed. Therefore, although there is no past record of this activity, sound reasoning suggests that this salvaging was probably performed after the last large fires in the area. Furthermore, the activities seem to have either been performed with horse logging or were potentially skidded or hauled downhill over snowpack to the Bottle Bay Road or Lake Pend Oreille (based on the lack of visible skid trails.) The vegetation treatments proposed in the Gold Crown Fuels Reduction Project would not add to any lingering structural or compositional effect of these historic harvests or salvage activities because the Gold Crown FRP is favoring retention of all large, relic trees and snags.

Gold Hill Timber Sale (1995)

The Gold Hill Timber Sale (GHTS) occurred within the localized area of proposed treatments for this project. In fact, some of the current, proposed treatments were developed to improve upon some of the activities which occurred with the Gold Hill Timber Sale. For instance, portions of proposed units 1, 8d, 10, 19, 22, 23, and 29 occur within previously treated portions of the Gold Hill Timber Sale. GHTS group selection harvests occurred west of proposed unit 6, and another shelterwood regeneration treatment occurred between the proposed units 18 and 14.

The portions of the Gold Hill Timber Sale which occurred within proposed units 1, 8d, 10, 19, 22, and 29 were very lightly thinned, with individual tree marking. During the Gold Hill Timber Sale, hazardous fuel reduction was not considered a purpose, nor was it achieved. Trees removed in these areas during the Gold Hill Timber Sale consisted largely of disease- or insect-infected grand fir, Douglas-fir, hemlock, and white pine.

The portion of the Gold Hill Timber Sale which occurred within unit 23 was the first stage of a two-stage process. During the Gold Hill Timber Sale, that unit was harvested as a shelterwood regeneration harvest, followed by planting of early seral species, including western white pine and western larch. Natural regeneration of western

hemlock, cedar, grand fir, and Douglas-fir also established following the project. Now, this 6-acre stand has overstory trees which need to be removed (second-stage) to increase the available sunlight, water and nutrients for the understory trees. Furthermore, dense sapling-size trees in the understory also need to be precommercially-thinned, so that the residual trees may continue to be healthy and vigorous.

Overall, the only cumulative effect of the Gold Hill Timber Sale and its associated reforestation activities to the proposed Gold Crown Fuels Reduction Project would be that reforestation activities within GHTS helped move approximately 48 acres of forest stands back to early successional stages, favored longer-lived seral species in those specific forest stands, and reduced some hazardous fuel accumulations in the immediate area of harvest activity. The vegetation treatments proposed in the Gold Crown FRP would result in beneficial effects when considered cumulatively with the Gold Hill Timber Sale.

Grouse Mountain Sagle Timber Sale (1987)

The Grouse Mountain Sagle timber sale occurred within a very small portion of the Gold Crown FRP project area, specifically within the E1/2 NE1/4 of section 20 and the extreme W1/2 NW1/4 of section 21, Township 56 North, Range 1 West of the Boise Meridian. This timber sale did not occur within any portion of the proposed treatment areas of the Gold Crown FRP. Overall, the Grouse Mountain Sagle timber sale and reforestation activities helped move some forest stands back to early successional stages, favored longer-lived seral species in those specific forest stands, and reduced hazardous fuel accumulations in the immediate Grouse Mountain area.

Shelterwood harvesting followed by planting western larch, western white pine, and ponderosa pine improved some forest stands' resistance to root disease. The trees planted following the Grouse Mountain Sagle timber sale are now sapling size and will likely develop into a resilient, sustainable forest cover. The large trees remaining in those harvest units contribute to stand structure in the form of large-diameter green trees and future snag replacements.

The regeneration harvest proposed under the Gold Crown FRP is similar to the Grouse Mountain Sagle Timber Sale in that regeneration of longer-lived seral species and retention of large-diameter green trees would be favored. However, the proposed treatments would differ in their incorporation of untreated areas and in their retention of snags and large down woody debris. The vegetation treatments proposed in the Gold Crown FRP would result in beneficial effects when considered cumulatively with the Grouse Mountain Sagle Timber Sale.

Big Grouse Timber Sale (1997)

The Big Grouse timber sale (BGTS) occurred within a very small portion of the Gold Crown Fuels Reduction Project area. However, the BGTS utilized a variety of harvest methods and had positive effects on both species composition and forest structures. All harvest methods retained abundant overstory structure, generally of preferred species, as well as pockets and stringers of untreated areas throughout harvest units. These retention trees will continue contributing structure and species diversity of the areas that were harvested.

Approximately 28 acres of commercial thinning within the BGTS occurred within the Gold Crown FRP area. This commercial thinning promoted and maintained long-lived ponderosa pine and western larch. Also, prescribed burning and piling of slash effectively reduced hazardous fuels.

As the proposed activities would have positive effects on forest vegetation, and because the Big Grouse timber sale had beneficial effects on forest vegetation, cumulative effects of these activities would be positive.

State Timber Harvest Operations

In the summer/fall of 2008 Idaho Department of Lands is planning to start a thinning and regeneration harvest project on approximately 105 acres, located in the southern half of section 3, Township 57 North, Range 2 West of the Boise Meridian. Within the regeneration unit (approximately 15 acres), early seral species will be favored for reforestation. The thinning (approximately 82 acres) will favor removal of decadent or disease/insect-infested trees. Such treatment will certainly support a slight trend towards the desired forest vegetation conditions in the project area.

As the proposed activities would have positive effects on forest vegetation, and because the timber harvest on State land would also have positive effects on forest vegetation—trending forest stand structures and species composition towards more historic conditions—the cumulative effects of the two actions would be positive with respect to the forest vegetation resource in the project area.

Private Land- Timber Harvest Operations

Timber harvest on private lands occurs sporadically throughout the project area. Most timber harvests on private lands tend to be partial cuts that remove trees of the highest economic value (usually the largest) and typically removes large, fire-resistant seral species. Other private timber harvests may focus on providing openings for development or creating desirable views from homesites. In either case, natural regeneration is typically relied on to re-forest created openings. This tends to favor shade-tolerant species such as Douglas-fir and grand fir, over early-seral species such as ponderosa pine, western larch, and western white pine. With increased values for private timber, and historic harvest practices on private lands, historic vegetation patterns may never be reestablished on private lands near the project area.

Stimson Lumber Company is planning a 200-acre timber sale within their lands located in section 6, Township 56 North, Range 1 West of the Boise Meridian, likely to occur in late 2008. Type of harvest or silvicultural prescription is unknown at this time. However, Stimson thinned these same stands approximately 15 years ago, so the likely intent will be to regenerate these stands during this entry. In that case, efforts to invest in reforestation of fire- or disease-resistant seral species should not be assumed. We cannot consider that this timber sale will help trend forest vegetation resources in the project area towards the desired condition.

The trends caused by timber harvest on private lands would be towards shade-toleratnt species and away from historic conditions. Therefore, such activities could add cumulatively to the no-action alternative, which also exhibits a trend away from historic conditions. However, the proposed action would accomplish the opposite—trending

forest stand structures and species composition towards more historic conditions. Consequently, the effects of the proposed activities on forest vegetation resources are not expected to add cumulatively to the effects of timber harvest on private lands.

Private Land- Defensible Space programs

Approximately 19 defensible space projects (through the BONfire program) have either been accomplished or are in process within the project area. These programs, while beneficial to individual private structure defensible space, do not significantly affect forest vegetation. Defensible space projects typically focus on clearing shrubs, debris, and small trees, as well as pruning larger or more desirable trees, for an approximate 100 – 150 foot radius around homes. As such, they do not have significant direct or indirect effects on forest vegetation. Therefore, there are no cumulative effects of these projects when considered with the proposed action alternative.

Private Land- Development

As stated earlier, continued development on private lands in the project area will take more and more land out of the productive land base. Developments tend to clear openings within the private property blocks, whether for homesite development, creation of vistas, or "open, park-like space". However, in either case, such activities, followed by a lack of planned reforestation, tend to favor shade-tolerant species. Therefore, when considered with the proposed action, private development will not help trend the forest vegetation within the project area towards the desired conditions and therefore will not have a cumulative effect on forest vegetation.

Road Construction

The construction of system roads in the project area has removed a relatively minor amount of land from the forest land base. Past road construction resulted in minimal direct effects to forest vegetation with regard to stand species composition or structure. Road construction in the project area has facilitated recent management of forest vegetation that favors desirable forest cover types and structures. The presence of roads also increased future management options, including the likelihood of establishing and maintaining desired forest structures and species compositions. Roads have also created better access for wildfire suppression efforts.

Considered cumulatively with the effects that the existing system roads have had on the productive forest land base, the proposed fuel reduction treatments, system road construction, road reconditioning, and road maintenance would have an insignificant effect on forest vegetation because it would remove only a minor amount of land from the productive base. Additionally, in terms of facilitating the management of healthy forest vegetation, the effects of the proposed construction on the forest land base would be offset by the benefits derived from its construction.

Fire Suppression

Fire suppression has basically removed one of the few natural disturbance regimes from the forest stands in the project area. As a result, stands have not been "thinned" by fire and have tended to become crowded and overstocked with more shade-tolerant species. Continued suppression will advance many untreated stands toward domination by shade-

tolerant, climax vegetation. The existing long-lived seral species would eventually be shaded out and replaced by species such as grand fir and cedar on more moist sites, and Douglas-fir on dry sites, in the absence of a stand-level disturbance. Forest fuel loading has also increased as crowded stands result in tree mortality and accumulations of coarse woody debris on the ground.

The proposed activities are designed to reduce the risk of a landscape-level, stand-replacing wildfire event and improve chances for future successful fire suppression, through the manipulation of forest structure and species composition. Additionally, in some forest stands the proposed activities would restore the role of fire as an ecological process both in the near and distant future. Consequently, the effects of the proposed activities are not expected to add cumulatively to the effects that past, present, and reasonably foreseeable future fire suppression create.

Firewood Gathering

This activity has the potential to reduce coarse down woody material, snags, and fuels along open roads, but effects at the project area scale would be negligible because only a small portion of the area is accessible from roads. The proposed road construction is either temporary in nature, or in the case of the proposed system road construction, would be restricted to non-motorized use and be placed into storage following the project implementation. Therefore, the amount of the project area available for firewood gathering and the corresponding quantities of firewood gathered would remain relatively constant. As the proposed activities are not expected to increase the amount of firewood gathered in the project area, they are also not expected to have an incremental impact on the environment when added to other past, present, and reasonably foreseeable firewood gathering.

Monitoring and Treatment of Noxious Weeds

Noxious weed treatment, as conducted under the guidelines established under the Sandpoint Ranger District Noxious Weed Control Project EIS (USDA Forest Service 1998b), would have little effect on forest vegetation. Under the guidelines of the EIS, chemical treatments are used with restrictive protective measures to minimize damage to trees and other native vegetation. Therefore, there would be no cumulative effects of these activities with the proposed action.

Timber Stand Improvement (TSI)

Timber stand improvement (TSI) includes thinning and pruning in plantations. Thinning small-diameter trees reduces stand densities promoting continued tree growth and favoring the healthiest trees. More nutrients, which are critical to growth and defense mechanisms, are redistributed to uncut trees. Promoting healthy, growing trees adaptable to disturbance helps reduce the risk of insect and disease epidemics while providing land managers a variety of options for future management. Pruning white pine can also help reduce susceptibility to blister rust infection. Future TSI activities are likely to occur in the old plantations created by the Gold Hill (1995) timber sale areas, as well as new plantations created by the proposed regeneration harvests within the Gold Crown FRP, and would have the positive effects outlined previously. Therefore, logic dictates that the cumulative effects of the proposed action and reasonably foreseeable TSI activities would be beneficial to the forest vegetation resource.

Recreational Use

These activities have not, nor are they expected to have, significant effects on forest vegetation. Therefore, there would be no cumulative effects of the proposed action with these activities.

Design Features

In an effort to proactively resolve any potential negative impacts to the forest vegetation resource, the following design features would be implemented as part of the project implementation and proposed action:

Retention of Large Old Trees in Stands Not Designated as Old Growth – Within some units there are portions of stands (<25 acres) with individual and/or groups of large old trees that are not defined as old growth. Silvicultural prescriptions and marking guidelines would specify that these trees be retained.

Retention of Untreated Vegetation in Treatment Areas - Pockets, stringers, and islands of untreated vegetation would be left untreated in stands where harvest is proposed. These areas would contribute to both structural and compositional diversity, break-up fuel and vegetation mosaic continuity, and blend openings into the surrounding landscape making harvest units appear more natural. Additionally, by leaving untreated areas within and between more open (less vegetated) areas, none of the openings would exceed 40 acres.

Mitigation Measures & Monitoring

The following mitigation measures will be enacted to ameliorate potential detrimental impacts to the forest vegetation resource as a result of the proposed action:

Monitoring for Regeneration Success - All regeneration cutting units would be monitored for regeneration success the first, third (and fifth year if necessary) following planting; as required under NFMA.

Compliance with the Forest Plan and Other Regulatory Direction

Because Alternative A (No Action) would result in no trees being harvested, no fuels treatments being performed, and no road work being performed in the project area, Alternative A would be consistent with Idaho Forest Practices Act, National Forest Management Act (NFMA) of 1976, and National Environmental Policy Act (NEPA) of 1969. However, Alternative A (No Action) would not be consistent with the Multiple-Use Sustained Yield Act of 1960 and Forest and Rangeland Renewable Resources Planning Act of 1974 because the No Action alternative does not provide for continued sustainable forest products from the project area and does not ensure that "…all forested lands in the National Forest System be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans."

Alternative A (No Action) would not be consistent with Forest Plan objectives that specifiy promoting stand structures and species composition which reduce susceptibility to insects and diseases (USDA Forest Service 1987, p. II-32, (4)).

Alternative B (Proposed Action) is consistent with the Idaho Forest Practices Act, the Multiple-Use Sustained Yield Act of 1960, the Forest and Rangeland Renewable Resources

Planning Act of 1974, the National Forest Management Act (NFMA) of 1976, the National Environmental Policy Act (NEPA) of 1969, and all Idaho Panhandle National Forests 1987 Forest Plan direction related to forest vegetation resource. The specific Forest Plan standards are referenced below. In addition, all Forest Plan standards pertaining to management of old growth stands were met or exceeded (see Old Growth Consistency Report in project file.)

Proposed regeneration cutting followed by planting of seral tree species less susceptible to insect and disease damage including rust-resistant western white pine, is consistent with Forest Plan direction that "reforestation will normally feature seral tree species" (USDA Forest Service 1987, p. II-32). All stands proposed for regeneration cutting are on lands suitable for timber production that can be adequately restocked within five years of the final cut. As directed by the Forest Plan, stands would be regenerated with trees from seed that is well adapted to the specific site condition, and would be regenerated with a variety of species (USDA Forest Service 1987, p. II-32).

Site-specific silvicultural prescriptions are compatible with management area goals, and preferred species management has considered both biological and economic criteria (USDA Forest Service 1987, II-32). Silvicultural practices including cutting, site preparation and planting with seral species are designed to reduce the perpetuation of pest problems (USDA Forest Service 1987, pp. II-37 and II-38).

Management of competing understory vegetation would be accomplished, where necessary, as a consequence of fuels reduction/site preparation treatments (USDA Forest Service 1987, p. II-38).

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