CATEGORICAL EXCLUSION WORKSHEET: RESOURCE CONSIDERATIONS

Vegetation

Crane Point Vegetation Restoration

Palouse Ranger District

Nez Perce - Clearwater National Forests

Description of Purpose & Need for the Proposed Action

The purpose of this project is to improve overall forest health and ecological function to move toward desired conditions and objectives identified in the Forest Plan. An ecologically healthy forest has been defined as a forest that can maintain its unique species and processes, while maintaining its basic structure, composition and function (Atkins 1999).

Three of the project's primary objectives are directly related to the vegetation resource:

- Decrease current levels of insect and disease mortality to improve forest health and resiliency (maximizing old growth and large trees to the extent possible.).
- Increase the amount of western white pine, western larch, and ponderosa pine and in turn decrease the dominance of root-disease intolerant species such as Douglas-fir and grand fir.
- Reduce hazardous fuels in the Wildland-Urban Interface.

Existing Condition

The existing conditions of the project area are examined at two geographic ranges.

Crane Point Project Area

The project area is confined to the "island" of Forest Service ownership in the far northwest side of the Palouse Ranger District. Roughly located south of the Coeur d'Alene Reservation and just east of Highway 95, the project area is 1,350 acres and is fairly small in size for vegetative landscape analysis. Therefore the effects analysis for certain indicator values was generally expanded beyond the project area, as was deemed appropriate to give it landscape scale and include other ownership types.

Landscape Level Area

The existing condition analysis area chosen for the analysis of forest cover type for the Crane Point project is set to the Headwaters Hangman Creek subwatershed (37,403 acres). This would provide the appropriate scale for the analysis of existing on landscape process because it is large enough to contain representative compositions of both landtype association groups (LTAs) and proximate land outside of the National Forest System (NFS). There are proposed treatments in three other subwatersheds whichamount to much smaller acreages for potential effects(Table 1). The analysis of the Headwaters Hangman Creek subwatershed should serve as a reasonable representation for these subwatersheds. However approximately 10,782 acres

of this subwatershed are not being managed as forestland and instead have been converted to agricultural uses. These 10,782 were removed from the analysis area.

For age class distribution and landscape pattern analyses the existing condition analysis area is constricted in two ways. First there is only partial GIS coverage of the Headwaters Hangman Creek watershed in the Forest's landtype association (LTA) group file. This limits the scope of the analysis to approximately 9,607 acres. Secondly, this analysis will be limited to the acreage in the Colluvial Mid-Slopes landtype association group (LTA) and Non-Umbric Low Relief Rolling Hills of the Headwaters Hangman Creek subwatershed, which further limits the analysis to 7,879 acres. Where GIS coverage is available, the Non-Umbric Low Relief Rolling Hills and Colluvial Mid-Slopes LTAs are79.0% of the Headwaters Hangman Creek subwatershed, 99.9% of the Crane Point project area, and represents 99% of all LTA groups that will have treatments occur on them. Landtype associations (LTAs) are areas of land that have relatively homogenous composition of bedrock, geology, geomorphic influence (landscape forming processes), landform, climate, and landscape position. These factors affect plant distributions, hydrologic function, natural disturbance regimes and when grouped based on similarities in these attributes (LTA groups for example) they are useful for delineating ecological characteristics at the landscape level (Cleland 1997).Refining the existing condition analysis area to the aforementioned LTA group maintains a landscape scaled area that contains both NFS and land outside of the NFS, but attempts to limit unnecessary discussion and focus the analysis by limiting discussions to the specific ecological unit that virtually all proposed treatments would occur.

Table 1. Treatment Acres by Subwatershed

Subwatershed Name	Treatment Acres	% of Proposed Treatment
Deep Creek	109	16%
Gold Creek	23	3%
Headwaters Hangman Creek	540	77%
Meadow Creek	29	4%
Total Acres	**701**	

Analysis Indicators

Forest cover type (to provide an examination of a forest's composition), age class distribution (to provide an examination of structure), and landscape pattern (to provide an examination of forest process) were chosen as indicators to provide a foundation for measuring the health and resilience of the forest vegetation as found in the Crane Point project area and also the broader landscape that the project area is a part of. These indicators are often cited as proper attributes to examine when measuring forest health (Jain 2005) and are also reasonably quantifiable at the scale required by this analysis.

The commercial harvest treatments proposed in this project are the only treatments that would result in important changes to forest vegetation in relation to forest cover type, age class, or landscape pattern. Fuels treatments would not greatly alter these indicator attributes, although

decreases in tree densities may provide some benefits in forest health for young stands (Tappeiner 2015). Only the commercial timber harvest actions were considered in relation to the above stated resource concerns.

Forest Cover Type

The forested environments of North Idaho and the greater Inland Northwest support the largest, most productive, and most diverse forests of the western interior (Neuenschwander 1999). N. Idaho is also a home to the unique and valuable forest type known as the western white pine type, defined by its principal tree species, the western white pine (*Pinus monticola)*. Forest types are defined by a common assemblage of species and is often classified by the dominant tree species found within the assemblage. The western white pine type is defined by a greater than 20% plurality of western white pine (Eyre 1980). This forest type, although also found in eastern Washington and western Montana, was, in ecological and economical terms, historically the most important forest unit over large areas of northern Idaho (Haig 1932). Western white pine constitutes a plurality of stocking in the western white pine cover type, but many other species are common associates such as western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), grand fir (*Abes grandis)*, Douglas-fir (*Pseudotsuga menziesii)*, western larch (*Larix occidentalis)*, lodgepole pine (*Pinus contorta)*, Engelmann spruce (*Picea engelmannii*), and ponderosa pine (*Pinus ponderosa*). (Graham 1990). Due to its intermediate shade tolerance western white pine historically attained its dominance only following wildfire, and the western white pine forest type was maintained in the past by stand replacement fire, occurring at long intervals (Neuenschwander 1999).

Historically the western white pine type would have been the dominate cover type in the project and landscape analysis areas. Currently however, the dominant cover types in the project and landscape analysis area is grand fir and Douglas-fir, and this reflects the landscape level shift that has occurred throughout the white pine cover type across its range. Substantial harvesting without subsequent efforts to re-plant western white pine and the introduction of white pine blister rust early in the 20th century, combined with other factors such as fire suppression, fundamentally altered the forested landscapes of North Idaho. The result of which was a reduction in the extent of western white pine by 90% (Hines2013).

Table 2. Current Cover Type Distribution Compared to Historical Estimates

Cover Type	HistoricDistribution[1]	Current Distribution Headwaters Hangman Creek Watershed[2]	Current Distribution Crane Point Project Area[3]
Western white pine	45%	0%	0%

[1] Haig et al, 1941. Haig has records of mature stands for the "white pine region" in which this project area is located

[2] It may be noticed that these columns do not add up to 100%. This was caused by data being unavailable to give a complete picture of cover types. This occurred in three fashions. First, some values were null- no data was available on species dominance. Second, the model was unable to differentiate tree species due to size class- VMap includes herb, shrub, and sparse vegetation as "species categories" meaning the model does not identify species when the vegetation is categorized this way. However, both columns are also at or near 90%- meaning that even if the entire area for which data is unavailable were categorized as western white pine (it is unlikely that they should be), the western white pine cover type would be at most 10% to 12%. Third, in some areas, cover type could not be distinguished by species (e.g. species given as IMIX), meaning the area had such a mixture of species that the area could not be classified by one particular species. This third possibility was the case in about 2% of stands in the project area and 0% in the cumulative effects area.

[3] Column does not add up to 100%. See footnote 2.

Western larch	8%	0%	0%
Douglas-fir	12%	27%	37%
Grand fir	14%	20%	32%
Western hemlock	3%	0%	0%
Western redcedar	4%	2%	25%
Engelmann spruce	4%	0%	0%
Lodgepole pine	1%	5%	0%
Ponderosa pine	9%	<1%	4%

Age Class

VMap and FSVeg are related via multiple fields. Age however is not a field that is assessed by VMap. In order to carry out a mid-level analysis of age class distribution, age class had to be determined for all portions of the analysis area. To accomplish this a relationship between habitat type, average tree diameter, and age needed to be determined. This was accomplished first by assembling recent CSE data meeting Regional standards from across the Palouse Ranger District. This dataset was then narrowed down to the habitat types that best matched those found in the project area. This resulted in limiting the dataset to THPL and TSHE series and reduced the total dataset to 98 stands across 3,483 acres. The average age of each stand was then evaluated by stand size classes as determined by the basal area weighted diameter at breast height. Lastly the size and age classes were evaluated by DOM_MID_40 and a relationship of ≥20" and appropriate age class distributions made. After evaluating these relationships, an age class was assigned to a size class as shown in the following table.

Table 3. Estimated Size to Age Class Relationships

Size Class	DOM_MID_40 Cover Type	Average Age	Age Class Assigned
0-4.9"	ALL	N/A	0-40
5-19.9"	ALL	69	41-100
20-24.9"	ALL Except MX-THPL	136	101-150
25"+	MX-THPL	154	150+

Age classes are presented by LTA group for the Crane Point project and landscape analysis areas. Comparing historic age class distributions to existing distributions can provide insight into whether existing ecologic patterns and disturbance processes are in line with historical ones. Historic forest compositions and structures were adapted to historic disturbance processes and provided resiliency to recurrent disturbances (Hessburg 2015).

To provide both a scale of analysis that fits consideration of landscape scale processes and also refine this resolution to ensure comparisons are made on equivalent disturbance regimes, the effects analysis is limited to the Non-Umbric Low Relief Rolling Hills and Colluvial Mid-Slope Landtype Groupswithin the Headwaters Hangman Creek subwatershed, which was initially

reduced in scale by the removal of agricultural use land and coverage limitations for the landtype group GIS file.

Non-Umbric Low Relief Rolling Hills

4,816 acres (61.1%) of the Headwaters Hangman Creek subwatershed analysis area and 322 acres (23.7%) of the Crane Point project area are located in this LTA group. According to Mital (2010) the fire regime of this LTA group was best described as lethal stand replacing fires that occurred approximately every 150-300 years and produced even age stands in patches of ¼ acre to over 1,000 acres.

Colluvial Mid-Slopes

3,063 acres (38.9%) of the Headwaters Hangman Creek subwatershed analysis area and 1,027 acres (76%) of the Crane Point project area are located in this LTA group. According to Mital (2010) the fire regime of this LTA group was best described as lethal stand replacing fires that occurred approximately every 150-300 years and produced even age stands in patches of ¼ acre to over 1,000 acres

Table 4.Age Class Distribution by Landtype Association Group across Headwaters Hangman Creek Subwatershed (limited to 7,595 ac) and Crane Point Project Area

Trend	Age Class	Headwaters Hangman Creek		Crane Point Project Area	
		Colluvial	**Non-Umbric**	**Colluvial**	**Non-Umbric**
Historic[4]	0-40 yrs.	30-55%	25-45%	30-55%	25-45%
Current		***29%***	***35%***	***20%***	***14%***
Historic[4]	41-100 yrs.	20-40%	15-35%	20-40%	15-35%
Current		***68%***	***59%***	***79%***	***86%***
Historic[4]	101-150 yrs.	15-25%	20-35%	15-25%	20-35%
Current		***2%***	***6%***	***2%***	***0%***
Historic[4]	151+ yrs.	10-30%	20-40%	10-30%	20-40%
Current		***0%***	***0%***	***0%***	***0%***

[4] Mital, 2010.

Insects and Disease

Figure 1. Insect and Disease photos from Crane Point project area. Clockwise from top left photo: Photo 1. Douglas-fir with large brooms caused by infection of Douglas-fir dwarf mistletoe. Photo 2. Dead and dying grand fir from root disease complex. Photo 3. Large recently dead Douglas-fir in root disease pocket with multiple dwarf mistletoe witches brooms.

Recent stand inventories (Common Stand Exam protocol), silvicultural walkthroughs, and a site visit from Forest Health Protection (FHP) specialists were all used to determine the presence and extent of insect and disease infestations for the Crane Point project. The primary damaging agents of greatest management concern observed, and the corresponding tree species affected, were:

- Root disease complex: Fir-type Heterobasidion root disease (*Heterobasidion occidentale*; "annosus root disease") – grand fir; Schweinitzii root and butt rot (*Phaeolusschweinitzii*) – Douglas-fir; laminated root disease (*Phellinus sulphurascens*) – grand fir; Armillaria root disease (*Armillaria ostoyae*) – grand fir, Douglas-fir, western redcedar
- Cedar brown pocket rot (*Postia sericeomollis*) – western redcedar
- Indian paint fungus (*Echinodontium tinctorium*) – grand fir

- Pini rot (*Porodaedalea pini*) – western larch
- Douglas-fir dwarf mistletoe (*Arceuthobium douglasii*) – Douglas-fir
- Western larch dwarf mistletoe (*Arceuthobium campylopodum*) – western larch

Root disease hazard, or the analysis of potential losses from root disease, is a tool developed by Lockman et al. (2016) to help provide large scale analysis for management projects. It is not a representation of the exact locations of root disease, but instead shows potential based on the Forest Service's Vegetation Mapping Program (VMap). The proportion of the Crane Point Project Area rated to have high root disease hazard was higher than the Clearwater portion of the Nez Perce – Clearwater National Forests at 14.6%. Very little of the project area was mapped with no root disease hazard (6.9%).

Table 5. Percent of acres of root disease hazard on National Forest lands within the Clearwater portion of the Nez Perce - Clearwater National Forests

Root Disease Hazard Vmap Percent of Acres (National Forest lands only)	None	Low	Moderate	High
Clearwater National Forest	56.9	25.8	15.7	1.6
Crane Point Project Area	6.9	62.0	16.4	14.6

Dwarf mistletoe index is calculated from stand inventory data collected via Common Stand Exam protocols. It is the sum of all Dwarf Mistletoe Ratings (DMR) recorded on the setting for live trees 1.0" DBH and larger divided by total trees per acre 1.0" DBH and larger that have a DMR value>0. A value >0 indicates dwarf mistletoe is present on the setting.

Table 6. Dwarf Mistletoe Index of Recently Examined Stands in Crane Point Project Area

Setting ID	Dwarf Mistletoe Index	Setting Trees Per Acre in Douglas-fir and/or Western Larch
01050244040004	2.3	23
01050244040005	1.66	40
01050244040008	2.87	210
01050244040019	0	15
01050244040020	2.34	111
01050244040026	0	0
01050244040029	1.81	105
01050244040030	3.31	115
01050244040031	4	211
01050244040033	4.26	63
01050244040034	0	157
01050244040036	0	92
01050252050005	3.66	55
01050252050011	2.39	62
01050252050012	1	59
01050253010014	4	22

Though the table shows some stands with "0" values for dwarf mistletoe index, virtually all stands proposed for harvest activity with mature Douglas-fir or western larch in them had some level of dwarf mistletoe infection.This is verified and documented in field notes from silvicultural walkthroughs.

Description of the Proposed Action

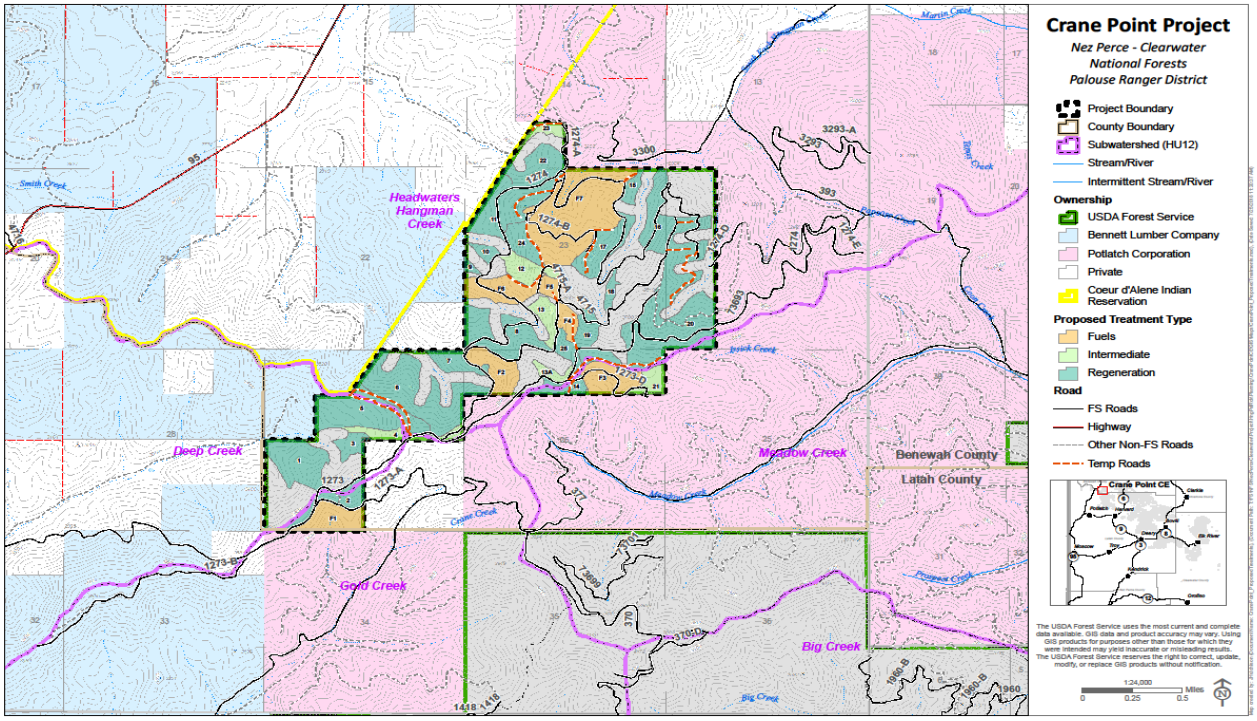

Figure 2. Map of proposed actions for the Crane Point Project.

Proposed vegetation treatments include (Figure 4; Table 2, p. 11):

- 701 acres of commercial timber harvest (622 acres of regeneration and 79 acres of commercial thinning)
    - Estimate approx. 8 – 10 MMBF ($1.5 Million) yield of timber for local communities.
- 20 acres of Old Growth enhancement.
- 241 acres of non-commercial fuels treatment.

The following would be conducted in support of the above:

- Approximately four (4) miles of temporary roads would be constructed to facilitate vegetation treatments and would be decommissioned no later than three (3) years after the project is completed (see Figure 4).
- Road maintenance, reconstruction or improvement.
- Replace culvert on FSR 1274.

Approximately 80% of the commercial timber harvest work would be done using skyline logging systems and 20% using ground-based systems (see standard design criteria for more specific information). Timber would likely be hauled via FSRs 1274 and 1273 plus their associated spur roads.

After the trees are removed for regeneration harvest, the Forest Service is required by law to reduce slash generated from harvest and to prepare sites for planting (regeneration) within three (3) years. Regeneration includes site-preparation (site-prep), reforestation of blister-rust

resistant western white pine, western larch, and ponderosa pine, and animal damage control for pocket gophers, where present.Site prep could include:

- Slashing of sub-merchantable trees or brush
- Prescribed burning (broadcast burning, underburning, jackpot burning)
- Mechanical or hand piling and burning of slash
- Mastication of activity fuels, sub-merchantable trees or brush
- Biomass removal
- Non-commercial thinning of lower branches to reduce ladder fuel
- Leave tree preparation and pruning – to protect the leave trees during burning activities

Before and after planting, treatment for animal damage control by pocket gophers would occur where necessary. Pocket gopher populations increase post-harvest with a flush in vegetation such as forbs, grasses, shrubs and small trees whose roots supply a ready food source. Gophers damage young trees by stem girdling and clipping, root pruning, and root exposure caused by burrowing, all of which can result in a failed plantation. Reforestation monitoring (stocking exams) will be conducted after the 1st and 3rd growing seasons to ensure reforestation efforts have been successful and will determine if further planting or animal damage control treatments are necessary.

Non-commercial fuels treatments could include:

- Slashing of sub-merchantable trees or brush,
- Non-commercial thinning,
- Prescribed burning (broadcast burning, underburning, jackpot burning),
- Mastication of activity fuels, sub-merchantable trees or brush,
- Biomass removal, and
- Leave tree pruning.

Work would be done by hand and/or mechanical equipment, depending on slope. Objectives of the fuels treatments are to reduce stand density, influence species composition, and to reduce surface and ladder fuels in order to alter and reduce potential fire behavior. Multiple entries may be required to achieve the desired fuel reduction objectives.

The project proposes to decommission up to 1.5 miles of user-created trails in T43N, R4W, Sections 24, 26, 27, and decommission the legacy roads in Units 6 and 20. These roads are no longer needed for management and are inhibiting forest productivity.

A combination of silvicultural prescriptions may be used when appropriate within commercial harvest units:

- Clearcut with Reserves: retain an average of 5 trees per acre to meet snag recruitment minimums.
- Seedtree with reserves: retain an average 8-12 trees per acre to provide an additional early seral regeneration source and maintain local genetics.
- Shelterwood: retain on average 10-20 trees per acre to provide an additional regeneration source and provide shade protection for young seedlings on hot, dry aspects.

- Irregular shelterwood: retain an average 5-15 trees per acres in such a manner that trees are spread unevenly throughout the unit; therefore the area could resemble either a clearcut with reserves, seedtree, shelterwood, or even heavier retention dependent on presence of early seral species and the need for shade protection for young seedlings.
- Improvement cut: intermediate cut used to remove competition of shade tolerant species from early seral species.
- Old growth enhancement/ single tree selection: a highly selective management approach to remove competition and increase growth of older, mature, disease resistant tree species, especially western red cedar.

Table 7. Vegetation treatment types by unit

Unit	Treatment Type	Acres
1	Seedtree w/Reserves	40
2	Shelterwood w/Reserves	23
3	Clearcut w/Reserves	11
4	Single Tree Selection	18
5	Seedtree w/Reserves	61
6	Clearcut w/Reserves	76
7	Irregular Shelterwood w/Reserves	16
8	Clearcut w/Reserves	44
9	Clearcut w/Reserves	3
10	Clearcut w/Reserves	6
11	Irregular Shelterwood w/Reserves	50
12	Single Tree Selection	18
13	Single Tree Selection	14
13A	Single Tree Selection	7
14	Clearcut w/Reserves	11
15	Clearcut w/Reserves	8
16	Clearcut w/Reserves	30
17	Clearcut w/Reserves	30
18	Clearcut w/Reserves	6
19	Clearcut w/Reserves	23
20	Clearcut w/Reserves	126
21	Single Tree Selection	13
22	Clearcut w/Reserves	28
23	Improvement Cut	9
24	Irregular Shelterwood w/Reserves	16
25	Clearcut w/Reserves	14

Unit	Treatment Type	Acres
F1	Mechanical Pre-commercial Thinning and Hand Thinning	28
F2	Mechanical Pre-commercial Thinning and Hand Thinning	26
F3	Mechanical Pre-commercial Thinning and Hand Thinning	29
F4	Mechanical Treatment Below Overstory (Natural Regeneration and Brush)	10
F5	Mechanical Pre-commercial Thinning	6
F6	Mechanical Pre-commercial Thinning and Hand Thinning	28
F7	Mechanical Modified Free Thinning and Hand Free Thinning (Ponderosa Pine Plantation)	114
Total Vegetation Treatment Acres		**942**
Total Commercial Timber Harvest		**701**
Regeneration Harvest = 622 Acres / Intermediate Harvest = 79 Acres		
Total Non-commercial Fuels Treatment		**241**

Cause-Effect Relationship

Cover Type& Insect/Disease Resiliency

The introduction of white pine blister rust into the ecosystem essentially changed the workings of one of the most productive, stable, and forgiving ecosystems in North America and as a result the dominance by climax species will likely lead to significant losses in both productivity and longevity (Harveyand Morgan 2001). The change from dominance by western white pine and other early seral species to that of climax species, such as grand fir, greatly reduces a forest's tolerance to endemic insects and pathogens, drought, and fire, resulting in reduced capacities and a predisposition to stressed conditions. This would likely result in decreases in productivity and stand stability (Harvey 1994). An example of this loss of stability and productivity is the large portions of the Crane Point project area where grand fir dominated forests combine with active root disease pathogens. Unlike western white pine, Douglas-fir and grand fir are highly susceptible to root disease (Lockman, 2016). As dominance has shifted from western white pine to Douglas-fir and grand fir, so has the overall susceptibility of the forest to root disease pathogens. Root disease can kill trees outright and also leave them more susceptible to mortality from other insects and disease agents. Although these root disease pathogens are an endemic and natural pathogen in these forested ecosystems, their ecological role has increased greatly and in unprecedented ways (Jain and Graham 2004).

Forest Health Protection surveys, conducted September 27, 2017, confirmed current and potential risk of mortality from insect & disease agents. The “Crane Point Forest Health Evaluation” report (USDA 2017) documents the existing occurrence of insect & disease throughout the project area. Recommendations were:

a. Conduct regeneration harvest with subsequent planting of more disease resistant species (western white pine, western larch, western redcedar, and ponderosa pine), especially where grand fir and Douglas-fir predominate and root disease is severe
b. To maximize timber value remove susceptible species before additional timber volume is lost due to root disease
c. Manage stands to promote younger age classes to prevent losses due to stem decay

Convertingspecies dominance to more resistant species is the most widely used and successful approach to managing root disease issues on a site (Hagle 2009). By favoring western larch, ponderosa pine, western white pine, and western redcedar through harvest and subsequent artificial reforestation, as proposed,the stands would be much more resistant to root disease. Favoring these species wouldincrease the proportion of the overstory dominated by root disease resistant species.

Douglas-fir and western larch dwarf mistletoe infections are found throughout the Crane Point project area, and both are often present in infected stands. Dwarf mistletoe causes growth loss, can eventually kill overstory trees, and has the potential to infect younger cohorts in current or planned regeneration (Hoffman 2008). Dwarf mistletoe impacts can be effectively reduced through silvicultural treatments that emphasize the removal of infected trees. Regeneration harvests, as proposed in the Crane Point project, present the greatest opportunity to control dwarf mistletoe infections and develop mistletoe-free regeneration and these harvest areas should be as large of an area as possible to minimize edge effects and reinvasion from bordering stands (Hoffman 2010).

Old Growth

The Clearwater Forest Plan requires retention and deferment of regeneration harvesting in old-growth and “step down” designated stands. Stands are deemed old-growth if they meet definitions found in Green et al (1992), and are designated “step down” if they are within 20 years of meeting Green et al’s (1992) definitions. An extensive inventory was done for the Crane Point project area withone stand meeting the old growth definitions and four stands meeting the “step down” definitions. None of the stands are proposed to be regeneration harvested, but are proposed to be treated with single tree selection harvest.

Further field review of two stands (Crane Point units 12 and 13) by District and Forest-level silviculture personnelfoundportions of these stands to be highly unlikely to ever meet old growth definitions due to increased and accelerated overstory mortality rates. This was a result of the

stands having extensive amounts of root disease present with much of the overstory (and largest trees) being comprised ofgrand fir and Douglas-fir.The interdisciplinary team did a field review on 7/10/2018 to discuss the two units'merits as "step down" stands. Following guidelines found in Green et al (1992), it was decided to remove portions of units 12 and 13 from "step down" classification and make a total of 31 acres across the 2 units available for regeneration harvest. The remaining portions of the units would be kept as "step down", to be treated with single tree selection harvest.

A minimum of 5% of each old-growth analysis unit (OGAU) is required to be managed as old-growth and may not be regeneration harvested. After reclassification was completed, 8.7% and 5.9% of old-growth and"step down"are present in OGAU 201 and 202 respectively. The Forest Service is meeting or exceeding the Clearwater Forest Plan standard for management of old growth within each OGAU.

Regulatory Framework

The project activities have been designed to be consistent with the following regulations and standards:

- National Forest Management Act of 1976 (pp 5 & 6)
- Forest Service Manual Direction (FSM 2470.3)
- 1987 Clearwater National Forest Plan

Specific marking guidelines were applied to this project to ensure compliance with Section 603 large tree retention requirements and are listed below:

Title VI of the Healthy Forest Restoration Act (HFRA)

Section 603 (Farm Bill/Insect & Disease CE)

Title VI of the Farm Bill/Healthy Forest Restoration Act requires projects done under this designation should maximize the retention of old growth and large trees, as appropriate for the forest type, to the extent that the trees promote stands that are resilient to insects and disease. This project is designed to treat root disease infestations found in the project area through the conversion of species dominance from grand fir, western hemlock, and Douglas-fir to western larch, ponderosa pine, western white pine, and where appropriate, western redcedar. Conversion is accomplished primarily by removing the overstory and creating openings large enough to establish the desired species. Retaining all "large" trees would not produce sufficient opening size nor would it occur in significant abundance to convert dominance of the site from grand fir, Douglas-fir, and western hemlock to western larch, ponderosa pine, western white pine, or western redcedar. To meet the "large" tree retention requirement (to the greatest extent practicable) while also fulfilling the purpose and need of the project, the following tree retention guidelines will be followed where possible:

a. In regeneration harvest units, any western larch, western white pine, ponderosa pine ≥21" DBH shall be marked for leave, unless doing so will result in greater than the number of prescribed leave trees after harvest based on the regeneration type.

b. In "old growth enhancement" units no live trees larger than 20" will be marked for removal, unless their presence is providing significant competition to a larger diameter western larch, western white pine, ponderosa pine, or western redcedar.

c. In intermediate treatment units no live western larch, western white pine, ponderosa pine or western redcedar larger than 20" will be marked for removal unless their presence is providing significant competition to a larger diameter western larch, western white pine, or ponderosa pine.

Extraordinary Circumstances

No extraordinary circumstances need to be considered for the vegetation resource.

/s/ Nic Wagner
Forester
10/16/2018

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