Silvicultural Prescription and Marking Guidelines

Black Hills Project Environmental Assessment
Fremont-Winema National Forest

Planning Project ID:	Black Hills EA
Timber Sale/Project Implementation ID:	Blue Timber Sale/Sale number 16013
Ranger District:	Bly Ranger District

Current Condition:
Stands within the Blue Timber Sale can be largely described as dry ponderosa pine or dry mixed conifer. The ponderosa pine stands are composed of ponderosa pine, lodgepole pine, sugar pine, white fir, and trace amounts of western juniper. The mixed conifer stands are composed of white fir, ponderosa pine, sugar pine, and some incense-cedar. Small amount of quaking aspen can be found in pockets throughout the sale area. Shrubs consist of greenleaf manzanita, antelope bitterbrush, and snowbrush. Bitterbrush is very common on the ponderosa pine sites with cover of at least 75 percent. Greenleaf manzanita and snowbrush in the mixed conifer sites with manzanita being predominant.

Basal area ranges from 70 to 240 square feet per acre. Stand density index (SDI) for the units range from 36 to 47 percent of maximum SDI. Current stand structure is generally young to old forest multi-strata.

Stand Structure:
Past management has influenced current structure and species composition. Logging has reduced the number of large trees present but generally large trees (i.e., over 21 inches dbh) can still readily be found throughout the sale area. Fire exclusion has allowed white fir and lodgepole pine to increase in abundance and shifted what were generally old forest single-stratum stands to old forest multi-strata stands. Fire exclusion has also allowed conifers to encroach on aspen stands and meadows. Understory trees are generally sapling to pole-sized trees and same species as the overstory but include lodgepole pine. Understory ponderosa pine is generally doing poor to fair. On the mixed conifer stands, white fir predominate the understory.

Plant Associations taken from Simpson (2007):
Plant associations are generally white fir/common prince's pine (ABCO/CHUM), white fir/greenleaf manzanita (ABCO/ARPA), or ponderosa pine/greenleaf manzanita (PIPO/ARPA).

Insect and Disease:
Insects and disease are a concern due to high stocking. Currently only minor mortality have been seen from mountain pine beetle but stands are likely at risk for greater mortality in the future due to current density. Mountain pine beetle mortality thresholds can be calculated for ponderosa and lodgepole pine based on Cochran's methods (1994). Mountain pine beetle mortality present but generally at endemic levels and generally lodgepole pine killed with some ponderosa pine. Dwarf mistletoe found throughout the sale area on ponderosa pine in varying degrees of infection. Large ponderosa pine generally have low to moderate levels of dwarf mistletoe while understory ponderosa pine have low to high levels of infections. Root rot in white fir can be found in pockets.

Desired Condition:

Historically the majority of the stands in the Blue area were single story stands predominantly comprised of ponderosa pine. Past management, specifically fire exclusion and single-tree selection, altered density, structure, and species composition of the stands. Stands are now denser, contain multiple layers, and

shifted to more shade-tolerant species. The goal is to restore these stands back to large ponderosa pine, open single story conditions with an average residual basal area of 50 square feet per acre. Some stands will have higher densities based on abundance of trees over 21 inches dbh. Stands that are and were historically mixed conifer stands will have an average residual basal area of 60 square feet per acre. Species composition will shift to more shade-intolerant species such as ponderosa pine while shade-tolerant species like white fir will be reduced markedly. Overstory species will be predominantly ponderosa pine with low numbers of white fir. Desired densities were set at a level where mortality of mountain pine beetle to ponderosa pine will be low. The low density also reduces the potential of crown fire establishment.

Planning Direction:

Blue Timber Sale units are a site-specific application of the Black Hills Project environmental assessment. Direction in the environmental assessment is provided by the Fremont National Forest Land and Resource Management Plan ("Forest Plan") as amended by the Regional Forester's Eastside Forests Plan Amendment 2 ("Eastside Screens"), the Inland Native Fish Strategy, and Forest Plan amendment #37—the removal of white fir trees greater than 21 inches dbh.

Management Area 5 – Timber and Range Production

Every unit is covered by this management emphasis; however, single story late-old structure conditions will be emphasized due to direction from the Eastside Screens' amendment to the Forest Plan. This will be addressed by a thin from below that targets removal of small diameter trees while retaining large diameter individuals and most trees over 21 inches dbh.

Management Area 6B – Scenic Viewshed

Portions of units 2 and 3 are under Management Area 6B's direction. This Management Area falls under maximum modification and can be intensively managed for timber.

Management Area 15 – Riparian Fish and Wildlife Habitat

Small portions of units 1, 2, and 3 are under Management Area 15's direction. Riparian Management Objectives are addressed by reducing competition to riparian obligate species.

Project Treatment Objectives & Expected Results:

Objectives:

Treatments will focus on maintaining and/or promoting late-old structure conditions while creating resilient forest conditions. Stand density will be reduced by thinning from below via variable density management. Variable density management is the process of selecting then removing trees in a non-uniform pattern. Healthy, large diameter ponderosa pine and sugar pine will be treated with a radial thin to reduce competition and fuel concerns. Treatments will focus on reducing stand density index to the preferred management zone by prescribing a reduction in basal area equivalent to the stand density index range as appropriate for each plant association.

No tree over 21 inches dbh will be cut except white fir and in the rare case where safety may be compromised. Forest Service will identify said trees prior to being cut.

The publication *Identifying Old Trees and Forests in Eastern Washington* (Van Pelt 2008) will be used to help identify mature ponderosa pine trees less than 21 inches dbh. Ponderosa pine exhibiting old growth characteristics (reddish-orange bark, wide plates, and deep wide fissures) are appropriate to retain within the context of restoration prescriptions.

Old growth juniper is not targeted to be cut. These are trees whose bark is thick, fibrous with well-developed vertical furrows, crown is flattened or rounded, and contain dead branches that are often

covered by a light green lichen (Miller et al 2005). Snags and down logs are expected to meet Forest Plan requirements at the landscape scale.

Expectations: Understory
Herb and shrub density should increase after reducing stand densities and increasing sunlight penetration to the forest floor. Mechanical treatment of non-commercial size conifers should happen post-sale if funding is available. In the meantime, in some areas residual density will be high in conifers less than 7 inches. Advance regeneration may be released after thinning; however, should prescribed burning occur in these stands in the near future, short-term regeneration success would largely be thwarted. Quaking aspen should increase in extent, abundance, and stature where it occurs. Where it currently exists, curl-leaf mountain mahogany should experience improved vigor, increased stature, and may expand in extent and abundance. Natural openings consisting largely of small shrubs and herbaceous species should be expanded.

Expectations: Overstory
Residual stands will be single- or two-storied, both within the stand and across the landscape, with large diameter ponderosa pine and sugar pine predominating. Stand structure will generally be open and non-uniform in spacing with sporadic high density patches. Quaking aspen should occupy the overstory in limited areas.

Expected Results:
Residual stands will have stand density, structure, and composition more akin to their historical ranges. As a result of more growing space, more photosynthate will be available in residual trees to allocate towards faster growth rates, improved defenses, and greater overall vigor. Average residual basal area will be 50 or 60 square feet per acre, depending on the unit. Stands may have some areas with residual basal area exceeding 70 square feet per acre depending on density of trees over 21 inches dbh and retention areas. Openings and retention areas will be dispersed within the treatment units. Residual stands are expected to withstand low to moderate intensity fires. Crown fire initiation will be unlikely and potential for sustaining active crown fire will be reduced.

Suggested Treatment Sequence:

Yr.	Activity	Act. Units	Units	FACTS CODE	Funding	Treatment Description
0	Commercial thin via mechanized system	684	1	4220	XXXX	Thin from below to an average basal area of 60 square feet per acre.
0	Commercial thin via mechanized system	348	2	4220	XXXX	Thin from below to an average basal area of 50 square feet per acre.
0	Commercial thin via mechanized system	1130	3	4220	XXXX	Thin from below to an average basal area of 50 square feet per acre.

Yr.	Activity	Act. Units	Units	FACTS CODE	Funding	Treatment Description
0	Treat stumps with an EPA labeled borax product to exclude annosus inoculation	2162	All	8120	XXXX	Apply an EPA labeled borax product as a preventative measure (within 24 hours of cutting) to all cut conifer stumps greater than 18 inches in diameter (with the exception of Douglas-fir, incense-cedar, and juniper). This guidance applies when cutting live trees or trees that have been dead a year or less.
0	Whole tree yard	2162	All	1120	XXXX	Remove activity fuels to landing.
0	Pile landing slash	2162	All	1153	XXXX	Biomass utilization if applicable.
1-3	Burn landing piles	2162	All	1130	BDBD	Biomass utilization if applicable.
1-3	Non-commercial thin	2162	All	4521	CWKV or other	Reduce stand density throughout all units. Thin encroaching non-merchantable species in meadow and aspen areas.
1-3	Lop and scatter thinning slash to less than or equal to 18 inches depth or pile slash	2162	All	1150/1153	CWKV or other	
3-10	Underburn	2162	All	1113	WFHF	Reduce fire hazard. Retain retention areas as much as possible.
25-30	Possible mechanical thinning entry		All	4220		Commercial and/or non-commercial thinning to reduce ladder and canopy fuels prior to Rx fire. Re-evaluate skip locations.
25-30	Underburn		All	1113		Maintenance burn to reduce accumulated surface and ladder fuels. Ideally 10-15 years after the first Rx burn.

Monitoring Plan:

1. Presale forester, marking crew foreperson, or zone silviculturist will review any marking that may occur.
2. The zone silviculturist will work closely with the sale administrator to ensure prescription objectives are being met.
3. Zone silviculturist will review results post-harvest and review any subsequent PCT prescription.

Literature Cited

Cochran, P.H.; Geist, J.M.; Clemens, D.L.; Clausnitzer, R.R.; Powell, D.C. 1994. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington. Res. Note PNW-RN-513. Portland, OR

Simpson, M. 2007. Forested Plant Associations of the Oregon East Cascades. U.S. Department of Agriculture, Forest Service, Pacific Northwest Region. R6-NR-ECOL-TP-03-2007.

USDA Forest Service. 1989. Fremont National Forest Land and Resource Management Plan.

USDA Forest Service. 2012. Black Hills Project Environmental Assessment. U.S. Department of Agriculture, Forest Service, Pacific Northwest Region.

Approval

Prepared by: */s/Paul Cheng* 2016-07-06

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Silvicultural Prescription
Southeast Zone, Fremont-Winema National Forest

Planning Project ID: Black Hills EA
Timber Sale/Project Implementation ID: Blue Timber Sale/Sale number 16013
Existing Stand(s): 1, 2, 3

I. ABIOTIC DATA

Unit	Area (ac.)	Aspect	Elevation (ft.)	Avg. slope (%)	Soil			
					Soil type	Area (ac.)	Suitability for tractor logging	Potential for regeneration
1	684	All	5290-6330	18	77A	89	Good-fair	Low
					77B	455	Fair-unsuited	Low
					88A	81	Good-fair	Moderate-low
					90	58	Fair-poor	Moderate
2	348	NW, W	5230-5940	19	77A	27	Good-fair	Low
					77B	260	Fair-unsuited	Low
					78	60	Poor-unsuited	Low
3	1130	All; generally close to flat	5040-5420	7	28	38	n.a. (scabflat)	n.a.
					81	80	n.a. (noncommercial)	n.a.
					83	17	Unsuited	High
					84	544	Fair-good	Moderate
					87	448	Fair-poor	Low-moderate

Information derived from corporate data. Area is an estimate only and not to be used for contracts.

II. BIOTIC DATA

Unit	Plant association	Area (ac.)	Proportion (%)	Species	GBA10	SI100	SDIMAX	Management zone (SDI: LLMZ-ULMZ)
1	CWH111	35	5.16	PIPO	180	95	670	148-221
	CWS112	649	94.84	PIPO	137	87	533	97-144
2	CPS213	71	20.45	PIPO	120	84	436	75-112
	CPS311	160	45.93	PIPO	120	84	436	75-112
	CWS112	117	33.62	PIPO	137	87	533	97-144
3	CLM311	31	2.72	PICO	107	75	371	88-131
	CPS212	106	9.39	PIPO	111	84	357	77-115
	CPS213	891	78.83	PIPO	120	84	436	75-112
	CPS311	51	4.50	PIPO	120	84	436	75-112
	CWS112	1	0.08	PIPO	137	87	533	97-144
	SD1912	51	4.48	n.a.	n.a.	n.a.	n.a.	n.a.

Plant association derived from corporate data and verified with field survey. Management zone based on Cochran's methods[1].

Unit	Structural stage	Species composition by BA (%)			Trees per acre		BA (sq. ft. per ac.)	SDI
		>21"	>7"	<7"	Dia. range (in.)	#		
1	OFMS	WF – 47 PP – 33 SP – 20	WF – 85 PP – 9	WF – 71 PP – 21 SP – 8	0-5 5-10 10-15	97 80 34	120	196

[1] Cochran, P.H.; Geist, J.M.; Clemens, D.L.; Clausnitzer, R.R.; Powell, D.C. 1994. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington. Res. Note PNW-RN-513. Portland, OR: U.S.D.A., Forest Service, Pacific Northwest Research Station. 21p.

			SP – 6	QA – minor WJ – minor	15-20 20-30 30+ Total	17 9 1 238		
2	OFMS	WF – 30 PP – 20 SP – 50	WF – 57 PP – 36 SP – 7	WF – 54 PP – 39 SP – 7 WJ – minor	0-5 5-10 10-15 15-20 20-30 30+ Total	116 98 40 16 12 2 283	138	226
3	OFMS	PP – 95 SP – 5	LP – 17 PP – 79 SP – 4	LP – 19 PP – 78 SP – 3 QA – minor WJ – minor	0-5 5-10 10-15 15-20 20-30 30+ Total	105 110 49 16 12 2 293	154	251

Trees per acre, basal area per acre, and stand density index derived from LiDAR. Structural stage and species composition are from informal field surveys.

Marking and Layout:

General guidelines

Retain 5-15 percent of each unit in retention areas to provide for mule deer cover and habitat diversity across the landscape. Retention areas would be approximately 1.5 acres in size. Appropriate areas for retention include patches of thickets of small diameter trees (multi-layered preferred), sites that offer habitat diversity, such as snags and concentrations of woody debris, rocky outcrops, and moist or wet microsites.

Leave the following trees:

- trees greater than 20.9 inches dbh, except white fir as specified below,
- incense-cedar,
- western white pine, and
- snags.

Excluding leave trees above, remove all trees meeting A2 specifications within:

- 60 feet of a live aspen clump,
- 60 feet of a live mountain mahogany clump, or
- 100 feet of a meadow.

Excluding leave trees above, remove all trees meeting A2 specifications, including white fir greater than 20.9 inches dbh, within:

- 40 feet of a ponderosa pine tree greater than 20.9 inches dbh meeting leave tree criteria below, or
- 40 feet of a sugar pine tree greater than 20.9 inches dbh meeting leave tree criteria below.

Remaining leave trees should have the following characteristics: live crown ratio greater than 30 percent; fuller crown than neighboring trees; little to no sign of insect, disease, or mechanical damage; and no dead top.

Variable density thin from below the remaining unit to the following residual basal area and species preference. Leave clumps of 2 to 8 ponderosa pine or sugar pine trees throughout unit. Clumps should consist of trees of similar age and size.

Preference for leave trees listed in order of preference: sugar pine; ponderosa pine with reddish-orange bark, wide plates, and deep wide fissures; ponderosa pine; white fir; and lodgepole pine. Species preference takes priority over leave tree characteristics listed above.

Unit	Average residual basal area per acre (sq. ft.)	Range of basal area per acre (sq. ft.)	Range of average acceptable residual basal area (sq. ft. per ac.)	Specific guidelines
1	60	30-100	50-70	Thin all lodgepole pine
2	50	20-90	40-70	Thin all lodgepole pine
3	50	20-80	40-60	Thin all white fir

Noncommercial thinning

The objective is to improve tree vigor and reduce fuels while retaining some seedlings, saplings, and poles for the development of future old forest structure. Patches of regeneration should be retained unless close to large ponderosa or sugar pine trees, in which case, it should be thinned to provide a buffer to the large trees. Spacing of residual trees should be non-uniform with areas of high density, e.g. ponderosa pine regeneration thickets and retention areas.

Tentative specifications

Thin the following trees as specified below:

Species	Min. height (ft.)	Dbh cap (in.)
Ponderosa pine, sugar pine	1	8.9
Lodgepole pine, white fir	1	6.9
Non-old growth western juniper	1	none

Leave tree characteristics include: live crown ratio greater than 30 percent; fuller crown than neighboring trees; disease and insect-free; good form; and good terminal leader growth.

Preference for leave trees listed in order of preference: sugar pine; ponderosa pine with reddish-orange bark, wide plates, and deep wide fissures; ponderosa pine; white fir; and lodgepole pine.

Thin all non-old growth western juniper.

Generally, thin all trees within:

- 60 feet of a live aspen clump,
- 60 feet of a live mountain mahogany clump,
- Special Treatment Areas,
- 35 feet of a ponderosa pine tree greater than 20.9 inches dbh, or
- 35 feet of a sugar pine tree greater than 20.9 inches dbh.

Some trees of good form and vigor should be retained within the culturing of large ponderosa and sugar pine trees.

Thin the remaining unit to the target density below: (tentative targets, may be revised down after post-harvest exam)

Unit	Target trees per acre
1	60-70
2	60-70
3	50-60

Definitions

Aspen clump – at least 5 live aspen trees at least 5 feet tall within 30 feet of each other.

Clump – a grouping of at least two trees spaced no more than 20 feet from each other.

Dbh – diameter at breast height – diameter of a tree measured outside bark 4.5 feet above the ground on the uphill side of the tree.

Mountain mahogany clump – at least 5 live mountain mahogany stems at least 3 feet tall within 30 feet of each other.

Distances are measured slope distance from face of the tree to face of the tree at the stump.

All live trees meeting A2 specifications plus incense-cedar and western white pine trees greater than 7 inches dbh count towards residual basal area. Areas without the aforementioned trees will not be included in residual basal area calculation.

Some areas will have basal area exceed or below the prescribed basal area range because of trees required to be left, trees required to be thinned, or areas already below the prescribed basal area range.

Blue Timber Sale, designation by prescription language

Definitions
Aspen clump – at least 5 live aspen trees at least 5 feet tall within 30 feet of each other.

Clump – a grouping of at least two trees spaced no more than 20 feet from each other.

Dsh – diameter at stump height – diameter of a tree measured outside bark 4 inches above the ground on the uphill side of the tree.

Mountain mahogany clump – at least 5 live mountain mahogany stems at least 3 feet tall within 30 feet of each other.

Healthy tree – a tree with the following characteristics: live crown ratio greater than 30 percent; fuller crown than neighboring trees; little to no sign of insect, disease, or mechanical damage; and no dead top.

Distances are measured slope distance from face of the tree to face of the tree at the stump.

All live trees within the subdivision meeting A2 specifications plus incense-cedar and western white pine trees greater than 7 inches dbh count towards residual basal area.

Some areas will have basal area exceed or below the prescribed basal area range because of trees required to be left, trees required to be thinned, or areas already below the prescribed basal area range.

Special Treatment Areas are designated on the ground with red Special Treatment Area tags and orange paint and shown on the Sale Area Map.

Designation by prescription
End result: Stand density will be reduced and mean diameter will increase. Large ponderosa pine and sugar pine trees will have increased growing space and reduced fuels surrounding them. Leave trees will be the best trees available by species preference and will be predominately ponderosa pine and sugar pine. Lodgepole pine and white fir will be reduced significantly. Conifer encroachment on aspen, mountain mahogany, and meadows will be reduced. Spacing of trees should be non-uniform.

Leave the following trees:
- trees greater than 26.9 inches dsh, except white fir as specified below,
- incense-cedar,
- western white pine, and
- snags.

Excluding leave trees above, remove all trees meeting A2 specifications within:
- 60 feet of a live aspen clump, or
- 60 feet of a live mountain mahogany clump.

Excluding leave trees above, remove all trees meeting A2 specifications, including white fir greater than 26.9 inches dsh, within 40 feet of a healthy ponderosa pine or sugar pine tree greater than 26.9 inches dsh.

Thin from below the remaining subdivision to the residual basal area listed in the table below. Leave clumps of 2 to 8 ponderosa pine or sugar pine trees throughout subdivision. 50 percent of trees should be in a clump. Clumps should consist of trees of similar age and size.

Species preference for leave trees listed in order of preference: sugar pine; ponderosa pine with reddish-orange bark, wide plates, and deep wide fissures; ponderosa pine; white fir; and lodgepole pine. Species preference takes priority over the tree characteristics listed below.

Trees with the following characteristics will be the priority to leave within species groups: live crown ratio greater than 30 percent; fuller, darker green crown and straighter stem without broken or forked top relative to neighboring trees; little to no sign of insect, disease, or mechanical damage; and no dead top.

Subdivision	Average residual basal area per acre (sq. ft.)	Range of basal area per acre (sq. ft.)	Specific guidelines
1	60	30-100	Thin all lodgepole pine
2	50	20-90	Thin all lodgepole pine
3	50	20-80	Thin all white fir
Special Treatment Areas in subdivision 3	10	n/a	Retain 10 square feet per acre per point. This is not an area average. Retain all ponderosa pine with reddish-orange bark, wide plates, and deep wide fissures.

Blue Timber Sale, acceptance of purchaser cutting language

R6-C6.361# - ACCEPTANCE OF PURCHASER CUTTING. (Draft) Upon Purchaser's written request and assurance that cutting to prescription has been completed in a cutting unit in accordance with C2.355#, the Forest Service shall perform an inspection within 5 days, excluding weekends and federal holidays, so as not to delay unnecessarily the progress of purchaser's operations. Unless otherwise agreed in writing, procedures for inspecting Purchaser cutting under C2.355# are as follows:

Variable plot sampling and walkthroughs will be used to inspect cutting to determine compliance with specifications. The Purchaser, at the discretion of Forest Service, may be required to rework areas in non-compliance. Inspections via plots or visual determination will identify issues that may necessitate rework. Rework include but not limited to the following: average basal area target, basal area target per plot, species preference, and tree characteristics.

For assessment of residual basal area and tree selection, Forest Service will:

- Install a series of plots. Plots shall be located throughout the treatment areas to obtain a representative sample of the work. A minimum of one plot per ten acres for each subdivision will be done.
- Mark inspection plots on the ground by monumenting the plot center.
- Use a basal area factor of 10 at each plot to determine residual basal area.
- Record residual basal area and species.
- Record "acceptable" or "unacceptable" for each residual tree. Acceptability will be based on tree retention criteria. Walkthroughs assessing tree selection can be used to assess compliance with specifications.
- Record all violations of required tree retention. An observation in the general area of the plot will be made as well as any observations during walkthroughs.
- Compute average basal area within the subdivision.
- Compute average basal area for the subdivision.
- If Forest Service does not accept Purchaser cutting because of average basal area target not met, the sampling error (confidence interval expressed as a percentage of the sample mean) will be 30 percent or less at the 95 percent confidence level.

For acceptance of cutting, Forest Service will use the following standards:

- Each plot should be within the range of basal area listed in Table 1 unless precluded by required cutting or retention.
- Within the subdivision, at least every 5-acre area the Forest Service inspects should be within the range of acceptable average basal area in Table 1 unless precluded by required cutting or retention.
- For the subdivision, average basal area should be within the range of acceptable average basal area in Table 1.
- At least 40 percent of residual ponderosa or sugar pine trees should be in clumps.
- At least 90 percent of the residual trees are satisfactory.

Table 1. Acceptable targets.

Subdivision	Average residual basal area per acre (sq. ft.)	Range of average acceptable residual basal area (sq. ft. per ac.)	Range of basal area per acre per plot (sq. ft.)
1	60	50-70	30-100
2	50	40-70	20-90
3	50	40-60	20-80

INSTRUCTIONS: Mandatory for use on contracts that use provision C 2.355#, Designation by Prescription as a companion provision. Forest Service will describe in the provision the methods to be used to determine compliance with the prescription. Purchaser marking is not required. Method must state how the Forest Service will inspect the marking (plots, walk thru, type of plots, etc). Use a range over absolute numbers (60-80 BA vs 70 BA, 90%-95% vs 100%) in determining compliance with the prescription. Prior to including this provision the Contracting Officer and Line officer must review the prescriptions and agree that they can be properly implemented by the Purchaser. In addition the Contracting Officer and Line Officer must agree that the inspection methods to be used by the Forest Service can be understood by both parties.

Example

R6-C6.36# - ACCEPTANCE OF PURCHASER CUTTING. (Draft) Upon Purchaser's written request and assurance that marking has been completed in a cutting unit in accordance with C2.355#, the Forest Service shall perform an inspection within 5 days, excluding weekends and federal holidays, so as not to delay unnecessarily the progress of purchaser's operations. Unless otherwise agreed in writing, procedures for inspecting Purchaser marking under C 2.355# are as follows:

Units (1-5): The method of inspecting Purchaser marking of the Designation by Prescription by the Forest Service will be done by variable plot (point sampling) with at least one plot per three acres. Each cutting unit will have at least three plots. Plot locations will be random and determined by a non-biased method. A basal area factor of 20 will be used with the average Basal Area on the unit to be between 60 and 80 BA. Each cutting unit will be evaluated and approved separately. In addition to inspecting the basal area of leave trees the inspection will also evaluate compliance with prescription requirements pertaining to selection of species, quality of leave trees, and spacing or juxtaposition standards.

Unit 6: The prescription is salvage and will be inspected by a walk thru exam prior to skidding/yarding. Forest Service will determine that the Purchaser is cutting only trees with at least 20% live green crown and no evidence of insect activity over 90% of the unit.

Map of preliminary units for Blue Timber Sale.