

APPENDIX D – Forest Service Fuels Treatment Recommendations

1.1 Forestland

Considerations include topographic location, slope steepness, predominant wind direction, and the amount and arrangement of surface, ladder, and crown fuels when developing fuels treatment prescriptions. Prescriptions for forested compartments within the project area incorporate the following components: legal access, travel management (skid roads and trails excluded), silvicultural system, landing locations, species composition, basal area (merchantable timber species >7.9 inches diameter at breast height (DBH)), total average tree height and diameter (all species), average tree age (by species), marking guides, yarding system, slash disposal, cutting cycle (entry schedule), and additional information (see Appendix A – Glossary).

The harvesting schedule, included in the fuels treatment recommendations, assumes that equipment access to Wyoming Highway 189 is secured. A further assumption is that tractor-trailer trucks will be permitted to haul log loads over the main access road in the Hoback Ranches project area.

1.1.1 Ground-Based Yarding

Compartment DD – This 89.5 acre compartment contains stands with an average BA of 40 square feet per acre (sq. ft./ac.). There is a high composition of lodgepole pine with an average age of 77 years. Low severity dwarf mistletoe occurs and where present should be removed. No harvest is recommended within this compartment at present. Removal of dwarf mistletoe infested trees is recommended if this can occur with a minimum of new road construction (see slash disposal remarks below). Re-evaluate in 20-25 years.

Pre-commercial thin lodgepole up to 8 inch DBH to reduce spacing of trees to approximately 300 trees-per-acre (TPA). Thin trees in the five to eight inch diameter class to 80-120 TPA.

Insects and diseases – Dwarf mistletoe at a low severity was seen in a moderate percentage of trees. Wind damage was seen in areas within this compartment.

Travel management – Wyoming Highway 189 to Forest Service Road 30691 south on R-DD to R-DD1. Access is through private land and must be secured before travel is possible.

Silvicultural system – sanitation treatment with individual tree and group selection.

Landings – L-DD1 at junction of R-DD and R-DD1.

Species composition – 100% lodgepole pine.

Average tree height – 65 ft.

Average tree diameter – 12.5 in.

Average age – lodgepole pine 77 years.

Marking guides – cut-tree mark mistletoe infested trees. GPS coordinates should be recorded for later location.

Slash disposal – if access is gained for harvest equipment, slash will be piled at L-DD1 and L-DD2 and burned at the earliest opportunity when full consumption of slash is ensured and risk of escape is low. (See Appendix B for Standards and Specifications.) If treatments will be made by hand crews dwarf mistletoe infested trees will be cut on site, bucked into sizes easily handled, and piled in openings. Piles should be disposed of by mechanical treatment or burning at the earliest opportunity.

Cutting cycle – remove dwarf mistletoe infested trees as soon as possible.

Compartment EE – This 73.3 acre compartment contains stands with an average BA of 40 sq. ft./ac. This stand contains predominately lodgepole pine with an average age of 110 years. Trees are reaching the end of their rotation age. Low severity dwarf mistletoe occurs and where present should be removed. Low basal area measurements make timber harvest questionable from an economic standpoint. Removal of dwarf mistletoe infested trees is recommended if this can occur with little or no new road construction (see slash disposal remarks below). Re-evaluate in 20-25 years.

Pre-commercial thin lodgepole up to 8 inch DBH to reduce spacing of trees to approximately 300 trees-per-acre (TPA). Thin trees in the five to eight inch diameter class to 80-120 TPA.

Hand-cut fuel breaks will be constructed along the property boundary to the south.

Aspen release treatments will occur within and to the west of this compartment. Prescribed fire should follow aspen release treatments if possible. Fire will encourage aspen re-sprouting.

Insects and diseases – dwarf mistletoe at a low severity was seen in a moderate percentage of trees.

Travel management – Wyoming Highway 189 then south on Forest Service Road 30691 south on R-DD. From R-DD, turn east for 0.1 mile then south on R-EE. Turn east on R-EE1 to access west portion of compartment.

Silvicultural system – sanitation cut with individual tree and group selection.

Landings – L-DD1 at junction of R-DD and R-DD1 and L-EE1 at the terminus of R-EE1.

Species composition – 100% lodgepole pine.

Average tree height – 55 ft.

Average tree diameter – 20.0 in.

Average age – 110 years.

Marking guides – cut-tree mark mistletoe infested trees. GPS coordinates should be recorded for later location.

Slash disposal – if access is gained for harvest equipment, slash will be piled at L-DD1 and L-EE1 and burned at the earliest opportunity when full consumption of slash is ensured and risk of escape is low. (See Appendix B for Standards and Specifications.) If treatments will be made by hand crews dwarf mistletoe infested trees will be cut on site, bucked into sizes easily handled, and piled in openings. Piles should be disposed of by mechanical treatment or burning at the earliest opportunity.

Cutting cycle – remove dwarf mistletoe infested trees as soon as possible. Aspen release treatments and hand-cut fuel breaks should occur at the earliest opportunity.

Compartment FF – This compartment is approximately 239 acres in size. Stands have an average BA of 40 sq. ft./ac. A significant percentage (85%) of the lodgepole pine in the compartment is infested with dwarf mistletoe. Infested trees as well as declining and poorly formed trees should be harvested in a sanitation treatment.

A hand-cut fuel break should be constructed south of the junction of FS Road 30687 and R-FF. A lower priority is to construct a shaded fuel break in the relatively open areas along R-FF1 to the north.

During harvest remove all wind damaged and poorly formed trees.

Travel management – access from the south on Forest Service Road 30687, then west on R-FF. R-FF will fork 1.2 miles west accessing north and south forested areas.

Insect and diseases – dwarf mistletoe with low to moderate severity is present in 85% of the lodgepole pine sampled.

Silvicultural system – sanitation treatment with individual tree and group selection where sanitation and salvage harvests are required to remove insect infested trees.

Landings - landings will be located at the junction of FS Road 30687 and R-FF and at the fork on R-FF.

Species composition – 100% lodgepole pine.

Average tree height – 70 ft.

Average tree diameter – 12.5 in.

Average age – 75 years.

Marking guides – leave-tree mark. Because of the high composition of infested trees selection of the high quality, healthy trees to be marked as leave trees will maximize efficiency during the timber sale preparation.

Slash disposal – will involve limbing and bucking at the landing and piling slash including tops and limbs in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – A single entry with a sanitation treatment. This entry will remove all disease and insect infested trees as well as all trees with poor form or in a state of decline. This will serve to reduce risk of crown fire and improve forest health. Additional entries are not anticipated. Re-evaluate in 20 to 25 years.

Compartment GG – This compartment is 392.6 acres in size. Stands have an average BA of 50 sq. ft./ac. A significant percentage (75%) of the lodgepole pine in the compartment is infested with dwarf mistletoe. Infested trees as well as declining and poorly formed trees should be harvested in a sanitation treatment.

There have been past timber stand improvement (T.S.I.) treatments within this compartment.

A hand-cut fuel break should be constructed along the north edge of the compartment in association with the road and creek bottom. A second break should be constructed along the southern edge of the compartment.

An aspen release treatment is recommended in the southeast portion of the compartment.

During harvest remove all wind damaged and poorly formed trees.

Travel management – Access from the north on Forest Service Road 30680. Follow FS30680 west along the north boundary of compartment then south on FS30687. R-GG turns east allowing access to R-GG1, R-GG2 and R-GG3.

South of the junction of FS30687 and R-GG Forest Service signage specifies no vehicle travel over creek crossing. A temporary bridge should be constructed at this crossing to allow access to R-GG4 and R-GG5, which provide access to the southern portion of the compartment.

The island of forestland east of the main compartment will be accessed by R-JJ1. Timber should be skidded to L-HH2.

Insect and diseases – dwarf mistletoe with moderate severity is present in 75% of the lodgepole pine sampled.

Silvicultural system – sanitation treatment with individual tree and group selection cutting to remove insect infested and poorly formed trees.

Landings – L-GG4 will be located along FS Road 30680. Timber in this area can be pulled downhill to the main road. Other landings will be located as shown on map.

Species composition – 95% lodgepole pine; 3% sub-alpine fir; 2% Douglas fir.

Average tree height – 70 ft.

Average tree diameter – 11.0 in.

Average age – 75 years.

Marking guides – leave-tree mark. Because of the high composition of infested trees selection of the high quality, healthy trees to be marked as leave trees will maximize efficiency.

Slash disposal – will involve limbing and bucking at the landing and piling slash including tops and limbs in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – A single entry with a sanitation treatment. This entry will remove all disease and insect infested trees as well as all trees with poor form or in a state of decline. This will serve to reduce risk of crown fire and improve forest health. Additional entries not anticipated. Re-evaluate in 20 to 25 years.

Compartment HH – This 80.7 acre compartment contains stands with an average BA of 120 sq. ft./ac.

A hand-cut fuel break and aspen release treatment will occur along the north and south edges of the compartment respectively.

Insects and diseases – few insect or disease problems were seen.

Travel management – R-JJ turns south from Highway 189. Turn northwest on R-JJ1 to access compartment HH.

Silvicultural system – Individual tree selection.

Landings – L-HH1 will be located along Highway 189 where timber will be skidded from the slope to the south. L-HH2 will be located along R-JJ1.

Species composition – 70% sub-alpine fir; 30% Engelmann Spruce.

Average tree height – 84 ft.

Average tree diameter – 22.0 in.

Average age – 90 years.

Marking guides – leave-tree mark. Select Douglas fir and Engelmann spruce as leave trees when health and form class allow. Avoid retention of sub-alpine fir when possible while still retaining 2/3rds of the stand. Removal of greater than 2/3rds could result in blowdown of residual stand.

Slash disposal – will involve limbing and bucking at the landing and piling slash including tops and limbs in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – harvest timber to 80 square feet basal area per acre. Commercial thin from below leaving dominant, healthy trees making up the residuals (after initial entry, monitor residual stands for windthrow and insect and disease problems. Modify cutting cycle to allow for salvage and sanitation cuts if necessary). A second entry is recommended in ten years that would leave a residual stand of 60 square feet basal area per acre. In the event successful regeneration is occurring, a third and final entry will occur in 15 years leaving a residual stand of no less than 40 square feet basal area per acre of dominant, healthy trees.

Salvage and sanitation cuts will take place where Douglas fir beetle, spruce budworm, and western balsam fir beetle infestations are occurring.

Additional information – Care should be taken to protect regeneration during harvest activities. Operators should be informed of the transmission line transecting this compartment and briefed on safety concerns associated with working around transmission lines.

Compartment II – This compartment is approximately 79.8 acres. Stands have an average BA of 35 sq. ft./ac. A significant percentage of the lodgepole pine (50% of trees sampled) in the compartment is infested with dwarf mistletoe. Infested trees as well as declining and poorly formed trees should be harvested during a sanitation treatment. Lodgepole pine in this compartment is reaching the end of its rotation age.

Twenty percent of species composition is Douglas fir. Select Douglas fir as the leave trees making up the residual stand.

Travel management – R-JJ turns south from Highway 189. The road continues 0.5 miles to the south property boundary where a newly constructed R-JJ2 would turn due west providing access to the compartment.

Insect and diseases – dwarf mistletoe with low severity is present in 100% of the lodgepole pine sampled.

Silvicultural system – Individual tree and group selection.

Landings – a landing will be located along R-II.

Species composition – 50% lodgepole pine; 30% sub-alpine fir; 20% Douglas fir.

Average tree height – 75 ft.

Average tree diameter – 12.5 in.

Average age – lodgepole pine 100 years; Douglas fir 125 years; sub-alpine fir 87 years.

Marking guides – leave-tree mark.

Slash disposal – will involve limbing and bucking at the landing and piling slash including tops and limbs in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – A single entry with a sanitation cut. This entry will remove all disease and insect infested trees as well as all trees with poor form or in a state of decline. This will serve to reduce risk of crown fire and improve forest health. Additional entries are not anticipated. Re-evaluate in 20 to 25 years.

Compartment JJ – This compartment is 76.9 acres. Stands have an average BA of 75 sq. ft./ac. Twenty-five percent of the lodgepole pine sampled in the compartment is infested with dwarf mistletoe. Infested trees as well as declining and poorly formed trees should be harvested in a sanitation treatment.

Thirty percent of species composition is Douglas fir. Select for Douglas fir as the leave trees making up the residual stand.

Travel management – R-JJ turns south from Highway 189. Approximately .25 miles south R-JJ2 branches to the southeast.

Insect and diseases – dwarf mistletoe with low severity is present in 25% of the lodgepole pine sampled.

Silvicultural system – Individual tree and group selection.

Landings – a landing will be located near the highway at the north end of the compartment.

Species composition – 30% lodgepole pine; 35% sub-alpine fir; 35% Douglas fir.

Average tree height – 68 ft.

Average tree diameter – 14.0 in.

Average age – 105 years.

Marking guides – leave-tree mark.

Slash disposal – will involve limbing and bucking at the landing and piling slash including tops and limbs in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – A single entry with a sanitation cut. This entry will remove all disease and insect infested trees as well as all trees with poor form or in a state of decline. This will serve to reduce risk of crown fire and improve forest health. Additional entries are not anticipated. Re-evaluate in 20 to 25 years.

1.1.2 Inoperable

Compartment AA – This 172.2 acre compartment contains stands with an average BA of 40 sq. ft./ac. Due to low basal area, steep slopes, and uncertain access this area is considered inoperable. In the event access is secured and funds are available for management, a sanitation treatment should occur to improve health of stands within this compartment. A hand-cut fuel break should be constructed along the southeast and east edges of this compartment.

Insect and diseases – fifty percent lodgepole pine mortality of unknown cause; fifty-percent mortality of sub-alpine fir (likely western balsam fir beetle).

Travel management – access to this area difficult. Access from the Hoback Ranches private land would allow management opportunities in this area. Public access would require a prohibitive amount of new road construction.

Silvicultural system – none recommended..

Landings – none recommended.

Species composition – 100% lodgepole pine (sub-alpine fir present but not in plots).

Average tree height – 45 ft.

Average tree diameter – 14.0 in.

Average age – 110 years.

Marking guides – none recommended.

Slash disposal – will involve limbing and bucking and hand piling in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – construct hand-cut fuel break at the earliest opportunity.

Compartment BB – This 61.4 acre compartment contains stands with an average BA of 35 sq. ft./ac. Poor access opportunities and inoperable terrain offer few management opportunities. If access is gained, aspen treatments and a hand-cut fuel break along the east and south sides of compartment are recommended.

Insect and diseases – small percentage of fir broom rust at a low severity.

Travel management plan – a jeep trail accesses the compartment through private land along the south edge. The road comes in from Wyoming Highway 189 from the northwest and from the Hoback Ranches private land from the southeast.

Silvicultural system – none recommended.

Landings – none recommended.

Species composition – 100% sub-alpine fir.

Average tree height – 50 ft.

Average tree diameter – 16.0 in.

Average age – 50 years.

Marking guides – not applicable.

Slash disposal – will involve limbing and bucking and hand piling in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – treat aspen stands and construct hand-cut fuel breaks at the earliest opportunity.

Compartment-CC – This 506.7 acre compartment contains stands with an average BA of 10 sq. ft./ac. Poor access opportunities and inoperable terrain make management opportunities low. If access is gained construct a hand-cut fuel break along the east side of compartment.

Insect and diseases – western balsam fir beetle is causing mortality in sub-alpine fir in much of the area in the center of section 4, T. 36 N., R. 113 W.

Travel management plan – forest maps show a road accessing the east boundary of this compartment from the Hoback Ranches private land. No other access opportunities known.

Silvicultural system – none recommended.

Landings – none recommended.

Species composition – 100% sub-alpine fir.

Average tree height – unknown.

Average tree diameter – unknown.

Average age – unknown.

Marking guides – not applicable.

Slash disposal – will involve limbing and bucking and hand piling in openings. (See Appendix B for Standards and Specifications.)

Cutting cycle – construct hand-cut fuel breaks along the east boundary of compartment at the earliest opportunity.

1.1.3 Hand-cut fuel break

Where compartments adjoin roads or other natural or man made openings, shaded fuel breaks are recommended. In areas with no adjoining openings, standard fuel breaks are recommended. Fuel breaks would be constructed to be 150 to 300 feet in width. (See Appendix B for Standards and Specifications.)

It is critical that all woody surface materials and ladder fuels be cleared within this fuel break area.

Travel management – variable.

Insect and disease – No data.

Silvicultural system – variable. A combination of ground-based, helicopter, and skyline systems may be utilized.

Landings – utilize existing landings where practical. Contact manager before locating new landings.

Species composition – variable.

Average tree height – no data

Average age – no data.

Marking guides – leave-tree mark. Select Douglas fir and Engelmann spruce as leave trees when health and form class allows. Avoid retention of sub-alpine fir.

Slash disposal – most slash will be disposed of in small piles in nearby openings or within adjacent compartments. *No slash will remain within fuel breaks.*

Cutting cycle – after initial entry, fuel breaks **must** undergo periodic maintenance at least every 5 years to clear all understory woody species as well as any down and dead material.

1.1.4 Prescribed fire

Fuels reduction can be effectively accomplished with controlled burning. Due to the risks involved burn plans must be developed by qualified personnel before any controlled burning is attempted.

1.2 Non-forestland

Considerations include topographic location, slope steepness, predominant wind direction, and the amount and arrangement of surface, ladder, and crown fuels when developing fuels treatment prescriptions. Prescriptions for non-forested compartments within the project area incorporate the following components: legal access, travel management (road access), ecological site requirements, entry schedule, and additional information (see Appendix A – Glossary).

Non-forestland makes up a small percentage of land within the Hoback Ranches project area. The non-forestland area that does exist is primarily associated with riparian area cover types. These sites characteristically are at a low risk of fire. Riparian areas will be managed according to agency standards and specifications (Appendix B).