SILVICULTURE PRESCRIPTION MATRIX

Wilder-Highlands MPB Response

April 17, 2020

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(Appendix A from project Decision Memo)

Silvicultural Prescription Decision Trees

Prior to Beetle Flight, Concentrate on Current Infestation Only

Accessibility/Slope	Stand Condition	Treatment
NA	Infested stand is isolated by non-forest and/or is not accessible based on land ownership	Defer Treatments and Reevaluate Later
Stand is on slopes greater than 40% or poorly accessible	Infested trees scattered and/or small diameter	**Direct Sanitation** of Infested Trees by Hand Felling, Follow-up with Hand Piling/Burning
Stand is on slope less than 40% and is accessible with heavy equipment	Infested trees scattered and/or small diameter	**Direct Sanitation** of Infested Trees by Hand Felling, Follow-up with Hand Piling/Burning
	More than 40% of lodgepole pine is currently infested	**Direct Sanitation** of Infested Trees by Mastication On Site
	More than 40% of lodgepole pine is currently infested and yarding to concentration points is practical	**Direct Sanitation** of Infested Trees by Felling, Skidding, Masticate/Chip/Mulch at Concentration Point
Stand is on slope less than 40% and is accessible to log removal	More than 40% of lodgepole pine is currently infested and yarding to landings is practical	**Direct Sanitation** of Infested Trees by Felling, Skidding, Masticate/Chip/Mulch/Curtain Burn at Landing
	Dominated by infested lodgepole pine, and yarding to landings is practical	**Salvage Clearcut**, Remove Logs/Poles from Area, Follow-up with Fuel Treatments
	Mixed-species stand with lodgepole pine less than 40% basal area (BA), is currently infested, and yarding to landings is practical	**Species Removal** (Lodgepole Pine), Remove Logs/Poles From Area, Follow-up with Fuel Treatments

After the Beetle Flight Period

Accessibility/Slope	Stand Condition	Treatment
NA	Infested stand is isolated by non-forest and/or is not accessible based on land ownership	Defer Treatments and Reevaluate Later
Stand is on slopes greater than 40% or poorly accessible	Infested trees scattered and/or small diameter	**Direct Sanitation** of Infested Trees by Hand Felling, Chainsaw Debarking, Hand Piling/Burning
Stand is on slope less than 40% and is accessible with heavy equipment	Infested trees scattered and/or small diameter	**Direct Sanitation** of Infested Trees by Hand Felling, Chainsaw Debarking, Hand Piling/Burning
	More than 40% of lodgepole pine is currently infested	**Direct Sanitation** of Infested Trees by Mastication On Site
	More than 40% of lodgepole pine is currently infested and yarding to concentration points is practical	**Direct Sanitation** of Infested Trees by Felling, Skidding, Masticate/Chip/Mulch/Machine Debark at Concentration Point, Pile Debris and Burn
Stand is on slope less than 40% and is accessible to log removal	More than 40% of the lodgepole pine is currently infested and yarding to landings is practical	**Direct Sanitation** of Infested Trees by Felling, Skidding, Masticate/Chip/Mulch/Curtain Burn/Machine Debark at Landing, Pile Debris and Burn
	Dominated by infested lodgepole pine, and yarding to landings is practical	**Salvage Clearcut or Salvage Overstory Removal**, Remove Logs/Poles From Area, Machine Pile and Burn
	Mixed-species stand with lodgepole pine comprising less than 40% of the basal area, the lodgepole pine is currently infested, and yarding to landings is practical	**Species Removal (Lodgepole Pine)**, Remove Logs/Poles From Area, Masticate or Spot Machine Pile Debris Concentrations and Burn
	Less than 40% of the lodgepole pine is currently infested and yarding to landings is practical	**Salvage (Individuals or Clumps)** of Infested/Dead Individuals or Clumps, Hand Pile or Spot Machine Pile Debris Concentrations and Burn

Treatments to Improve Stand Health and Resistance to Light Insect Attack.

Stand Condition	Treatment
Dominated by lodgepole pine with nil to light infestation or mixed-species stand, young and dense, trees are 1 to 7-inch DBH	**Precommercial Thinning** to 10-12 Foot Bole Spacing or 2-6 Foot Crown Spacing, Hand Pile Slash in Cleared Slash Bays and Burn
Dominated by lodgepole pine with nil to light infestation or mixed-species stand, relatively young and dense, trees are 4 to 10-inch DBH, and yarding to landings is practical	**Commercial Thinning** to 80-100 Square Feet Basal Area or 4-8 Foot Crown Spacing, Hand or Spot Machine Pile Slash, and Burn
Two-storied stand dominated by lodgepole pine with less than 40% infestation or a mixed-species stand, the understory is relatively young, with more than 300 to 1,200 TPA, and yarding to landings is practical	**Preemptive Overstory Removal** of Insect Vulnerable Lodgepole Pine over 8-inches DBH Protecting the Young Understory, Hand or Spot Machine Pile Slash and Burn, or Masticate Slash
Variable-density stand, possibly with mixed-species, with less than 40% infestation in the lodgepole pine, and yarding to landings is practical	Commercial and Noncommercial **Thinning Following an Individuals, Clumps, and Openings (ICO) Pattern** of Retention, Hand or Spot Machine Pile Slash and Burn, or Masticate Slash

Prescription Details

Direct Sanitation

Condition Class: *Direct Sanitation is recommended in stands which are poorly accessed and/or on steeper terrain, or where insect infested lodgepole pine are scattered and/or of small diameter. The treatments are noncommercial with treatment intensities and the range of tools available increasing with accessibility to personnel and heavy equipment. There are four scenarios identified:*

Infested trees scattered and/or small diameter
More than 40% of lodgepole pine is currently infested, access with heavy equipment is practical
More than 40% of lodgepole pine is currently infested, and yarding to concentration points is practical
More than 40% of lodgepole pine is currently infested, and yarding to landings is practical

Objectives:

1. Directly reduce active mountain pine beetle populations in infested trees by manipulating the trees.
2. Proactively reduce bark beetle spread from infested lodgepole pine to uninfested trees.
3. Reduce fuel loadings resulting from current bark beetle infestation and tree mortality.

Silviculture Prescription:
Proposed direct sanitation operations will fell and treat trees currently infested with mountain pine beetle. Treatment options may include hand felling, tracked or rubber-tired equipment. Stumps of infested trees will be cut as close to the ground as feasible, and no higher than four inches off the ground on the uphill side. Additional requirements will be necessary for treatment of material greater than four-inches diameter that is infested with mountain pine beetle. Additional requirements for treatment of infested material may include:

- Peeling bark mechanically or by hand to expose larvae to the elements or
- Chipping/masticating to a material size of no greater than 2”x 2” or
- Burning to full consumption/entirety of logs scorched.

During late-summer and fall after insect flight, treatment of insect infested logs can be conducted by chainsaw or mechanized debarking. In the treatment, the bark of logs greater than four-inches diameter is peeled or scrapped off. Bark would have to be removed from between 1/3 and ½ of the circumference of the log to make the treatment effective. Debarking directly destroys insect larvae, and/or allows the remaining bark to dry out more quickly, causing insect mortality. Debarked logs would not be suitable habitat for insect reinfestation in

future years. After debarking, logs would be piled for burning after the wood dries out enough for consumption.

Where heavy equipment can access a site, a rubber-tired or tracked piece of equipment can "masticate", "chip", "mow", or "mulch" trees and woody debris. Masticators are able to fell or knock over trees, and then treat the woody debris onsite. Mowers or mulchers usually to not have the capacity to fell or knock over larger-diameter trees, but can treat woody debris onsite once the tree is down. Trailer-style wood chippers are normally used where logs and woody debris can be brought to the machine, such as at log landings or concentration points. The various equipment shreds and grinds wood into chip-size material. The chips then are dispersed onto the ground in a compacted mulch-like layer. The chip layer can help hold the soil in place and retain moisture. The moister woody debris with reduced piece size, greater piece surface area, and close proximity to the soil will decompose more quick than logs would.

Burning currently infested woody debris to consumption will require the use of a "curtain burner" device due to the higher moisture content of the wood. A curtain burner can be used to burn relatively green logs. These are often shipping container-sized units in which burning is assisted by propane torches. The curtain burner would require a road of logging truck specification to reach log landings or log concentration points. There, infested logs would be yarded (skidded) from the woods to the concentration point for the burning treatment.

Salvage Clearcut or Salvage Overstory Removal

Condition Class: *Use this prescription in stands where lodgepole pine is the dominant tree species, and mountain pine beetle has caused significant mortality of overstory trees. The stand must be accessible for wood removal.*

If an adequate understory of live young trees will remain after harvest, the treatment would be referred to as an overstory removal. An adequately stocked understory should have between 300 and 1,200 non-cull seedlings or saplings per acre prior to harvest. It should be expected that 50 percent of the advanced regeneration will be damaged or destroyed during the harvest.

Objectives:

1. Utilize dead and dying trees for production of forest products before deterioration occurs
2. Remove logs and poles infested with insects to areas away from near lodgepole or ponderosa pine stands
3. Remove and treat mountain pine beetle infested or susceptible lodgepole pine to reduce insect population and spread
4. Regenerate an adequately stocked stand of trees in the open areas after harvest
5. Create stands that will not be susceptible to bark beetle attack for several decades and will break up the fuel continuity in the area.
6. Reduce fuel loadings and break up the fuel continuity in the area.

Silviculture Prescription:
Remove all merchantable dead and associated live conifer, except those required to meet wildlife snag requirements. Merchantable wood products includes sawlogs, posts, poles, fence stays, and firewood greater than 4-inches diameter. Where windthrow risk is low, retain other live non-host trees species including Douglas-fir, aspen, spruce, and fir as individuals or in clumps. Protect existing healthy conifer advanced regeneration within the stand. Obtain additional regeneration in open areas.

Retain between 90 and 180 wildlife trees in lodgepole pine and 90 and 225 wildlife trees in spruce-fir and Douglas-fir per 100-acres of all condition classes. Maintain a sufficient amount of downed logs (50 linear feet) for wildlife habitat and soil resource maintenance.

In open areas, follow-up with reforestation activities to ensure the recruitment of a fresh cohort of aspen, lodgepole pine, Douglas-fir, or other tree species as appropriate to the site.

Sanitize the stand of any dwarf mistletoe infestation in lodgepole pine by felling infested live trees and those potential infested neighboring trees. Non-merchantable live cull trees not meeting wildlife tree needs should be felled to reduce competition with the existing and future regenerated young trees. Slash from disease control and release cutting will be hand piled for burning.

Whole-tree logging is encouraged to reduce fuel loadings. Mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris to reduce fuel loadings. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.

Species Removal (Lodgepole Pine)

Condition Class: *Mixed-species stands with lodgepole pine comprising less than 40% of the basal area, where the lodgepole pine is currently infested, and yarding to landings is practical.*

Objectives:

1. Utilize dead and dying trees for production of lumber products before deterioration occurs
2. Remove logs and poles infested with insects to areas away from near lodgepole or ponderosa pine stands
3. Remove and treat mountain pine beetle infested or susceptible lodgepole pine to reduce insect population and spread
4. Create and maintain healthy stands for the future
5. Create and maintain stands that will not be susceptible to bark beetle for several decades and will break up the fuel continuity in the area.
6. Reduce fuel loadings and break up the fuel continuity in the area.

Silviculture Prescription:
Remove all live and dead lodgepole pine from the stand. Lodgepole pine larger than 4-inches DBH that is suitable for forest products should be removed from the stand to areas away from lodgepole or ponderosa pine. Nonmerchantable lodgepole pine would be treated to prevent insect spread and reduce fuel loadings. Retain other tree species including Douglas-fir, aspen, spruce, and fir. Protect existing healthy advanced tree regeneration within the stand. Obtain additional regeneration in open areas.

Retain between 90 and 180 wildlife trees in lodgepole pine and 90 and 225 wildlife trees in spruce-fir and Douglas-fir per 100-acres of all condition classes. Maintain a sufficient amount of downed logs (50 linear feet) for wildlife habitat and soil resource maintenance.

In open areas, follow-up with reforestation activities to ensure the recruitment of a fresh cohort of aspen, lodgepole pine, Douglas-fir, or other tree species as appropriate to the site.

Sanitize the stand of any dwarf mistletoe infestation in lodgepole pine by felling infested live trees and those potential infested neighboring trees. Non-merchantable live cull trees not meeting wildlife tree needs should be felled to reduce competition with the existing and future regenerated young trees. Slash from disease control and release cutting will be hand piled for burning.

Whole-tree logging is encouraged to reduce fuel loadings. Mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris, to reduce fuel loadings. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.

Salvage (Individuals or Clumps)

Condition Class: *Less than 40% of the lodgepole pine is currently infested, and yarding to landings is practical.*

Note that Salvage harvest is not a regeneration harvest. Salvage Clearcut is a regeneration harvest.

Objectives:

1. Remove and treat mountain pine beetle infested or susceptible lodgepole pine to reduce insect population and spread
2. Utilize dead and dying trees for production of wood products before deterioration occurs
3. Remove logs and poles infested with insects to areas away from near lodgepole or ponderosa pine stands

4. Maintain relatively healthy stands for the future
5. Create stands that will not be susceptible to bark beetle attack for several decades
6. Reduce fuel loadings and break up the fuel continuity in the area

Silviculture Prescription:
Commercially remove dead and dying lodgepole pine from the stand. Lodgepole pine larger than 7-inches DBH that is suitable for forest products should be removed from the stand to areas away from lodgepole or ponderosa pine. Nonmerchantable lodgepole pine would be treated to prevent insect spread and reduce fuel loadings. Retain other tree species including Douglas-fir, aspen, spruce, and fir. Protect existing healthy advanced tree regeneration within the stand. Obtain additional regeneration in open areas if necessary.

Retain between 90 and 180 wildlife trees in lodgepole pine and 90 and 225 wildlife trees in spruce-fir and Douglas-fir per 100-acres of all condition classes. Maintain a sufficient amount of downed logs (50 linear feet) for wildlife habitat and soil resource maintenance.

Whole-tree logging is encouraged to reduce fuel loadings. Mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris, to reduce fuel loadings. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.

Precommercial Thinning

Condition Class: *Dominated by lodgepole pine with nil to light infestation and/or mixed with Douglas-fir and aspen, trees are young and dense, of 1 to 7-inch DBH range, average tree age is between 30 and 70 years old (except younger in extremely dense sapling and pole stands), and the average crown base has risen to at least four to six feet above the ground due to self-pruning. Tree species other than lodgepole pine would be retained to enhance diversity.*

Objectives:
1. Maintain healthy and productive stands into the future.
2. Reduce competition between trees and provide space to grow.
3. Create and maintain stands that will not be susceptible to bark beetle for several decades and will break up the fuel continuity in the area.
4. Reduce fuel loadings and break up the fuel continuity in the area

Silviculture Prescription:
The intent of this treatment is the maintenance of desirable growth rates and promotion of tree vigor. Generally thin from below leaving the more dominant, healthy trees at a spacing of 8 to 12 feet between stems, depending on the size of the trees. Residual tree spacing is guided more by “crown spacing” of two to six feet between trees. Leave tree arrangement may be more

uniform in some areas, and clumpier in others. Open areas are counterbalanced by denser areas. Tree species other than lodgepole pine would be retained unless their removal is necessary for safety or operational purposes.

For fuel reduction, maintenance of wildlife movement, and to maintain visual quality, slash from the thinning will be hand piled in "slash bay" openings up to 50-feet across to accommodate burning once the debris cures.

Where practical, dwarf mistletoe infested lodgepole pine would targeted for felling during the thinning operations to reduce disease presence and spread. The slash bay openings could be used to target disease infestation centers. However, disease control is not a primary goal in this project.

Commercial Thinning

Condition Class: *Use this prescription in stands dominated by dense, immature lodgepole pine pole timber and/or mixed with Douglas-fir and aspen, with nil to light insect infestation, with crowns self-pruning and crown bases elevated, and trees in a range of 4 to 10-inches DBH. Yarding to landings is practical.*

Objectives:

1. Reduce stand density, improve tree health and vigor by reducing competition and targeting dwarf mistletoe.
2. Increase air circulation within the stand to disperse insect pheromones.
3. Utilize the excess trees primarily for smaller-diameter forest products including fence posts, corral poles, fence stays, firewood, and small-diameter sawlogs.
4. Feature the retention of tree species other than lodgepole pine.
5. Obtain a stand of sawtimber-sized trees by the end of rotation.
6. Open stands up, break-up canopy continuity, and reduce fuel loading.

Silviculture Prescription:

Commercially thin the stand from below, retaining the taller and healthier trees. Retain other tree species unless the individual tree is damaged or diseased. Thin to four to eight-foot crown spacing, or 80 to 100 square feet basal area. Residual spacing maybe uniform, irregular to clumpy. Target for removal any insect-infested trees, dwarf mistletoe trees, trees of poor form, forked, poor health or vigor, overtopped and suppressed trees. If clumps of young, healthy seedlings and saplings are found, the clump maybe retained to provide vertical diversity, wildlife cover, visual screening, and a young tree component.

An alternate form of the commercial thinning is sometimes referred to as an "Eight-inch Minus" prescription. In this approach all trees under eight-inches DBH are removed or felled. In places it may be practical to leave clumps of young, healthy seedlings and saplings.

Prune the lower branches up as high as practical to reduce ladder fuels. Conduct non-commercial release and weed of smaller diameter stems to reduce competition and improve stand health. Target dwarf mistletoe-infested lodgepole pine as practical. However, disease control is not a primary goal in this project.

Whole-tree logging is encouraged to reduce fuel loadings. Hand or mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris, to reduce fuel loadings. Where slash piles are embedded in the cutting unit, clear slash pile burn bays up to 50-feet across around the pile to minimize scorching of residual trees. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.

Preemptive Overstory Removal

Condition Class: *Two-storied stands dominated by lodgepole pine with less than 40% infestation or a mixed-species stand, the understory is relatively young, with more than 300 to 1,200 TPA, and yarding to landings is practical.*

Objectives:

1. Remove and treat mountain pine beetle infested or susceptible lodgepole pine to reduce insect population and spread
2. Create and maintain healthy stands for the future
3. Obtain a young, healthy, fully-stocked stand of trees, free from competition by overtopping trees.
4. Stands of young, vigorous lodgepole pine (and other species where present) that are free to grow without dwarf mistletoe infection.
5. Create and maintain stands that will not be susceptible to bark beetle for several decades and will break up the fuel continuity in the area.
6. Reduce fuel loadings and break up the fuel continuity in the area

Silviculture Prescription:
The intention of the treatment is to preemptively remove the more insect susceptible larger-diameter lodgepole pine before those trees become infested with mountain pine beetle. The understory lodgepole pine retained will be less susceptible to insect attack and brood production due to the smaller diameters.

Remove all merchantable live and dead conifer greater than eight inches DBH (seven-inch DBH for live lodgepole pine), except those required to meet wildlife snag requirements. Where windthrow risk is low, retain other trees species including Douglas-fir, aspen, spruce and fir as individuals or in clumps. Protect existing healthy conifer advanced regeneration within the stand. Obtain additional regeneration in open areas.

Retain between 90 and 180 wildlife trees in lodgepole pine and 90 and 225 wildlife trees in spruce-fir and Douglas-fir per 100-acres of all condition classes. Maintain a sufficient amount of downed logs (50 linear feet) for wildlife habitat and soil resource maintenance.

In open areas, follow-up with reforestation activities to ensure the recruitment of a fresh cohort of aspen, lodgepole pine, Douglas-fir, or other tree species as appropriate to the site.

Sanitize the stand of any dwarf mistletoe infestation in lodgepole pine by felling infested live trees and those potential infested neighboring trees. However, disease control is not a primary goal in this project.

Non-merchantable live cull trees not meeting wildlife tree needs should be felled to reduce competition with the existing and future regenerated young trees. Slash from disease control and release cutting will be hand piled for burning.

Whole-tree logging is encouraged to reduce fuel loadings. Mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris, to reduce fuel loadings. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.

Thinning Following an Individuals, Clumps, and Openings (ICO) Pattern

Condition Class: *Use in variable-density stands, possibly with mixed-species, with less than 40% bark beetle infestation in the lodgepole pine, and where yarding to landings is practical. For use near private land for fuels reduction and managed tree retention.*

Objectives:

1. Reduce stand density, improve tree health and vigor by reducing competition and targeting insect and disease infested trees.
2. Increase air circulation within the stand to disperse insect pheromones.
3. Utilize the removed trees for forest products including fence posts, corral poles, fence stays, firewood, and sawlogs.
4. Feature the retention of tree species other than lodgepole pine.
5. Maintain a stand of a larger area, which is comprised of sub-units of varying age classes, tree-height classes, and tree densities.
6. Reduce surface fuel loadings, ladder fuels, and break-up forest canopy continuity.
7. Develop vegetative features or structures which are resistant to surface fire spread, crown fire development, and crown fire spread.
8. Provide for post treatment settings which are generally visually acceptable in the seed foreground.
9. Provide for wildlife movement and hiding cover.

Silviculture Prescription:
This form of management is intended to be flexible in application based on the site-specific conditions and opportunities encountered within a larger stand area. Change to which form of retaining individual trees, trees in clumps, or creating openings can occur in the micro-scale at as close as 100-foot intervals. Sub-units in the ICO application could be range from 0.1-acre to 5-acres in area based on the conditions. Sub-units can be in variety of shapes. There is no set arrangement to the sub-unit pattern.

In general, apply three or four conditions within the larger stand area. Proportion of each condition can vary. The conditions can be classed as:

Areas of thinned **Individual** trees being left.	20-45% of stand area
Clumps of trees either not thinned or more lightly thinned.	25-35% of stand area
Openings with no trees.	25-45% of stand area
Opening containing patches of young seedlings and saplings.	Patches as found

In the Individuals sub-units, commercially thin the stand from below, retaining the taller and healthier trees. Retain tree species other than lodgepole pine unless the individual tree is damaged or diseased. Thin to eight to twenty-foot crown spacing, or 40 to 80 square feet basal area. Residual tree arrangement maybe uniform, irregular to clumpy. Target for removal any insect-infested trees, dwarf mistletoe-infested trees, trees of poor form, forked, poor health or vigor, overtopped and suppressed trees. If clumps of young, healthy seedlings and saplings are found, the clump maybe retained to provide vertical diversity, wildlife cover, visual screening, and a young tree component. In the Individuals patches, be mindful of exposure to wind and windthrow.

In the Clumps, the patch maybe left unthinned, precommercially thinned, or commercially thinned. The goal is to retain a relative closed-canopy in the patch. Generally thin from below with remaining trees averaging not much more than two to four-foot crown spacing between the remaining trees. Trees maybe left with branches intertwined with neighboring trees. Select areas for retention as clumps that have more healthy trees present. Where spruce and fir occur, that area could be designated as a retention clump.

Focus Openings in those areas where insect or disease-infestation and mortality is present, windthrow has occurred, or trees are generally in poor condition. Openings may be placed to remove larger-diameter lodgepole pine which will be more susceptible to mountain pine beetle attack and mortality. The opening may serve as a log landing area, or as a slash bay for pile burning.

Where a patch of healthy young seedlings and saplings occurs, the surrounding overstory trees can be removed to reduce shading and competition with the rest of the stand. This would be an Opening with a young patch.

Prune the lower branches up as high as practical to reduce ladder fuels. However, in spruce and fir clumps do not prune to provide for wildlife habitat. It is also beneficial in spruce-fir clumps to leave downed logs and older standing dead trees for wildlife use.

Conduct non-commercial release and weed of smaller diameter stems to reduce competition and improve stand health. Target dwarf mistletoe-infested lodgepole pine as practical. However, disease control is not a primary goal in this project.

Whole-tree logging is encouraged to reduce fuel loadings. Hand or mechanically pile for burning, or mechanically treat (masticate or chip) excessive amounts of slash and woody debris, to reduce fuel loadings. Where slash piles are embedded in the thinned areas, clear slash pile burn bays up to 50-feet across around the pile to minimize scorching of residual trees. The target for ground fuel loadings in the wildland-urban interface is 3 to 10 tons per acre in all diameter classes, and 1 to 8 tons per acre of coarse woody debris in 3-inch plus diameter class.