

## **Appendix A. Project Design Criteria (PDC)**

### **A1. PDC that apply to Alternative 1 and Alternative 2**

#### **Silviculture**

1. Gap size and distribution (i.e. location and number) would vary depending on stand specific conditions and treatment types.
2. Openings greater than 2 acres would be managed as an even-age system.
3. Tree planting would occur in gaps larger than 2 acres and interplanting would occur only where canopy cover is open enough to support the establishment of shade intolerant and/or fire-resistant species (ponderosa pine, western larch, western white pine).
4. Openings would be created in root disease pockets. Openings would be reforested in accordance with site conditions.
5. Pruning may be used to reduce ladder fuels in areas as decided by the fuels specialist.
6. For Inventoried Roadless Areas (IRAs) only: intermediate thinning would be limited to small diameter trees (less than 10" DBH) in plantations under 40 years of age.
7. For Inventoried Roadless Areas (IRAs) only: variable density thinning (VDT) from below would be limited to small diameter trees (less than 14" DBH) outside of plantations, in previously thinned stands or uneven-aged stands.
8. No commercial thinning in Units 8 and 40. Other elements of the proposed action including but not limited to sapling thinning and mastication should still occur.

#### **Fuels**

1. Hand piles would be a minimum of 6' in diameter and 6' in height.
2. Machine piles would be a minimum of 8' in diameter and 8' in height.
3. All piles shall be as wide as they are tall.
4. No piles would be constructed on stumps or on sections of large down logs.
5. All piles would be as compact and free of dirt as possible.
6. All material would be contained within the general contour of the pile.
7. All hand piles would be covered. Covering would consist of 6 mil black plastic (polyethylene) or an equivalent water-resistant barrier. Forest Service personnel would approve prior to use. Cover when pile is approximately 75% complete, then place remaining material on top.
8. Mechanical piling would be done with equipment capable of picking up (grasping) slash material and piling.
9. All piles would be located so that burning would not cause damage to residual trees or snags. Piles would be located outside the drip line of leave trees.
10. All piles would be located at least 20' inside the unit boundary.

11. Piles would not be placed on or in the following areas: pavement, road surface, ditch lines, the bottom of ephemeral channels, or within perennial or intermittent stream protection buffers (exception to stream protection buffer for units 86, 88, 92, 99, 102, 115, 136, 138, 139).
12. Slash resulting from fuels reduction and pre-commercial treatments would be piled concurrently with the thinning activities. Piles should be burned within 2 years of construction.
13. Notify and coordinate with Highland Ditch Company prior to underburning in units 1, 221, 228, 250 and 251.

## **Wildlife**

1. No timber harvest activities, mechanical fuels treatments, or temporary road construction within 65 yards of the one known spotted owl nest patch from March 1 to July 15. If a new spotted owl nest is located during the period of the contract, the same seasonal restrictions would apply.
2. No burning would take place within 0.25 mile of a spotted owl nest patch between March 1 and September 30.
3. No small helicopter (i.e. Vertol, Sikorsky) operation within 150 yards, or large helicopter (Chinook) operation within 265 yards of a spotted owl nest patch from March 1 to September 30.
4. An average of 6 logs per acre in decomposition classes 1, 2 and 3 would be retained. Logs would be at least 20 inches in diameter at the small end and have a volume of 40 cubic feet. Skid trails and skyline locations would avoid disturbing key concentrations of down logs or large individual down logs where possible.
5. Buffers for Survey and Manage species needing protection would be designated on-the-ground prior to ground disturbing activities.
6. If a wolf den or rendezvous site is found in or near the project area, no activities associated with the proposed action would be allowed within one mile of the den or rendezvous site from April 1 through July 15.
7. If a raptor nest is found, the area would be protected according to the buffers as defined by forest plan standards.
8. Snag creation may occur when the following conditions are met:
  - a. Not near an open road; AND
  - b. Snag size is 18" dbh and greater; AND
  - c. Would occur after all fuel activities are completed
9. Consult wildlife biologist or botanist before placing landings within dry meadows in order to protect floral diversity and wildlife resources.
10. No new temporary roads will be constructed in nest patches or 100-acre LSRs.
11. All treatments within B5 will maintain a canopy cover of 50% or greater in commercial units.

12. Within LSR units 193L, 203L, 208L, and 214L only treat the young-stand and understory component. Do not cut any material over 8" DBH or underburn within these units.

## Soils

1. Skid trails would be designated and approved prior to logging by the contract administrator. When feasible, they would be located on previously disturbed areas, such as old landings, spur roads, and skid trails.
2. Landing locations would be approved by the Forest Service prior to operations.
3. Ground-based harvest systems would not be used on slopes greater than 40 percent to avoid detrimental soil and/or watershed impacts.
4. Convey to all equipment operators the need to limit ground disturbance as much as is feasible. Avoid travelling over undisturbed ground unless necessary.
5. Avoid repetitive passes by heavy equipment except over designated primary routes (i.e., roads, or skid trails). Restrict travel of heavy equipment off designated primary routes to two passes or fewer.
6. Limit, as feasible, heavy equipment, particularly tracked machinery from pivoting or unnecessary side-hill travel on slopes greater than 15 percent. Travel would mostly be down the fall-line and perpendicular to the contour of the slope.
7. Landings and skid trails would have erosion control measures installed following fuels or reforestation treatments.
8. Meadows identified on pre-sale maps would be protected by not allowing new temporary roads, landings or ground based equipment to operate within the delineated area.
9. The contract administrator and soils/hydro resource specialist would coordinate to monitor and evaluate soil conditions to determine when they are suitable (e.g. dry enough) for operations.
  - a. Start of operations would be approved on a unit-by unit-basis due to differing soil types in the area since some soils may be more prone to detrimental damage than others.
  - b. Monitoring would be conducted to determine when soil conditions are beginning to become too wet for operations.
10. Ground-based operations would be suspended during wet periods when soil moisture is high and off-trail heavy equipment tracks sink deeper than 6 inches below the soil surface with one or two passes (or if tracks in primary skid trails sink deeper than 12 inches); particularly during spring, after heavy or prolonged rain, or in late fall.
  - a. Rainfall guidelines for when to temporarily defer or cease ground-based operations:
    - i. If it rains at least 0.3 inches per 4-hour period.
    - ii. When precipitation for the prior 24- hour period (1:00 A.M. – 12:00 A.M.) as recorded at the Wamic Mill RAWs site (<https://raws.dri.edu/cgi-bin/rawMAIN.pl?orOWAM>) is 0.6 inches or greater.

11. For whole-tree harvest systems, primary skid trails would be spaced at least 100 to 150 feet apart at the furthest termini from the landing, except where terrain limitations dictate otherwise.
12. For cut-to-length harvest systems, spacing of primary forwarder trails would be at least 65 feet, except where terrain limitations dictate otherwise. To the extent possible, slash mats would be deposited over primary forwarder trails during cutting operations.
13. All skid trails would be rehabilitated immediately after harvest activities. Existing landings not associated with temporary roads would have erosion control measures installed following fuels or reforestation treatments.
14. Only needed for cable logging methods: Spacing of yarding corridors for parallel settings would be at least 100 feet apart, and 150 feet at the tail-hold for radial settings.
15. Only needed for cable logging methods: Front-end log suspension would be required during yarding operations.
16. Only needed for cable logging methods: Retain trees that have been used as guy line anchors, tail-holds, or intermediate supports for future coarse woody debris (CWD) recruitment.
17. Only needed for tethered logging methods: Spacing of yarding corridors would be at least 65 feet apart.
18. Only needed for tethered logging methods: Tethered logging applications would be approved by the Forest Service Sale Administration on a unit by unit basis.
19. Crushed aggregate or other rock may be used when necessary to reduce erosion, puddling, ponding, rutting, soil displacement, or compaction on temporary roads and landings. Following harvest activities, rock would be removed or incorporated into the soil by decompacting to a depth of 24 inches or scarifying the roadbed to provide an efficient base for vegetative growth and water infiltration.
20. Native Surfaced Roads - Haul would not occur on native surfaced roads during wet conditions unless hardened with crushed aggregate or other rock, and drainage structures or other erosion control measures are installed to prevent sediment delivery to streams and protect the road surface.
21. Haul routes would be inspected weekly, or more frequently if weather conditions warrant. Inspections would focus on road surface condition, drainage maintenance, and sources of soil erosion and sediment delivery to streams. If sediment traps are used, they would be inspected weekly during wet conditions and entrained soil would be removed when the traps have filled to  $\frac{3}{4}$  capacity. Removed materials would be deposited in a stable site that is not hydrologically connected to a stream.
22. Log and rock haul on system and temporary roads would be prohibited at any time there is 0.5 inches of precipitation within any given 24-hour period as measured at the Wamic Mill RAWS site (<https://raws.dri.edu/cgi-bin/rawMAIN.pl?orOWAM>), or if the roads begin to show signs of damage from haul activities. To measure precipitation, the purchaser may install a temporary rain gauge on NFS land near or adjacent to the lowest elevation along the haul route as agreed upon; otherwise, precipitation would be measured according to the Wamic Mill RAWS site (<https://raws.dri.edu/cgi-bin/rawMAIN.pl?orOWAM>).

23. Aggregate Roads – Haul may occur during wet conditions on aggregate roads. Haul would be stopped immediately if road use is causing rutting of the road surface, ponding of water on the road, failure of any drainage structure, or any other action occurs which increases the sediment delivery to a stream. On some roads, depending on haul volume, this would likely occur when there is more than one inch of rain in a 24-hour period or more than two inches of rain in 48 hours.
24. Winter Operations would only occur when the ground is frozen on the surface and to a depth of at least 6 inches, and when the snowpack is at least 24” deep and firm. Temperatures would remain below freezing for at least 8 hours in a day. Winter operations would be considered on a unit by unit basis because of the different soil types in the area.
  - a. Guidelines for when conditions are no longer favorable for ground-based operations over the snow:
    - i. When rain-on-snow softens the snowpack.
    - ii. When the temperature is above freezing for more than 8 hours per day and the snow pack becomes soft.
    - iii. When heavy equipment ruts in the snowpack have become mixed with mud.
25. Mechanical piling of post-activity fuels would be limited, as is feasible, to existing primary travel routes and skid trails. Restrict travel of heavy equipment off designated primary routes to two passes or fewer.
26. Machine piling of slash during fuels treatments would generally be avoided on slopes over 30 percent. Minimize impacts of machine piling by piling no more than needed to break up fuel continuity.
27. Maintain effective ground cover and organics, retain >50% of litter/duff depth wherever it exists

## **Hydrology, Fisheries and Aquatic Fauna**

1. Highland Ditch Company infrastructure would be protected, and access to infrastructure would be maintained.
2. Water drafting sites for all activities would be identified by sale administrator or fire/fuels personnel with support from fish biologist or hydrologist. The location would minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and fish habitat. Use of screen material with either of the following maximum openings would be required: 1.75 millimeter opening for woven wire or 3/32 inch opening for perforated plate. Limit withdrawal by 50 percent or less of the stream flow (visually estimated).
3. For units receiving treatment within the Riparian Reserves<sup>1</sup>, the following conditions would be met:

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<sup>1</sup>Riparian reserve widths include two site potential tree height along fish bearing streams, or within one site potential tree height along any non-fish bearing intermittent streams, seeps, ponds, or wetlands less than 1 acre. Buffers are measured from the edge of the bankfull channel on both sides of the stream (or water’s edge in the case of a pond or wetland). Buffers would be expanded to include slope breaks where appropriate. The inner riparian is defined as the area within a Riparian Reserve that is within 100 feet of a stream. Thus, the

- No ground-based equipment would operate and no ignition during an underburn (backing fire is allowed) would occur within 100 feet of streams.
  - No treatment, with the exception of prescribed fire, would occur within a 60-foot buffer on perennial streams and a 30-foot buffer on intermittent or ephemeral streams.
  - In units 86, 88, 92, 99, 102, 113, 114, 115, 136, 138, and 139 only, hand treatment may occur up to the edge of the stream bank (defined as the bank full width of stream).
  - Slash would be piled and burned at least 30 feet from streams.
  - In the Riparian Reserves of Dry Mixed Conifer stands, the following prescription would be followed:
    - i. Thinning would be conducted from below and stands would be thinned to a minimum of 40% canopy cover.
    - ii. No cedar, white pine, or pacific yew would be cut and no trees over 24" DBH would be cut.
    - iii. All existing down wood 12" DBH and 10 feet long would be maintained.
    - iv. 25% of existing brush would be maintained.
    - v. All snags would be left standing unless they pose a safety hazard.
  - In the Riparian Reserves of Moist Mixed Conifer stands, the following prescription would be followed:
    - i. Thinning would be conducted from below and stands would be thinned to a minimum of 50% canopy cover.
    - ii. No cedar, white pine, or pacific yew would be cut and no trees over 30" DBH would be cut.
    - iii. All existing down wood 16" DBH and 10 feet long would be maintained.
    - iv. All snags would be left standing unless they pose a safety hazard.
4. No Riparian Reserve treatment would occur in units 157, 161, and in the mapped wetland and its associated 60-foot buffer in units 55, 56, 59, 150 and 159.
5. No mechanical treatment would occur within 60 feet of talus slopes.

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inner riparian includes the 60-foot buffers on perennial streams and the 30-foot buffers on intermittent or ephemeral streams where no treatment with the exception of prescribed fire would occur.

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6. No ground-based equipment would operate, and no new temporary road construction or new landings would occur within 100-feet of streams, seeps, springs, or wetlands. However, where pre-existing temporary road alignments or landings exist they may be utilized as long as they do not intersect any perennial stream, spring or wetland and are not hydrologically connected to these features. If water is present at intermittent or ephemeral streams, watershed personnel will work with the timber sale administrator to facilitate crossing solutions.
7. Refuel mechanized equipment at least 150 feet from water bodies. Parking of mechanized equipment overnight or for longer periods of time would be at least 150 feet from water bodies or as far as possible from the water body where local site conditions do not allow a 150-foot setback. Absorbent pads would be required under all stationary equipment and fuel storage containers. A Spill Prevention Control and Countermeasures Plan would be prepared by the contractor as required under EPA requirements (40 CFR 112).
8. Low severity burns would constitute the dominant type of controlled burn within Riparian Reserves, resulting in a mosaic pattern of burned and unburned landscape.
9. Within Riparian Reserves; wet line or black line would be used to control prescribed fire perimeter.
10. Burning activities excluded in Riparian Reserves are as follows: mechanical fire line construction (e.g. dozer, tractor, etc.), and use of chemical fire retardant.
11. In the event that handline is constructed within Riparian Reserves, Best Management Practices (BMPs) and erosion control measures would be implemented. Where slopes exceed 20%, construction of water bars would be standard practice.
12. If a tree located outside of a riparian reserve is felled on lands wholly or partially within the riparian reserve, the portion of the tree within the riparian reserves would not be removed.
13. Skid trails, forwarder trails, and temporary roads would avoid using the bottom of ephemeral draws or dry swales as primary travel routes. If needed, crossings would be perpendicular to ephemeral draws and swales as is feasible.
14. Only needed for cable logging methods: If cable logging systems require use of hold trees that are within the Riparian Reserves, avoid using western redcedar, western white pine species, and any tree greater than 30 inches, when possible.
15. Only needed for cable logging methods: If cable yarding corridors cross stream channels, logs would be fully suspended above the stream channel and no more than 5 crossings would occur within any given 1,000 foot reach. Each corridor would be limited to no more than 15 feet in width and any trees felled to create the corridors would be left on the ground.
16. Existing vegetation in roadside ditches hydrologically connected to streams would not be removed unless an effective sediment control feature is installed and maintained until vegetation is reestablished. Sediment control features (such as wattles, or bio bags filled

- with wood chips) would be maintained during implementation and left in place after contract closure.
17. Soil disturbing activities (i.e., road maintenance, road reconstruction, temporary road construction, landing construction) would occur during drier conditions. Dry conditions prevail seasonally during the time of year when light to moderate amounts of precipitation occur sporadically, soils are drying, and stream flows are dropping; generally June 1 through October 31, but variable from year to year.
  18. Temporary roads and landings would not obstruct ditch lines. If ditch lines cannot be avoided, ditch lines or drainage ways would be improved, with temporary culverts, french drains, drivable dips, or measures that provide effective drainage and prevent erosion prior to and during implementation as necessary.
  19. Temporary roads would be obliterated and landings would be scarified upon completion of vegetation, fuels, and reforestation activities. Culverts would be removed and cross-drain ditches or water bars would be installed as needed. Disturbed ground would be seeded and mulched and available logging slash, logs, or root wads would be placed across the road or landing surface. Post-harvest motorized access would be prevented through the construction of a berm, placement of large boulders, or other approved techniques.
  20. Install water bars on all segments of primary designated skid trails and temporary roads on slopes 10 percent or greater. Spacing of water bars would be more frequent as the pitch of the slope becomes steeper.

## Transportation

1. No new road construction including temporary roads would occur in Inventoried Roadless Areas (IRAs). Road maintenance or reconstruction may occur, if necessary and as approved by the Regional Office, on the section of Forest System Road 4860-000 which exists in an IRA.
2. Follow the appropriate Oregon Department of Fish and Wildlife (ODFW) guidelines for timing of in-water work (in this watershed the in-water work window is July 1 to October 31. Exceptions to the ODFW in-water work windows would be requested by the Forest or its contractors, and subsequently approved by ODFW, U.S. Army Corps of Engineers, and Oregon Division of State Lands.
3. All signing requirements on roads that are open for public use within the Mt. Hood National Forest would meet applicable standards as set forth by the Manual of Uniform Traffic Control Devices (MUTCD). Some roads accessing State and County highways would require additional signing to warn traffic of trucks entering onto or across the highway.
4. Unsuitable excavation<sup>2</sup> from ditch cleaning or other operations would be disposed of at Forest Service approved sites. Material disposed of would be spread evenly over an

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<sup>2</sup> Soil that is silty, sandy, saturated, frozen, or contains clay, organics, or other material that would be unsuitable for use in road construction and maintenance work. (Unsuitable excavation, by specification, is any material containing excess moisture, muck, frozen lumps, roots, sod, or other deleterious material along



appropriate area with a maximum layer thickness of 4 feet. All disposals would be seeded and mulched at the completion of operations, and prior to the wet season.

5. The use of steel-tracked equipment on asphalt or similar surface roads would not be used unless approved by a Forest Service representative. If a suitable site for the loading and unloading of equipment and materials is not available, then use of a paved surface may be permitted provided that the purchaser uses approved matting materials (such as wood chip or crushed rock) to protect the road surface. Purchaser is responsible for restoring roads to existing condition.
6. Temporary roads and landings located on or intersecting NFS roads that are asphalt or similar surface would have 3-inch minus or finer dense graded aggregate placed at the approach to prevent surface damage. The purchaser would purchase the material from a commercial source and place the material so that the approach flares are wide enough to accommodate the off-tracking of vehicles entering onto or leaving the site.
7. Appropriate measures would be taken to prevent or reduce mineral soil contamination to aggregate surface roads. If contamination occurs, the purchaser would repair contaminated areas with specified aggregate surfacing. Mineral soil contamination degrades and reduces the load bearing capacity of the existing aggregate surface road.
8. The appropriate Forest Service specialist would be consulted whenever:
  - a. Temporary roads would be constructed in areas with an existing cross-slope greater than 40%,
  - b. Temporary roads would have a road grade above 15% for any distance greater than 2,000 feet, or
  - c. Temporary roads would have a road grade above 18% for any distance greater than 600 feet.
9. Temporary roads and National Forest System roads which are designated for 'project use only' would be closed to public use. The purchaser would sign the entrance to such roads with "Logging Use Only" signs and make every reasonable effort to warn the public of the hazard and to prevent any unauthorized use of the road.
10. All slash created through road reconstruction and/or road maintenance including temporary road construction would be machine grapple piled outside the road prism. Construction and placement of piles would adhere to all fuels related PDC's.

## Heritage

1. A 100-foot buffer zone for the exclusion of heavy machinery would be flagged around heritage resource sites that are situated in areas scheduled for mechanical treatment.
2. A 50-foot buffer zone (each side of center line) for the exclusion of heavy machinery would be flagged or delineated along historic ditches. Ditch crossings would be limited to previous crossings. Crossings would be approved by the Zone Archaeologist.

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with certain types of soil that contain unacceptable amounts of silt or clay have insufficient load bearing properties and are considered unsuitable for use in construction of any structural component of a roadway. Therefore this type of material, typically found in ditches or slide material, needs to be end-hauled and disposed of).

3. Fire control line would be constructed, using either wet line or hand line, around all fire sensitive heritage resources.
4. To prevent adverse effects to historic properties under Section 106 of the National Historic Preservation Act, road improvements would be made in select locations. Improvements would not include blading or grading. A minimum of twelve inches of material would be added to select road surfaces. Native borrow material is preferred, but may be supplemented with other available material. Material would be left in place after project activities are completed.
5. If during project activities cultural material is encountered, all work will cease immediately and a Forest Service Archaeologist will be contacted to evaluate the inadvertent discovery. A mitigation plan, if needed, will be developed in consultation with the Oregon State Historic Preservation Office (SHPO) and Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), Tribal Historic Preservation Office (THPO).

## **Recreation**

1. Trail crossings used for operations (i.e., temp roads, skid trails, fireline, or landings) would be rehabilitated to meet standards associated with its designated use.
2. Advance notice and informational signs of harvest activities would be posted at affected trailheads and trail junctions and at Bonney Crossing Campground.
3. Work with recreation specialist to develop public information materials and outreach plan using a combination of key entry/exit portals, visitor information boards and outreach via websites and other information sources.
4. Trail segments adjacent to commercial harvest units would be posted as closed to the public during operations for public safety; posting would occur at trailheads and other points of access.
5. There would be no skidding or use of heavy equipment along any trail tread within the planning area with the exception of Trail #906 in unit 213 and Trail #910 in unit 223 as these trails continue to function as roads on the ground. Post-harvest Trails #906 and #910 will remain open to OHV access. Access to full size vehicles will be restricted utilizing appropriate barricades.
6. A 100-foot no cut buffer would be retained on either side of the non-motorized trails within the planning area. The buffer would be utilized to retain moisture in the trail tread and reduce future maintenance needs resulting from opening the canopy and allowing for the encroachment of brush.
7. Landings would not be located on system trails or trailheads. They could be adjacent to system trailheads outside the 100-foot no cut trail buffer.
8. After implementation, disturbed sections of system trails would be reconstructed to the previous trail condition. This includes replacing any trail markers that are removed as a result of activities.
9. To minimize conflicts with forest visitors/recreationists no haul or road maintenance or road reconstruction would take place on weekends and holidays.

10. If treatments are anticipated to continue beyond the current operating season, then temporary effective closure of temporary roads and skid trails would occur to prevent unauthorized use.

### **Visual Quality (Scenic Resources)**

1. Gaps would appear natural and subordinate to the natural landscape in all harvest units.
2. When marking trees to be left, mark side of tree facing away from road within 75 feet of Forest Service roads 4880, 4860, 4811, 4811140 and the portion of 2710 that runs along unit 228.
3. Boundary tags, flagging, and markers would be removed from visual foreground areas in treatment units after completion of activities. Foreground occurs along Forest Service roads 4880, 4860, 4811, 4811140, and the portion of 2710 that runs along unit 228. Foreground also occurs along Forest Trail #466 (the portion that is in unit 76), Trail #466A (that is in unit 76 and alongside unit 81), Trail #475 (that is in unit 213 and 223 as well as alongside units 29, 61, and 226), and Trail #910 (that is alongside unit 223).
4. In foreground areas or within 75 feet of the travel corridor, stumps would not exceed 8 inches in height for both commercial and pre – commercial units. Foreground occurs along Forest Service roads 4880, 4860, 4811, 4811140, and the portion of 2710 that runs along unit 228. Foreground also occurs along Forest Trail #466 (the portion that is in unit 76), Trail #466A (that is in unit 76 and alongside unit 81), Trail #475 (that is in unit 213 and 223 as well as alongside units 29, 61, and 226), and Trail #910 (that is alongside unit 223).
5. Landings in visual foreground areas would be reseeded or replanted.
6. Piles would be visually subordinate along Forest System roads and trails. They would be burned within two years of contract termination or when favorable environmental conditions for burning are present, whichever circumstance occurs first.

### **Range**

1. Protect existing range improvements.
2. Road access to locations related to springs, ponds, and water developments throughout the Grasshopper allotment for maintenance purposes would be protected for both permittees and range staff.
3. Road access to fence areas would be protected for range improvement maintenance purposes. Roads reaching across allotment would be maintained for locating and gathering livestock during end of season, fire events, or moving off sensitive areas as defined by the specialist(s).
4. Proposed silvicultural and fuels treatments would be encouraged to coincide with improving rangeland. Coordination would involve range staff for permit administration and operation planning.
5. Range monitoring locations would be identified in riparian habitats related to range/livestock use. Designated Monitoring Areas (DMAs) in riparian areas would be protected and have reasonable access for future monitoring.
6. Any unmapped range improvements discovered during project activities would be protected with a 50-foot buffer and avoided. The range specialist would be notified of the location. The

area would be avoided until the range specialist has completed inspection of the area and determined measures for protection.

## **Botany and Invasive Plants**

1. Create treatment skips at known sensitive plant, lichen, bryophyte and fungi sites (multiple species). Maps would be provided to sale administration.
2. In order to prevent the spread of invasive plants, all equipment would be cleaned of dirt and weeds before entering National Forest System lands. This practice would not apply to service vehicles traveling frequently in and out of the project area that would remain on the roadway.
3. If the need for restoration/revegetation of skid trails and landings is identified, the use of native plant materials are the first choice for meeting this objective where timely natural regeneration of the native plant community is not likely to occur. Non-native, non-invasive plant species may be used in any of the following situations:
  - a. when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species)
  - b. as an interim, non-persistent measure designed to aid in the re-establishment of native plants
  - c. if native plant materials are not available
  - d. in permanently altered plant communities
4. If using straw, hay or mulch for restoration/revegetation in any areas, use only certified, weed-free materials.
5. Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and rock that is judged to be weed free by District or Forest weed specialists.
6. Coordination for project sites and staging areas would occur with botanical staff to avoid areas that have high concentrations of invasive species. If use of these areas is identified, effort should be made to treat populations ahead of time to reduce the spread of infestations.

## **A2. Additional PDC that apply only to Alternative 2 (Shelterwood)**

### **Silviculture**

1. Even age harvest methods such as shelterwood or seed tree harvest would not exceed 60 acres in the westside Cascade Douglas fir forest type and 40 acres in the other forest types such a non-Douglas fir and eastside Cascade types.
2. Openings created by regeneration harvest (shelterwood, seed tree cut, or gaps larger than 2 acres) would be separated by units not classified as openings. Stands separating openings

would be large enough and contain a stand structure appropriate to meet resource requirements.