

# Appendix 1. Glossary and Acronyms

ASQ	Allowable Sale Quantity
BLM	Bureau of Land Management
CBWR	Coos Bay Wagon Road
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHU	Critical Habitat Unit
CWD	Coarse Woody Debris
DBH	Diameter at Breast Height
DEQ	Department of Environmental Quality
DOT	Department of Transportation
ECA	Equivalent Clear-cut Area
ESA	Endangered Species Act
FEMAT	Federal Ecosystem Management Assessment Team
FMZs	Fuel Modification Zones
GFMA	General Forest Management Area
GLO	General Land Office
HUC	Hydrologic Unit Code
LSR	Late-successional Reserve
LWD	Large Woody Debris
MOU	Memorandum of Understanding
NGFMA	Northern General Forest Management Area
NMFS	National Marine Fisheries Service
NFP	Northwest Forest Plan
ODFW	Oregon Department of Fish and Wildlife
ORV	Outstandingly Remarkable Value
PILT	Payment In Lieu of Taxes
PSQ	Probable Sale Quantity
RIA	Rural Interface Area
RMP	Resource Management Plan
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SGFMA	Southern General Forest Management Area
SHPO	State Historic Preservation Office
SIP	State Implementation Plan (smoke emissions)
TPCC	Timber Productivity and Capability Classification
USFWS	US Fish and Wildlife Service
USGS	US Geologic Survey
VRM	Visual Resource Management



# Glossary

**Air Quality:** A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

**Air Quality Class I and II Areas:** Regions in attainment areas where maintenance of existing good air quality is of high priority. Class I areas are those that have the most stringent degree of protection from future degradation of air quality. Class II areas permit moderate deterioration of existing air quality.

**Allocation:** Process to specifically assign use between and ration among competing users for a particular area of public land or related waters.

**Alternative:** One of at least two proposed means of accomplishing planning objectives.

**Analysis:** The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.

**Appropriate Action:** implementing actions pursuant to subparts 4110, 4120, 4130 and 4160 of the regulations that will result in significant progress toward the fulfillment of the standards and significant progress toward conformance with guidelines (see Significant Progress).

**Assessment:** A form of evaluation based on the standards of rangeland health, conducted by an interdisciplinary team at the appropriate landscape scale (pasture, allotment, sub-watershed, watershed, etc.) To determine conditions relative to standards.

**Aquatic:** Living or growing in or on the water.

**Aquifer:** Stratum or zone below the surface of the earth capable of producing water, as from a well. A saturated bed, formation, or group of formations which yield water in sufficient quantity to be of consequence as a source of supply. An aquifer acts as a transmission conduit and storage reservoir.

**Archaeology:** The scientific study of the life and culture of past, especially ancient, peoples, as by excavation of ancient cities, relics, artifacts, etc.

**Area of Critical Environmental Concern (ACEC):** An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life/provide safety from natural hazards.

**Board Foot:** A unit of measurement equal to an unfinished board foot square by one inch thick.

**Biodiversity:** The variety of life and its processes, and the interrelationships within and among various levels of ecological organization. Conservation, protection, and restoration of biological species and genetic diversity are needed to sustain the health of existing biological systems. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

**Bryophytes:** Plants of the phylum Bryophyta, including mosses, liverworts, and hornworts, characterized by the lack of true roots, stems and leaves.

**Bureau Status:** BS, BA, BT:

**Bureau Status BS (Bureau Sensitive):** Species that could easily become endangered or extinct in a state. Bureau Sensitive species are restricted in range and have natural or human-caused threats to survival. Bureau Sensitive species are not FE, FT, FP, FC, SE, or ST, but are

eligible for federal or state listing or candidate status. All anadromous fish species, unless federally listed, proposed, or candidate, are under review and are considered Bureau Sensitive until status is determined.

**Bureau Status BA (Bureau Assessment):** Species which are not presently eligible for official federal or state status but are of concern in Oregon may, at a minimum, need protection or mitigation in BLM activities. These species will be considered as a level of special status species separate from Bureau Sensitive, and are referred to as Bureau Assessment (BA) species.

**Bureau Status BT (Bureau Tracking):** Species which need an early warning to prevent becoming listed as threatened or endangered in the future. It is encouraged that occurrence data is collected on these species for which more information is needed to determine status within the state or which no longer need active management.

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**Candidate Species:** Those plants and animals included in the Federal Register Notices of Review that are being considered by the U.S. Fish and Wildlife Service for listing as threatened or endangered. Two categories that are of primary concern: Category 1 - Taxa for which there is substantial information to support proposing the species for listing as threatened or endangered. Listing proposals are either being prepared or have been delayed by higher priority listing work. Category 2 - Taxa information indicates that listing is possibly appropriate. Additional information is being collected.

**Coarse Woody Debris:** The terms Coarse Woody Debris, Large Woody Material and Large Down Wood are used interchangeably.

**Commercial Density Management:** treatments would remove merchantable size logs from the site and would loosely resemble commercial thins.

**Commercial Thinning:** The removal of generally merchantable trees from an even-aged stand, usually to encourage growth of the remaining trees. See Appendix 4 for further explanation.

**Compaction Layer:** A layer within the soil profile in which the soil particles have been rearranged to decrease void space, thereby increasing soil bulk density and often reducing permeability.

**Connectivity:** A measure of the extent to which conditions among late-successional/old-growth (LS/OG) forest areas provide habitat for breeding, feeding, dispersal, and movement of LS/OG associated wildlife and fish species.

**Consultation:** Formal consultation is a process that occurs between the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) and a federal agency that commences with the federal agency's written request for consultation under Section 7(a)(2) of the Endangered Species Act regarding a federal action which may affect a listed species or its critical habitat. It concludes with the issuance of the biological opinion under Section 7(b)(3) of the Act. Informal consultation is an optional process that includes all discussions, correspondence, etc., between the USFWS or NMFS and the federal agency, or the designated non-federal representative, prior to formal consultation, if required. If the listing agency determines that there is no likely adverse affect to the listed species, it may concur with the action agency that formal consultation is unnecessary.

**Cubic Feet Per Second (cfs):** As a rate of stream flow, a cubic foot of water passing a referenced section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

**Cultural Resources:** Those resources of historical and archaeological significance.

**Cumulative Effects:** Those effects on the environment that result from the incremental effect of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency or person(s) undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

**Decommission:** To remove those elements of a road that reroute hillslope drainage and present slope stability hazards. This usually involves removing the culverts, ripping the road prism, installing drainage facilities (i.e. waterbars, waterdips, etc.), and replanting the road surface with grasses, legumes, shrubs, and trees.

**Defer:** postponement of road treatment to a later date, at which time the road and treatment would be re-evaluated.

**Degree of Function:** A level of physical function relative to properly functioning condition commonly expressed as: properly functioning, functioning-at-risk, or non-functional.

**Density Management:** objectives of the treatment is to reduce stand stocking to maintain or enhance the following; forest/stand health, stand structure and function for wildlife, and stand characteristics for purposes other than growth and yield. One such application is to reduce lateral fuels when potential wildfires occur. There are two types of density management – commercial and non-commercial. See appendix 4 for further explanation.

**Designated Road:** A linear >transportation facility@ on which state-licensed, four wheeled vehicles can travel. By definition, these do not qualify as trails.

**Dispersal Habitat:** Habitat that supports the life needs of an individual animal during dispersal. Generally satisfies needs for foraging, roosting, and protection from predators.

**Diversity:** The aggregate of species assemblages (communities), individual species, and the genetic variation within species and the processes by which these components interact within and among themselves. The elements of diversity are: 1. Community diversity (habitat, ecosystem), 2. Species diversity and 3. Genetic diversity within a species; all three of which change over time.

**Easement:** A right or privilege one may have on another=s land.

**Ecosystem:** A system made up of a community of animals, plants, and micro-organisms and its interrelated physical and chemical environment.

**Edaphic:** Relating to the soil

**Endangered Species:** Any animal or plant species in danger of extinction throughout all of a significant portion of its range. These species are listed by the U. S. Fish and Wildlife Service.

**Endemic:** A species that is unique to a specific locality.

**Ephemeral Stream:** A stream that flows only in direct response to precipitation, and whose channel is at all times above the water table.

**Floodplain:** A plain along a stream or river onto which the flow spreads at flood stage.

**Forage:** Vegetation of all forms available and of a type used for animal consumption.

**Formation:** The primary unit in stratigraphy consisting of a succession of strata useful for mapping or description. Most formations possess certain lithologic features that may indicate genetic relationships.

**Four Wheel Drive (4WD):** Four-wheel-drive, differential transfer case disperses 50/50 front and rear displacement. Trucks, cars, buses, or sport utility vehicles with high clearance and the ability to operate off-pavement as well as on highways.

Functioning at Risk: Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Fuel hazard: capability of fuels to carry a fire

Fire risk: probability of ignition

Fuel Modification Zones: strategically located strip or block of land on which fuels have been modified to reduce the potential for crown fires and to provide a safer area for fire suppression personnel to work. These areas are located in conjunction with road systems to provide fire suppression access and maintenance. Ground fuels are kept to a minimum and ladder fuels are treated to lower the probability of a sustained crown fire. The objective is to reduce the rate of spread, intensity, and size of a wildfire.

Geology: The science which studies the Earth, the rocks of which it is composed, and the changes it has undergone or is undergoing.

General Forest Management Area: Forest land managed on a regeneration harvest cycle of 70-110 years. A biological legacy of six to eight green trees per acre would be retained to assure forest health. Commercial thinning would be applied where practicable and where research indicates there would be gains in timber production.

Ground Water: Water in the ground that is in the zone of saturation; water in the ground that exists at, or below the water table.

Guideline: Practices, methods, techniques and considerations used to ensure that progress is made in a way and at a rate that achieves the standard(s).

Gully: A channel resulting from erosion and caused by the concentrated but intermittent flow of water usually during and immediately following heavy rains.

Habitat: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat Fragmentation: The breakup of extensive habitats into small, isolated patches that are too limited to maintain their species stocks into the indefinite future.

Hydrologic Cycle: The process in which water enters the atmosphere through evaporation, transpiration, or sublimation from the oceans, other surface water bodies, or from the land and vegetation, and through condensation and precipitation returns to the earth's surface. The precipitation then occurring as overland flow, stream flow, or percolating underground flow to the oceans or other surface water bodies or to other sites of evapo-transpiration and recirculation.

Hydrology: The science dealing with the properties, distribution, and circulation of water.

Impact: Synonymous with effects. Includes ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental (adverse) effects. Impacts may be considered as direct, indirect, or cumulative:

- Direct: Impacts caused by an action occurring at the same time and place.
- Indirect: Impacts caused by the proposed action and occurring later in time or farther removed in distance, but are still reasonably foreseeable.
- Cumulative: Those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

Indicators: Parameters of ecosystem function that are observed, assessed, measured, or monitored directly or indirectly determine attainment of a standard(s).

**Infiltration:** The downward entry of water into the soil.

**Inholding:** A non-federal parcel of land that is completely surrounded by federal land.

**Intermittent Stream:** Seasonal stream. A stream that flows only at certain times of the year when it receives water from springs or from some surface source, such as melting snow in mountainous areas.

**Invertebrate:** Any animal without a backbone or spinal column.

**Landing:** Any place on or adjacent to a logging site where logs are assembled for further transport.

**Land Use Plan:** A plan that reflects an analysis of activity systems and a carefully studied estimate of future land requirements for expansion, growth control, and revitalization or renewal. The plan shows how development in the area should proceed in the future to insure the best possible physical environment for living, the most economic and environmentally sensitive use of land, and the proper balance in use. The land use plan embodies a proposal as to how land should be used in the future, recognizing local objectives and generally accepted principals of health, safety, convenience, economy, and general living amenities.

**Late-Successional Habitat:** Forest seral stages greater than 80 years of age, which include early and late mature and old-growth stands (This includes the definition provided in the NFP for late successional forest as forest seral stages which include mature and old-growth age classes).

**Late-Successional Old Growth:** Late-successional and/or old growth. Forests or stands consisting of trees and structural attributes and supporting biological communities and processes associated with old-growth and / or mature forests. FEMAT

**Late-Successional Reserve:** A forest in its mature and /or old-growth stages that has been reserved (See Old-growth Forest and Succession). FEMAT

**Matrix:** Federal lands outside of reserves, withdrawn areas, and Managed Late-Successional areas. FEMAT

**Long Term:** more than one hundred years.

**Mineral Entry:** The location of mining claims by an individual to protect his/her right to a valuable mineral.

**Mineral Withdrawal:** A withdrawal of public lands which are potentially valuable for leasable minerals. This precludes the disposal of the lands except with a mineral reservation, unless the lands are found to not be valuable for minerals.

**Mitigating Measures:** Constraints, requirements, or conditions imposed to reduce the significance of or eliminate an anticipated impact to environmental, socioeconomic, or other resource value from a proposed land use. Committed mitigating measures are those measures BLM is committed to enforce (i.e., all applicable laws and their implementing regulations).

**Monitoring:** A process of collecting information to evaluate if objective and anticipated or assumed results of a management activity or plan are being realized or if implementation is proceeding as planned.

**Naturalness:** An area which “generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable.” (Section 2c, WILDERNESS ACT).

**Non-Functioning:** Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows.

**Noxious Weeds:** Those plants which are injurious to public health, agriculture, recreation, wildlife, or any public or private property.

**Nutrient Cycling:** The movement of essential elements and inorganic compounds between the reservoir pool (soil, for example) and the cycling pool (organisms) in the rapid exchange (i.e., moving back and forth) between organisms and their immediate environment.

**Off-Highway Vehicles (OHV):** Any motorized vehicle designed for or capable of cross-country travel over lands, water, sand, snow, ice, marsh, swamp-land, or other terrain.

**Old-Growth Forest:** A forest stand usually at least 180-220 years old with moderate to high canopy closure; a multi-layered, multi-species canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old and decaying wood (decadence); numerous large snags; and heavy accumulations of wood, including large logs on the ground.

**Organic Matter:** Plant and animal residues accumulated or deposited at the soil surface; the organic fraction of the soil that includes plant and animal residues at various stages of decomposition; cells and tissues of soil organisms, and the substances synthesized by the soil population.

**Outstanding:** Standing out among others of its kind; distinguished; excellent.

**Outsloping:** The process of grading a road surface at an angle (usually 2%-5%) away from the backslope of the road outward to the fill of the roadway to reduce the accumulation of running water.

**Paleontology:** The branch of geology that deals with life forms from the past, especially prehistoric life forms, through the study of plant and animal fossils.

**Perched Water Table:** Water table above an impermeable bed underlain by unsaturated rocks of sufficient permeability to allow movement of ground water.

**Perennial Stream:** A stream that flows continuously. Perennial streams are generally associated with a water table in the localities through which they flow.

**Permit:** A short-term, revocable authorization to use public lands for specific purposes.

**Permeability:** The ease with which gases, liquids or plant roots penetrate or pass through bulk mass of soil or a layer of soil.

**Physiographic Region:** Region of similar geologic structure and climate with a unified history of land formation.

**Prescribed Fire:** Controlled application of fire to natural fuels under conditions of weather, fuel moisture, and soil moisture that will allow confinement of the fire to a predetermined area and, at the same time, will produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives to wildlife, livestock, and watershed values. The overall objectives are to employ fire scientifically to realize maximum net benefits at minimum environmental damage and acceptable cost.

**Prey Species:** An animal taken by a predator as food.

**Primitive Road:** generally unsurfaced with few if any capital investments and can sometimes be a jeep road.

**Probable Sale Quantity (PSQ):** Probable sale quantity is the gross amount of timber volume, including salvage, that may be sold annually from a specified area over a stated period in accordance with management plans of the BLM. PSQ includes only scheduled or regulated yields from Matrix land and does not include Aother wood@ such as that taken from the LSR.

**Properly Functioning Condition (PFC):** Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment; capture bedload, and aid floodplain development; improve flood-

water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.

Raptors: Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.

Reciprocal Rights-of-Way: the Reciprocal Agreement program allows Government and Private Timber Companies to share transportation systems so that parallel road systems would not be created on both parties land.

Relict Plant Community: Areas of plants that have persisted despite the pronounced warming and drying of the interior west over the last few thousand years and/or have not been influenced by settlement and post-settlement activities.

Renovate: As pertaining to roads, restoring a road back to its original design or to the level of its most recent upgrade.

Research Natural Area (RNA): An area set aside by a public or private agency specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. RNAs are areas designated to ensure representative samples of as many of the major naturally occurring plant communities as possible are preserved. The public may be excluded or restricted from such areas to protect studies.

Right-of-Way: Federal land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a R-O-W authorization.

Rill: A small, intermittent watercourse with steep sides; usually only a few inches deep.

Riparian Habitat: Riparian habitat is defined as an area of land directly influenced by permanent (surface or subsurface) water. They have visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and stream-banks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Riparian Vegetation: Plants adapted to moist growing conditions along streams, waterways, ponds, etc.

Ripping: The process of breaking up or loosening compacted soil (eg. skid trails or spur roads) to improve root penetration of young tree seedlings. Accomplished by use of tracked tractor with large steel arms buried to depth and pulled behind to break up compaction.

Roadless: an area of public land with little to no apparent development.

Route: A path, way, trail, road, or other established travel corridor.

Seasonal Road Closure: Road closure during a season usually for weather conditions.

Sediment Yield: The quantity of soil, rock particles, organic matter, or other dissolved or suspended debris is transported through a cross-section of stream in a given period. Measured in dry weight or by volume.

Sensitive Species: Those species that (1) have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species or (2) are on an official state list or (3) are recognized by the BLM as needing special management to prevent their being placed on Federal or state lists.

Seral Stages: The series of relatively transitory plant communities that develop during ecological succession from bare ground to climax stage.

Short Term: 10-20 years.

**Short Term Road Closures:** Road closure for the span of time during which road work is occurring.

**Silvicultural System:** A planned sequence of treatments or prescriptions over the entire life of a forest stand needed to meet management objectives.

**Soil Density (bulk density):** the mass of dry soil per unit bulk volume.

**Soil Moisture:** Water contained in the soil; commonly used to describe water in the soil above the water table.

**Special Status Species:** Wildlife and plant species either Federally listed or proposed for listing as endangered or threatened; state-listed or BLM determined priority species.

**Species Viability:** A species consisting of self-sustaining and interacting populations that are well distributed through the species' range.

**Self-Sustaining Populations:** those that are sufficiently abundant and have sufficient diversity to display the array of life history strategies and forms to provide for their long-term persistence and adaptability over time.

**Subsoiling:** The process of breaking up compacted soil using a winged mechanical device pulled behind a tracked tractor, lifting the soil and replacing it in place. Demonstrated to be up to 80% effective in reducing soil bulk density (Davis 1990).

**Threatened Species:** Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range. These species are listed by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service in accordance with the 1973 Endangered Species Act and published in the Federal Register.

**Timber Management:** A general term for the directing, managing or controlling of forest crops and stand of trees.

**Timber Production:** The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use other than for fuel wood.

**Topography:** The accurate and detailed description of a place.

**Trail:** A created or evolved Atransportation facility@ administratively designated for certain types of use. Examples include hiking, equestrian, snowmobile, cross country skiing, motorcycles, off-highway vehicles.

**Two Wheel Drive (2WD):** Vehicle clearance generally lower than with a 4WD. Not designed to travel off-pavement.

**Uplands:** Lands that exist above the riparian/wetland area, or active flood plains of rivers and streams; those lands not influenced by the water table or by free or unbound water; commonly represented by the toe slopes, alluvial fans, side slopes, shoulders and ridges of mountain and hills.

**Utility:** A service provided by a public utility, such as electricity, telephone, or water.

**Vertebrate Species:** Any animal with a backbone or spinal column.

**Visitor Day:** Twelve visitor hours which may be aggregated by one or more persons in single or multiple visits.

**Visitor Use:** Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

Visual Resource Management (VRM) Classes: Management classes are determined on the basis of overall scenic quality, distance from travel routes, and sensitivity to change.

Class I: Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted.

Class II: Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.

Class III: Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.

Class IV: Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

Waterbarring: The process of constructing a waterway diagonally across a road way or skid road to move water off the road before it creates channels and erosion on the road surface.

Watershed: All land and water within the confines of a drainage divide.

Watershed Analysis: A systematic procedure for characterizing watershed and ecological processes to meet specific management and social objectives. Watershed analysis provides a basis for ecosystem management planning.

Watershed Function: The principle functions of a watershed include the capture of moisture contributed by precipitation; the storage of moisture within the soil profile, and the release of moisture through subsurface flow, deep percolation to groundwater, evaporation from the soil, and transpiration by live vegetation.

Way: A path, trail, or other established travel corridor.

Wetlands: Lands including swamps, marshes, bogs, and similar areas, such as wet meadows, river overflows, mud flats, and natural ponds.

Wilderness: Undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation.

Wilderness Area: Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint on human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, education, scenic, or historical value as well as ecological and geological interest.

Wilderness Study Area (WSA): Areas under study for possible inclusion as a Wilderness Area in the National Wilderness Preservation System.

Wildfire: Any wildland fire that does not meet management objectives, thus requiring a fire suppression response. Once declared a wildfire, the fire can no longer be declared a prescribed fire.

Windthrow: A tree or trees uprooted or felled by the wind.

Withdrawal: Removal or "withholding" of public lands from operation of some or all of the public land laws (settlement, sale, mining, and/or mineral leasing). An action which restricts

the use or disposal of public lands, segregating the land from the operation of some or all of the public land and/or mineral laws and holding it for a specific public purpose. Withdrawals may also be used to transfer jurisdiction of management to other Federal agencies.

**Yarding:** Physical method by which logs are removed from a site. Cable yarding systems employ a machine that uses a wire cable to drag logs out of a unit. Logs may be fully or partially suspended. Tractor yarding systems utilize a tracked vehicle to drag logs out of a unit. With helicopter systems logs are first connected to wire cables suspended from helicopters and are then picked up and transported

# Appendix 2. Vegetation Treatments by Alternative.

**Appendix 2. Vegetation Treatments by Alternative.**

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
<b>UPPER EAST KELSEY T 32S, R 8W</b>					
31-1	RH Hel P 31 ac 372 MBF No road construct.	RH Hel P 31 ac 372 MBF No road construct.	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration Alt 1 & 2 – handpile, burn piles Plant, conduct follow-up treatments through establishment
<b>T 33S, R 8W (Upper East Kelsey)</b>					
5-1	RH Cable SL, BB 15 ac 225 MBF 0.1 mi temp road	-----	-----	-----	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed If unit remains- (Alts 1) RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, broadcast burn Plant, conduct follow-up treatments through establishment

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
6-2	RH/CT Cable SL, P 22 ac 535 MBF	RH Cable SL, BB 22 ac 660 MBF	-----	-----	<p>Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed</p> <p><u>If unit remains-</u> (All Action Alts.)</p> <p>RH- In areas of larger conifers (&gt;20' dbh) As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD; CT</p> <p>– In areas of pole size timber mark to retain 40% canopy; slash brush and damaged conifer regeneration, handpile, burn piles</p> <p>In areas where stocking does not meet standards plant, conduct follow-up treatments through establishment</p>

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
6-3	Subunits 6-3 South RH Cable SL, BB 48 acres 750 MBF 0.25 mile temp road ----- Riparian Reserve Treatment 6-3R2 12 acres 6-3R3 16 acres SL, UB	Subunit 6-3 South only RH Cable SL, BB 48 acres 750 MBF 0.25 mile temp road ----- Riparian Reserve Treatment 6-3R2 12 acres 6-3R3 16 acres SL, UB	-----	-----	<p><u>All action alternatives:</u></p> <p>RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn</p> <p>Plant, conduct follow-up treatments through establishment</p> <p>.....</p> <p>Within Riparian Reserves PCT (10X10), 100% brush, 7inches dbh upper cut limit on both conifers and hardwoods, treatment would occur to within 25 feet of streams, underburn concurrently with adjacent harvest units, interplant, conduct follow-up treatments through establishment of new seedlings</p>
6-4	RH Cable/Hel P 49 ac 343 MBF 0.4 mile temp road	RH Cable/Hel P 49 ac 343 MBF 0.4 mile temp road	-----	-----	<p>Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed</p> <p><u>If unit remains:</u></p> <p>RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration</p> <p>Alt 1, 2 – handpile, burn piles</p> <p>Plant, conduct follow-up treatments through establishment</p>

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
6-5	RH Cable SL, BB 26 ac 260 MBF	-----	-----	-----	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed  <u>If unit remains:</u> RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration  Plant, conduct follow-up treatments through establishment
6-6	MFT 12 ac	MFT 12 ac	-----	MFT 12 ac	
7-1	RH Cable SL, BB 29 ac 493 MBF 200' temp road	RH Cable SL, BB 29 ac 493 MBF 200' temp road	-----	-----	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed  <u>If unit remains:</u> RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn  Plant, conduct follow-up treatments through establishment
7-3	SL, P 10 ac	SL, P 10 ac	-----	SL, P 10 ac	
7-4	SL, P 10 ac	SL, P 10 ac	-----	SL, P 10 ac	

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
<b>T32S, R 9W (Upper East Kelsey)</b>					
35-1	RH Cable SL, BB 17 ac 260 MBF 0.34 mi temp road spur	RH Cable SL, BB 17 ac 260 MBF 0.34 mi temp road spur	-----	UB 17 ac	<u>All harvest alternatives:</u> RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn Plant, conduct follow-up treatments through establishment Alt 4- fuels treatment -haul route through Trapper's Trap -improve road for haul (15-20% grade)
35-2	CT Cable P 24 ac 153 MBF	CT Cable P 24 ac 153 MBF	-----	CT Cable P 24 ac 153 MBF	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed <u>If unit remains:</u> CT- Thin from below, maintain 40% canopy cover, handpile and burn piles
<b>T 33S, R 9W (Upper East Kelsey)</b>					
1-1	RH Hel SL, P 11 ac 44 MBF	RH Hel P 11 ac 44 MBF	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration Alt 2 – handpile, burn piles Plant, conduct follow-up treatments through establishment

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
1-2	RH Cable SL,BB 50 ac 1,000 MBF	-----	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration  Plant, conduct follow-up treatments through establishment
11-1	CDM Cable P 30 ac 150 MBF	CDM Cable P 30 ac 150 MBF	-----	CDM Cable P 30 ac 150 MBF	Reduce stocking from below to 60% minimum canopy cover, 1" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), slash brush, handpile and burn piles
12-1	OR Cable P 10 ac 150 MBF 250 ft temp road	OR Cable P 10 ac 150 MBF 250 ft temp road	-----	-----	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed  <u>If unit remains:</u>  OR- As per RMP (regen harvest) with emphasis on retaining existing natural regeneration in unit, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, space undamaged releasable regeneration 14X14, handpile and burn piles  Evaluate stocking post fuels/site prep treatment for stocking, plant areas that are understocked, conduct follow-up treatments through establishment

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
<b>CALIFORNIA GULCH T 33S R 8W</b>					
2-2	SL,P 89 ac	SL,P 89 ac	-----	SL,P 89 ac	
22-1	CDM Hel P 34 ac 50 MBF	CDM Hel P 34 ac 50 MBF	-----	CDM Hel P 34 ac 50 MBF	Reduce stocking from below to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), around large conifers especially pines within unit open up canopy to 15' past dripline (with 11" limit) , slash brush, handpile and burn piles
23-1	NDM P 105 ac	NDM P 105 ac	-----	NDM P 105 ac	Space non-merchantable conifers and hardwoods 16X16, slash brush, handpile and burn piles
23-2	SL,P 319 ac	SL,P 319 ac	-----	SL,P 319 ac	
26-2	CDM/NDM Cable/Tractor P 37 ac 74 MBF	CDM/NDM Cable/Tractor P 37 ac 74MBF	-----	CDM/NDM Cable/Tractor P 37 ac 74 MBF	Reduce stocking from below to 60% minimum canopy cover, 11" dbh upper diameter cut limit, emphasize retention of codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), space non-merchantable conifers, slash brush, handpile and burn piles. Space non-merchantable conifers and hardwoods 16X16, slash brush, handpile and burn piles, cable below road, tractors on old skid roads only. Road decommission varies by alternative.

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
26-3	CDM Cable P 7 ac 15 MBF	CDM Cable P 7 ac 15 MBF	-----	CDM Cable P 7 ac 15 MBF	Reduce stocking from below to 60% minimum canopy cover, 11" dbh upper diameter cut limit, emphasize retention of codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), slash brush, handpile and burn piles
26-4	SL,P 124 ac	SL,P 124 ac	-----	SL,P 124 ac	
27-1A	CDM Cable P 19 ac 36 MBF	CDM Cable P 19 ac 36 MBF	-----	CDM Cable P 19 ac 36 MBF	Reduce stocking to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), around large conifers especially pines within unit open up canopy to 15' past dripline (with 11" limit), slash brush, handpile and burn piles
27-1B	CDM Hel P 103 ac 200 MBF	CDM Hel P 103 ac 200 MBF	-----	CDM Hel P 103 ac 200 MBF	Reduce stocking to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), around large conifers especially pines within unit open up canopy to 15' past dripline (with 11" limit), slash brush, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
28-1A	CDM Cable/Hel P 51 ac 100 MBF	CDM Cable/Hel P 51 ac 100 MBF	-----	CDM Cable/Hel P 51 ac 100 MBF	Reduce stocking to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), around large conifers especially pines within unit open up canopy to 15' past dripline (with 11" limit), slash brush, handpile and burn piles
28-1B	CDM Cable P 20 ac 38 MBF	CDM Cable P 20 ac 38 MBF	-----	CDM Cable P 20 ac 38 MBF	Reduce stocking to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), around large conifers especially pines within unit open up canopy to 15' past dripline (with 11" limit), slash brush, handpile and burn piles
29-1	SL,P 83 ac UB 166 ac	SL,P 83 ac UB 166 ac	-----	SL,P 83 ac UB 166 ac	Follow guidelines for units that are not owl core areas.
30-1	UB 166 ac	UB 166 ac	-----	UB 166 ac	
<b>MEADOW CREEK T 33S, R 8W</b>					
7-2A	CT Cable P,UB 95 ac 95 MBF	CT Cable P,UB 95 ac 95 MBF	-----	CT Cable P,UB 95 ac 95 MBF	CT- Thin from below, maintain 40% canopy cover, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
7-2B	CT Cable P,UB 33 ac 170 MBF	CT Cable P,UB 33 ac 170 MBF	-----	CT Cable P,UB 33 ac 170 MBF	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed <u>If unit remains:</u> CT- Thin from below, maintain 40% canopy cover, handpile and burn piles
8-1	RH Cable SL, BB 15 ac 300 MBF 0.2 mile temp road	RH Cable SL, BB 15 ac 300 MBF 0.2 mile temp road	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn Plant, conduct follow-up treatments through establishment
8-2	CT Cable P 27 ac 100 MBF	CT Cable P 27 ac 100 MBF	-----	CT Cable P 27 ac 100 MBF	CT- Thin from below, maintain 50% canopy cover, handpile and burn piles Avoid withdrawn lands
15-1	UB 331 ac	UB 331 ac	-----	UB 331 ac	
18-1	RH Cable/Tractor SL, BB 65 ac 780 MBF	RH Cable/Tractor SL, BB 65 ac 780 MBF	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn Plant, conduct follow-up treatments through establishment
18-3	SL, P 50 ac	SL, P 50 ac	-----	SL, P 50 ac	

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
<b>T33S, R 9W (Meadow West Creek)</b>					
11-3	UB 93 ac	UB 93 ac	-----	UB 93 ac	
12-2	CDM Cable P 27 ac 105 MBF	CDM Cable P 27 ac 105 MBF	-----	CDM Cable P 27 ac 105 MBF	Reduce stocking from below to 60% minimum canopy cover, 11" dbh upper diameter cut limit, retain codominants and dominants, retain a component of hardwoods (hardwoods count up to 1/6 <sup>th</sup> of 60% canopy), slash brush, handpile and burn piles
12-4	CT Cable P 136 ac 664 MBF	CT Cable P 136 ac 664 MBF	-----	CT Cable P 136 ac 664 MBF	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed <u>If unit remains:</u> CT- Thin from below, maintain 40% canopy cover, handpile and burn piles
12-5	UB 20 ac	UB 20 ac	-----	UB 20 ac	No new road construction
13-1	RH Cable/Tractor SL,P 48 ac 240 MBF 0.1 mile temp road	RH Cable/Tractor SL,P 39 ac 195 MBF 0.7 mile temp road	-----	-----	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed <u>If unit remains:</u> RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn Plant, conduct follow-up treatments through establishment

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
13-3	MFT 132 ac	MFT 132 ac	-----	MFT 145 ac	
17-3	CT Cable P 66 ac 260 MBF	CT Cable P 66 ac 260 MBF	-----	CT Cable P 66 ac 260 MBF	CT- Thin from below, maintain 40% canopy cover, handpile and burn piles
<b>MARI KELSEY T 32S, R 9W</b>					
13A	SL,P 32 ac	SL,P 32 ac	-----	SL,P 32 ac	
13C	CT Cable P 5 ac 25 MBF	CT Cable P 5 ac 20 MBF	-----	CT Cable P 5 ac 20 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alts 1, handpile and burn piles
14A	CT/PCT Cable P 13 ac 60 MBF	CT/PCT Cable P 13 ac 45 MBF	-----	CT/PCT Cable P 13 ac 45 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alts 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, handpile and burn piles  Unit is south of 32-8-31 road - no harvest will occur in Bobby Creek RNA.
14C	PCT P 3 ac	PCT P 3 ac	-----	PCT P 3 ac	precommercial thin / release brush 14X14, 7” upper diameter cut limit, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
22A	CT/PCT Cable P 128 ac 500 MBF	CT/PCT Cable P 128 ac 375 MBF	-----	CT/PCT Cable P 128 ac 375 MBF	Evaluate after climbing for RTV verification for possible unit or smaller unit if RTVs are confirmed <u>If unit remains:</u> CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, handpile and burn piles
23A	CT/PCT Cable P 4 ac 15 MBF	CT/PCT Cable P 4 ac 10 MBF	-----	CT/PCT Cable P 4 ac 10 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, handpile and burn piles
23-A1	RH Cable SL, BB 3 ac 30 MBF	-----	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn Plant, conduct follow-up treatments through establishment
23B	PCT 4 ac	PCT 4 ac	-----	PCT 4 ac	precommercial thin / release brush 14X14, 7” upper diameter cut limit, handpile and burn piles
23E	PCT 8 ac	PCT 8 ac	-----	PCT 8 ac	precommercial thin / release brush 14X14, 7” upper diameter cut limit, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
24A	CT/PCT Cable P 40 ac 200 MBF	CT/PCT Cable P 40 ac 160 MBF	-----	CT/PCT Cable P 40 ac 160 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, handpile and burn piles
26A	OR Cable P 4 ac 24 MBF	OR Cable P 4 ac 16 MBF	-----	PCT P 4 ac	<p>Alts 1, 2 - OR- As per RMP (regen harvest) with emphasis on retaining existing natural regeneration in unit, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, space undamaged releasable regeneration 14X14, handpile and burn piles</p> <p>Alt. 2 the OR would retain 60% canopy closure (additional canopy closure to be comprised of large conifers, conifer poles, and hardwoods)</p> <p>Evaluate stocking post fuels/site prep treatment for stocking, plant areas that are understocked, conduct follow-up treatments through establishment</p> <p>Alt 4 - precommercial thin / release brush 14X14, 7” upper diameter cut limit, handpile and burn piles</p>

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
26A1	OR Cable P 7 ac 30 MBF	OR Cable P 7 ac 20 MBF	-----	PCT P 7 ac	<p>Alts 1, 2 - OR- As per RMP (regen harvest) with emphasis on retaining existing natural regeneration in unit, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, space undamaged releasable regeneration 14X14, handpile and burn piles</p> <p>Alt. 2 the OR would retain 60% canopy closure (additional canopy closure to be comprised of large conifers, conifer poles, and hardwoods)</p> <p>Evaluate stocking post fuels/site prep treatment for stocking, plant areas that are understocked, conduct follow-up treatments through establishment</p> <p>Alt 4 - precommercial thin / release brush 14X14, 7" upper diameter cut limit, handpile and burn piles</p>
27-1C	CT/PCT Cable P,UB 24 ac 120 MBF	CT/PCT Cable P,UB 24 ac 90 MBF	-----	CT/PCT Cable P,UB 24 ac 90 MBF	<p>CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alts 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7" upper diameter cut limit, Treat activity fuels through handpiling and burn piles and/or underburning</p>

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
27-1D	CT Cable P 17 ac 255 MBF	-----	-----	-----	CT – Thin from below, maintain 40% canopy cover, handpile and burn piles
27-2	CT/PCT Cable/Tractor MFT/P 51 ac 153 MBF	CT/PCT Cable/Tractor MFT/P 51 ac 110 MBF	-----	CT/PCT Cable/Tractor MFT/P 51 ac 110 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, Treat activity fuels mechanically with pct or handpile and burn piles
27-3	CT Hel P 27 ac 250 MBF	CT Hel P 27 ac 175 MBF	-----	CT Hel P 27 ac 175 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, handpile and burn piles Evaluate stocking, plant in understocked areas and conduct follow-up treatments through establishment .
27-4	CT Hel P 29 ac 300 MBF no road	CT Hel P 29 ac 200 MBF no road	-----	CT Hel P 29 ac 200 MBF no road	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, handpile and burn piles Evaluate stocking, plant in understocked areas and conduct follow-up treatments through establishment .
27C	MFT 89 ac	MFT 89 ac	-----	MFT 89 ac	

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
28A	RH/CT Cable BB/P 5 ac 75 MBF	CT Cable P 5 ac 25 MBF	-----	CT Cable P 5 ac 25 MBF	<p>CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, handpile and burn piles</p> <p>Alt 1 – in RH area, RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, broadcast burn and handpile and burn piles</p> <p>Plant and conduct follow-up treatments through establishment .</p>
33-1	OR/CT Cable-Hel P 26 ac 260 MBF	CT Hel P 26 ac 130 MBF	-----	CT Hel P 26 ac 130 MBF	<p>CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, handpile and burn piles</p> <p>Alt 1 – in OR area, OR- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, emphasize retention of undamaged regeneration, slash brush and damaged conifer regeneration, handpile and burn piles</p> <p>Evaluate stocking post fuels/site prep treatment for stocking, plant areas that are understocked, conduct follow-up treatments through establishment</p> <p>Buffer springs in bottom of stand. Treat mistletoe near springs.</p>

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
33-2	RH/CT Cable SL, BB 22 ac 110 MBF	CT Cable P 14 ac 40 MBF	-----	CT Cable P 14 ac 40 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, handpile and burn piles  Alt 1 – in RH area, RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration, Evaluate for site prep/fuels treatment - broadcast burn and/or handpile and burn piles  Plant and conduct follow-up treatments through establishment
4-1	RH Cable SL, BB 2 ac 40 MBF	RH Cable SL, BB 2 ac 40 MBF	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration broadcast burn  Plant, conduct follow-up treatments through establishment
33A	RH/OR Cable P, BB 12 ac 180 MBF	OR Cable P 6 ac 50 MBF	-----	-----	RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, within OR portions of unit emphasize retention of undamaged natural regeneration, slash brush and damaged conifer regeneration,  Evaluate for site prep/fuels treatment - broadcast burn and/or handpile and burn piles  Plant, conduct follow-up treatments through establishment

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
33B	CT/PCT Cable P 19 ac 76 MBF	CT/PCT Cable P 19 ac 55 MBF	-----	CT/PCT Cable P 19 ac 55 MBF	CT – Thin from below, maintain 60% canopy cover in Alts 2 and 4, 40% canopy cover in Alt 1, precommercial thin 14X14 in areas with non-merchantable conifers, 7” upper diameter cut limit, handpile and burn piles
33D	PCT SL,P 35 ac	PCT SL,P 35 ac	-----	PCT SL,P 35 ac	precommercial thin / release brush 14X14, 7” upper diameter cut limit, handpile and burn piles
<b>WEST FORK WHISKY T 33S, R 8W</b>					
W. Fork Whisky Cr watershed -- Uplands (Treatment outside of Riparian Reserves)	Pine Enhancement/Maintenance; Pine treatment would include not salvage removals PEMU Cable/Hel SL, P 561 ac 600 MBF	Pine Enhancement/Maintenance Pine treatments would not include salvage removals. PEMU Cable/Hel SL,P 561 ac 600 MBF	-----	Pine Enhancement/Maintenance Pine treatments would not include salvage removals. PEMU Cable/Hel SL,P 575 ac 62.5 MBF	Thin around selected pines within the treatment area as well as create small openings (i.e., less than _ acre) primarily around groups of pines. Openings to be limited to two per acre where the pine occur. Handpile and burn piles.

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
W. Fork Whisky Cr watershed-Riparian Reserves (Treatment within RRs)	Pine Enhancement/Maintenance PEMR SL,P 530 ac 0 MBF	Pine Enhancement/Maintenance PEMR SL,P 530 ac 0 MBF	-----	Pine Enhancement/Maintenance PEMR SL,P 530 ac 0 MBF	Treatment would only occur in outer half of Riparian Reserve. Thin around selected pines within the treatment area as well as create small openings (i.e., less than _ acre) primarily around groups of pines. Openings to be no closer than 300' apart. Merchantable material if not a fire hazard would remain on the site. Slash if not a fire hazard would be lopped and scattered. It would be handpiled and burned if there were fuels concerns.
4-2	RH Cable P 14 ac 280 MBF	CT Cable P 14 ac 120 MBF	-----	-----	Alts 1 - RH- As per RMP, retain 6-8 large conifers per acre plus additional conifers for CWD, slash brush and damaged conifer regeneration handpile and burn piles  Plant, conduct follow-up treatments through establishment  Alt 2 - CT, Thin from below, maintain 60% canopy cover, handpile and burn piles
5-4	CT/PCT Cable/Hel UB / SL, P 13 ac 60 MBF  ----- Riparian Reserve Treatment 5-4R 10 ac NDM, P	CT/PCT Cable/Hel UB / SL,P 13 ac 60 MBF  ----- Riparian Reserve Treatment 5-4R 10 ac NDM, P	-----	CT/PCT Cable/Hel UB/SL,P 13 ac 60 MBF  ----- Riparian Reserve Treatment 5-4R 10 ac NDM, P	CT - Thin from below, maintain 40% canopy cover, precommercial thin 14X14 in areas with non-merchantable conifers, 7" upper diameter cut limit, handpile and burn piles  ----- Riparian Reserves - reduce stocking levels of non-commercial conifers and hardwoods, space 16X16, slash brush, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
8-3	SL,P 53 ac	SL,P 53 ac	-----	SL,P 53 ac	
9-3	SL,P 83 ac	SL,P 83 ac	-----	SL,P 83 ac	Retain Regeneration in East Whisky LIM study sites
10-1	MFT 55 ac	MFT 55 ac	-----	MFT 55 ac	
16-1	CT/PCT Cable/Hel UB /SL,P 109 ac 250MBF ----- Riparian Reserve Treatment 16-1R1 11 ac 16-1R2 8 ac 16-1R3 41 ac 16-1R4 6 ac NDM, P	CT/PCT Cable/Hel UB /SL,P 109 ac 250MBF ----- Riparian Reserve Treatment 16-1R1 11 ac 16-1R2 8 ac 16-1R3 41 ac 16-1R4 6 ac NDM, P	-----	CT/PCT Cable/Hel UB /SL,P 109 ac 250MBF ----- Riparian Reserve Treatment 16-1R1 11 ac 16-1R2 8 ac 16-1R3 41 ac 16-1R4 6 ac NDM, P	This unit could be called a maintenance thin. Emphasize retention of large conifers. CT- Thin from below, maintain 40% canopy cover overall; around large conifers especially pines within unit open up canopy to 15' past dripline, precommercial thin 14X14 in areas with non-merchantable conifers, 100% brush, 7" upper diameter cut limit, handpile and burn piles ..... Riparian Reserves – reduce stocking levels of non-commercial conifers and hardwoods, space 16X16, slash brush, handpile and burn piles

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
17-1	CT/PCT Cable UB /SL,P 26 ac 130 MBF	CT/PCT Cable UB /SL,P 26 ac 130 MBF	-----	CT/PCT Cable UB /SL,P 26 ac 130 MBF	This unit could be called a maintenance thin. Emphasize retention of large conifers. CT- Thin from below, maintain 40% canopy cover overall; around large conifers especially pines within unit open up canopy to 15' past dripline, precommercial thin 14X14 in areas with non-merchantable conifers, 100% brush, 7" upper diameter cut limit, handpile and burn piles
17-2	CT/PCT Cable UB /SL,P 41 ac 205 MBF	CT/PCT Cable UB /SL,P 41 ac 205 MBF	-----	CT/PCT Cable UB /SL,P 41 ac 205 MBF	This unit could be called a maintenance thin. Emphasize retention of large conifers. CT- Thin from below, maintain 40% canopy cover overall; around large conifers especially pines within unit open up canopy to 15' past dripline, precommercial thin 14X14 in areas with non-merchantable conifers, 100% brush, 7" upper diameter cut limit, handpile and burn piles ..... Riparian Reserves – reduce stocking levels of non-commercial conifers and hardwoods, space 16X16, slash brush, handpile and burn piles
<b>EAST FORK Whiskey</b>					
13-2	SL,P 258 ac	SL,P 258 ac	-----	SL,P 258 ac	
15-2	UB 66 ac	UB 66 ac	-----	UB 66 ac	

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
<b>LOWER MARIAL</b>					
2-1A	UB SL,P 16 ac	UB SL,P 16 ac	-----	UB SL,P 16 ac	
2-1B	UB SL,P 94 ac	UB SL,P 94 ac	-----	UB SL,P 94 ac	
2-3	Pine Conversion NDM P 221 ac	Pine Conversion NDM P 221 ac	-----	Pine Conversion NDM P 221 ac	All Action Alts – 7' upper diameter cut limit on conifers and hardwoods (except area specified for harvest in Alt 1), release DF when it's greater than the height of the nearest pine and well formed/vigorous, space pine. Retain an average spacing of approximately 17X17 (~160 tpa), brush, handpile and burn piles, evaluate for planting needs, interplant with Douglas-fir. Note: Time treatment to reduce potential conflicts with recreation. Do Nov-April  With Alt 1 – remove individual merchantable pine in portion of unit along road 33-10-2 to release natural Douglas-fir saplings, no removal of material in areas with no DF
4-3	UB 243 ac	UB 243 ac	-----	UB 245 ac	
6-10	UB 32 ac	UB 32 ac	-----	UB 32 ac	
10-3	UB 30 ac	UB 30 ac	-----	UB 30 ac	

Unit Number	Alt 1	Alt 2	Alt 3	Alt 4	Prescription Summary and Notes (See Marking Guidelines)
35-4	SL,P 1 ac	CDM Tractor SL,P 1 ac 5 MBF	-----	SL,P 1 ac	Alts 2 - Reduce stocking to 60% minimum canopy cover, 11" dbh upper diameter cut limit, handpile and burn piles  Alt 1 – fuel reduction treatment only
36-1	UB 11 ac	UB 11 ac	-----	UB 11 ac	
36-2	UB 27 ac	UB 27 ac	-----	UB 27 ac	

Legend

- BB Broadcast Bum
  - CDM Commercial Density Management
  - CT Commercial Thin
  - MFT Mechanical Fuels Treatment
  - NDM Non-commercial Density Management
  - OR Overstory Removal
  - P Hand Pile, burn piles
  - PCT Pre-commercial Thin
  - RH Regeneration Harvest
  - SL Slash
  - UB Underburn
  - L&S Lop and Scatter
- Notes:
- CDM within LSR would be limited to cutting trees less than 80 years of age
  - CT and CDM in alternatives 2 and 4 would retain at least 60 percent canopy closure within the Maii-Kelsey connectivity corridor and in the LSR, 40% elsewhere; within the LSR there would be an 11" dbh upper diameter cutting limit
  - within Riparian Reserves, slashing and piling would not be done within 25 feet of streams

# Appendix 3. Road Treatments by Alternative.

Road #	Current Status	Maint Level	Proposed Treatment (miles)				Comments	
			Length (miles)	Alt. 1	Alt. 2	Alt. 3		Alt. 4
32-7-19.3 D1 D2 D3 D4 E F		2 2 3 3 3 2	7.6	-----	-----	-----	Gate in unit 6-6	Dutch Henry rd west of Whisky Cr. rd; private lands
32-8-30.0	Overgrown	1	1.54	F Dec 1.24 mi	F Dec 1.24 mi	-----	F Dec 1.24 mi	F Dec last 1.24 miles on BLM
32-8-31.2		2	3.84	Reestab original prism	Outslope and waterdip	-----	Outslope and waterdip	Treat first 3.84 mi.
32-8-31.2		2		F Dec 1.29 mi	F Dec 1.29 mi	-----	F Dec 1.29 mi	F Dec. last 1.29 mile
32-9-13.0		2	3.03	F Dec last 0.69 mi.	F Dec last 0.69 mi	-----	F Dec all 3.03 mi	Extending road in Alt. 1
32-9-14.0		2	1.76	F Dec last 1.41 mi	F Dec last 1.41 mi	-----	F Dec 1.76 mi	
32-9-24.0		2	1.65	F Dec last 0.72 mi	F Dec last 0.72 mi	-----	F Dec last 0.72 mi	Fdec last 0.72 mi
32-9-24.1		1	0.58	Reestab original prism	Outslope and waterdip	-----	Outslope and waterdip	
32-9-24.2		2	0.94	Reestab original prism	Outslope and waterdip	-----	Outslope and waterdip	
32-9-35.0		2	0.98	Reestab original prism	Outslope and waterdip	-----	Outslope and waterdip	
32-9-35.1		1	1.04	Reestab original prism	Outslope and waterdip	-----	Outslope and waterdip	
32-9-35.2		1	0.51	F Dec last 0.41 mi	F Dec last 0.41 mi	-----	F Dec last 0.41 mi	Fdec from jct jeep rd to end.

Road #	Current Status	Maint Level	Proposed Treatment (miles)				Comments	
			Length (miles)	Alt. 1	Alt. 2	Alt. 3		Alt. 4
33-8-04.0B	Jeep Road	2	1.76	Renovate for fire access	Renovate for fire access	-----	Renovate for fire access	Middle Whisky Cr; Access to unit
33-8-06.1		2	0.29	F Dec 0.29 mi	F Dec 0.29 mi	-----		Maintain existing barricade
33-8-07		2	1.84	Barricade	Barricade	-----		Connects 17.1 & 19.3 roads
33-8-07.1	Jeep Road	2	2.3	Gate Renovate for haul	Gate Renovate for haul	-----	Renovate for fire access	Copsey Ridge Road. Stop road at section line
33-8-11.1	Overgrown	2	1.02	-----	-----	-----	F Dec 1.02 mi	Access to unit
33-8-11.1 Spur	Overgrown	1	0.26	-----	-----	-----	F Dec 0.26 mi	
33-8-17.1	Jeep Road	2	0.91	-----	-----	-----	-----	Ties to 33-8-7 & 33-8-21.1
33-8-18.0	Jeep Road	2	1.00	Renovate for fire access	Renovate for fire access	-----	Renovate for fire access	
33-8-21.0	End of rd Overgrown	1	1.06	F Dec 1.06 mi Gate	F Dec 1.06 mi Gate	-----	F Dec 1.06 mi	Russian Ridge Road; Connect to 33-8-7
33-8-21.0 Spur		2	0.22	F Dec 0.22 mi	F Dec 0.22 mi	-----	F Dec 0.22 mi	
33-8-21.1 extension (Rd #6)	Overgrown	1	2.0	Renovate	Renovate	-----	Renovate for fire access	Extension of rd 33-8-21.1 south of Bunker Cr.

Road #	Current Status	Maint Level	Proposed Treatment (miles)				Comments	
			Length (miles)	Alt. 1	Alt. 2	Alt. 3		Alt. 4
33-8-23.0 Tie road	Rutted	1	1.24	F Dec 1.24 mi	F Dec 1.24 mi	-----	F Dec last 1.24 mi	Old Whisky Creek Route; Avoid mining claim FDec all but first 300 ft.
33-8-23.0 Spur	Overgrown	1	0.55	Abandon 0.55 mi	Abandon 0.55 mi	-----	Abandon 0.55 mi	
33-8-26.0B	System road	3	6.7	Surface	Surface	-----	Surface	Whisky Cr road SURFACE
33-8-26.1	Rutted	2	0.56	F Dec 0.56 mi	F Dec 0.56 mi	-----	F Dec 0.64 mi	Goes down to mining claim F Fdec all except for landing, if claim is inactive
33-8-28.0 spur	Campsite Dump site	2	0.05	Keep as is	Keep as is	-----	F Dec 0.05 mi	Check to maintain as is
33-8-35.0		2	1.0	Waterbar w/miners OK	Waterbar w/miners OK	-----	Waterbar w/miners OK	Miners road below Whisky Creek overlook
33-9-11.0	water in road prism	2	2.27	F Dec last 0.54 mi	F Dec last 0.54 mi	-----	F Dec last 0.54 mi	Fdec last 0.54 mi.
33-9-5.3		2	1.60	-----	-----	-----	F Dec last 0.24 mi	Fdec last 0.24 mile
34-8-01BC Byway Road		2	10.3	-----	-----	-----	Pave to Dutch Henry rd at top 10.3 mi.	Paving addressed in road maint. CE
Total miles F Dec				9.7	9.7	0	13.6	
Total Miles gated				5.08	5.08	0	9.16	

Road #	Current Status	Maint Level	Length (miles)	Proposed Treatment (miles)				Comments
				Alt. 1	Alt. 2	Alt. 3	Alt. 4	
Total Miles barricaded				1.84	1.84	0	0	
<b>New Road Construction</b>								
05-1	Temp road	1	0.14	Decom temp spur 0.14 mi	-----			
06-3	Temp road	1	0.29	Decom temp spur 0.29 mi	Decom temp spur 0.29 mi			
06-4	Temp road	1	0.33	Decom temp spur 0.33 mi	Decom temp spur 0.33 mi			
07-1	Temp road	1	0.04	Decom temp spur 0.04 mi	Decom temp spur 0.04 mi	-----	-----	
08-1	Temp road	1	0.21	Decom temp spur 0.21 mi	Decom temp spur 0.21 mi	-----	-----	
12-1	Temp road	1	0.05	Decom temp spur 0.05 mi	Decom temp spur 0.05 mi	-----	-----	
13-1	Temp road	1	0.1	Decom temp spur 0.1 mi	Decom temp spur 0.7 mi	-----	-----	
35-1	Jeep Road	1	0.35	Decom temp spur 0.35 mi	Decom temp spur 0.35 mi	-----	-----	Improve Jeep road
Total miles perm. road				-----	-----	-----	-----	
Total miles Temp Road				1.5	1.9	-----	-----	
Total Roads Renovated				7.1	7.1	-----	7.1	

Legend

Fdec - Full Decommissioning of roadway. Roads determined to have no future need. Culverts would be removed and subgrades ripped, mulched and blocked. Planting could occur to reestablish vegetation.

Reestab original prism - Perform road maintenance to re-establish the ditch lines, catch basins and road prism configurations to those established when the road was first constructed.

Improve - Reconstruction of overgrown primitive roads to a permanent, maintained road standard compatible with use by high clearance vehicles.

Improve for fire access - Minimum improvement of overgrown roads by brushing and blading necessary for fire management equipment to use the road.

Barricade - Use of a trench, log or similar permanent device to close a road from use by a motorized vehicle.

Temp road - a low standard haul road constructed immediately prior to logging and post harvest activities. The road is fully decommissioned after use.

Decom temp spur - Restoration of a temporary road to a natural condition, using methods shown in Fdec above.

Renovate - Restore a road surface to its original design.



## Appendix 4. Objective-based Cutting and Treatment Methods.

**Regeneration Harvests** – Objective of the treatment is remove mature timber in a manner that creates conditions for a new stand of timber to become established. Treated areas to follow RMP standards and guidelines for green tree retention, snags, and coarse woody debris. Unless otherwise stated, a regeneration harvest (NGFMA) would produce a two-storied stand. The upper canopy would generally be composed of six to eight larger conifers (>20 dbh) per acre across the range of diameters. Species would represent those present prior to harvest. Conifers retained would be made up of sound trees as well as trees with decay and other defect. The lower level would be made up of conifer seedlings planted after fuels were treated and site preparation was completed. Some natural regeneration would occur. Where present, the target would be to maintain three to five large hardwoods per acre. Regeneration harvest units would retain this two-storied structure into the future. Planted seedlings and natural seedlings would be actively managed until the next regeneration harvest at approximately 100 years of age. One or more commercial thins may occur depending stand stocking levels. See Medford District RMP for a more complete discussion of stand management scenarios.

**Overstory Removal** – A type of regeneration harvest treatment where the objective of the treatment would be to remove mature and older overstory trees in excess of the RMP standards and guidelines in order to release existing conifer regeneration and/or other desirable vegetation in the understory. May occur in previously entered stands or in natural stands where there is a releaseable understory of conifers. Type of stand produced and future stand management would be similar to that of a regeneration harvest unit but would have an existing conifer understory immediately after harvest. Another regeneration harvest would occur in approximately 70 to 90 years depending on age and size of understory existing at time of current overstory removal operation. One or more commercial thins may occur depending stand stocking levels.

**Clearcut** – Objective of the treatment would be to remove the timber from the site and clear the area. Cutting method in which all trees would be removed from an area either permanently or temporarily. Examples of clearcuts include: road right-of-ways, quarry development, ski runs,... . Does not include small unmapped patch cuts. The land would be removed from timber production.

**Density Management** – Objective of the treatment would be to control (reduce) stand stocking to maintain or enhance forest/stand health, to maintain or enhance stand structure and function for wildlife purposes or to maintain or enhance stand characteristics for purposes other than for growth and yield. While growth rates and yield would probably increase as a result of a density management treatment and logs may be harvested, the intent of the treatment is not to produce wood volume. Density management treatments may be commercial or non-commercial. Commercial density management treatments would remove merchantable size logs from the site and would loosely resemble commercial thins. Non-commercial density management treatments would not remove commercial size trees from the site (although some merchantable size trees may be felled or girdled and left on the site for wildlife or other objectives). Species cut would depend on treatment objective and species (presence and abundance) on the site. Smaller size trees would generally be those that would be removed. In general, treated stands would resemble their pretreatment condition. Single-storied stands would remain single-storied. Multi-storied stands would remain multi-storied.

**Commercial Thin** – Objective of treatment is to control (reduce) stand stocking to increase growing space for and redistribute growth to remaining selected trees for commercial objectives. Purpose is to enhance stand yield and quality. Treatment would be similar to density management in that numbers of stems would be reduced and there may be differences in species that would be cut depending on site conditions. Treatment would enhance forest/stand vigor. Although thinnings in this proposal, would be from below, some larger diameter trees (codominants and dominants) may be removed where they exist in clumps. Thinnings would tend to homogenize stands, that is remaining trees would be closer in size to each other. Spacing between remaining merchantable trees would be more uniform than before treatment.

**Tree Culturing** — Objective of treatment is the maintenance or development of large old sugar pine or ponderosa pine trees within the West Fork Whisky Creek sub-watershed. The scattered remnant pine trees continue to die each year due to competition and moisture stress. Smaller pine trees would also be selected to develop and replace the scattered pine structure on the landscape. Treatment would be to create openings around the bole of selected pine extending 20' past the dripline of the selected tree. To facilitate removal of commercial timber by helicopter cable yarding, up to 50% can be removed up to a distance of 40' from the dripline. An average of two trees per acre (approximately 148' spacing) are to be selected by the following priority: the largest, healthiest sugar pine with at least 40% canopy; then subordinate sugar pine no smaller than 8" DBH. Ponderosa pine are to be selected when sugar pine is absent using the same criteria as above. Treatments in riparian areas will be limited to non-commercial cutting extending no further than the dripline. The same species selection criteria apply.

## Appendix 5. Fuels Treatments

The exact treatments would be tailored to individual site conditions, but would generally consist of broadcast burning of activity fuels, and slashing brush and saplings, hand piling and burning the piles. In some cases, dense stands of small conifers would be thinned (using a chainsaw or slashbuster) to space out the stems and reduce the chance of crown fires. In others, older stands would be underburned to reduce overall fuel loadings and remove some of the ladder fuels. The location and extent of the treatments vary among the action alternatives.

**Broadcast burning** - would take place in the spring, if possible, and would be designed to:

- minimize conflicts with smoke management guidelines
- minimize risk of control problems
- avoid adverse impacts to nesting wildlife species
- minimize loss of large woody debris
- meet silvicultural objectives to prepare the site and reduce competition with conifer seedlings
- not exceed guidelines for exposing bare soil (Monitoring Handbook)
- minimize the effects of drying the soil and destruction of the moss and duff layer

**Hand piling and burning** is designed to remove approximately 50 to 75% of the fuel between 1 and 6 inches in diameter and greater than 2 feet in length. Fuel outside this size range would be left untreated, however, some smaller fuels would be included in the piles to create optimal ignition conditions. Piles are covered to create a dry ignition point and piles would be burned in the fall to winter season after 1 or more inches of precipitation has occurred. Piles would be burned during this season to reduce the potential for fire to spread outside each pile, and to reduce the potential for scorch and mortality to the residual trees and shrubs. Piles are also burned when the soil and duff moisture is high enough to prevent soil damage.

**Ladder fuels** - both live or standing dead vegetation such as shrubs and small trees in the understory, and both live and dead branches close to the ground level on overstory trees.

**Underburning** - prescribed fire within areas where residual trees and shrubs are present. The prescribed fire objective is to reduce the fuel hazard from both dead and down woody material and to reduce the amount of “ladder” fuels present. Underburning can be conducted throughout the year, when fuel and weather conditions permit the successful achievement of resource objectives. Typically, burning would be conducted from fall through late spring. Summer or early fall would be less common, but can be feasible when needed to meet resource objectives and when escape fire risk can be mitigated. Fire lines would be constructed by hand on slopes greater than 35%. One-pass fire line construction with a brush blade would be used for tractor fire lines.

**Prescribed fire plan** - For all prescribed fire activities, a prescribed fire plan would be prepared that includes both resource and fire objectives. Fuel moisture and weather parameters would be developed based on these objectives. The timing of the burn would be based on achieving these objectives, occurrence of the parameters, predicted weather, and the availability of adequate fire suppression resources as a contingency plan in the event of fire escape. Prescribed fire effects can include mortality in both the overstory and understory vegetation. The prescribed fire plan includes acceptable mortality levels. These levels typically limit overstory mortality to 10-15% or less, and understory mortality to 20-50% or less depending on resource objectives. When prescribed fire is used to “thin-out” understory vegetation (as opposed to thinning with chainsaws), the higher acceptable percentages of mortality would apply. An underburn treatment prescription can range from burning 30% of the area (a “mosaic” burn) up to 90% of the area. Burning would be conducted under conditions that would prevent damage to soils, and consumption of large, woody debris. This would ensure long-term site productivity. Machine fire lines would not be constructed in riparian reserves.

**Lop and scatter** - a slash treatment that does not remove fuel. Fuel is cut into smaller pieces and scattered so that it comes into contact with the ground surface. This helps create a fuel bed that would have a slower rate of spread and flame height during a wildfire. It also

decreases the time period for decomposition of the woody debris.

**Slashbuster** - a machine used to treat understory vegetation such as brush and associated species primarily to reduce ladder fuels. The primary treatment targets would be brush species, small diameter hardwoods, and, in some cases, conifer understory vegetation. Secondary benefits associated with this treatment are 1) reduce moisture competition which should produce healthier, more vigorous trees, and 2) increase wildlife forage. The slashbuster treatment could be used in any stand identified for treatment but would generally be used in non-commercial stands.

**Fuel modification zones (FMZs)** - would be constructed along major roadways and ridges. This treatment consists of manually slashing understory vegetation with chainsaws, hand piling, and burning. This treatment would be used in strips adjacent to roads and in areas that are unsuitable for the slashbuster to work. This treatment would also be used in timbered stands that have a dense, stagnant, fire generated understory.

#### **Air Quality**

- Burn piled slash during the fall and winter to reduce impacts on air quality.
- Broadcast burning would be minimized in favor of lower intensity underburning.
- Emission reduction mitigation measures and smoke dispersal techniques would be used to the greatest extent practical to prevent smoke drift into the Kalmiopsis Wilderness area
- Wildfire hazard reduction, site preparation and the use of prescribed fire for species habitat mitigation would be implemented in a manner consistent with ecosystem management objectives.
- Air quality and visibility would be maintained in a manner consistent with the Clean Air Act and the Oregon State Implementation Plan.

## Appendix 6. Vascular plants known or suspected within the planning area.

Common Name	Scientific Name	Status	Occurrence	Habitat
Bolander's onion	<i>Allium bolanderi</i> <i>var. mirabile</i>	BTO	Documented	Gravelly, open or forested areas
Oregon bensoniella	<i>Bensoniella oregana</i>	BSO	Documented	Riparian conifer forest, old-growth associated
Olney's hairy sedge	<i>Carex gynodynamis</i>	BTO	Documented	Forested riparian areas
clustered lady's slipper	<i>Cypripedium fasciculatum</i>	C, BSO	Suspected	Coniferous forest, old-growth associated
red larkspur	<i>Delphinium nudicaule</i>	BAO	Documented	Rocky, open areas; talus
California glob-mallow	<i>Illiamna latibracteata</i>	BAO	Suspected	Coniferous forest, often early or mid-successional
Howell's lewisia	<i>Lewisia cotyledon</i> <i>var. howellii</i>	BSO	Documented	Rock outcrops, often full sun on north slopes
stipuled trefoil	<i>Lotus stipularis</i>	BAO	Documented	Coniferous forest, generally early or mid-successional
birdfoot cliffbrake	<i>Pellaea mucronata</i> <i>ssp. mucronata</i>	BAO	Documented	Rock outcrops
Rogue River stonecrop	<i>Sedum moranii</i>	BSO	Documented	Rock outcrops, often full sun on south slopes

BAO – Bureau Assessment Oregon, BTO – Bureau Tracking Oregon, BSO – Bureau Sensitive Oregon, C – Survey and Manage Category C

Appendix 6-B: Results of 2001-2 Kelsey-Whiskey Vascular Surveys; Species found and the Units in which they occur.

Species found & Status	KW Fuels	Mari-Kelsey TS	CA Gulch TS	East Kelsey TS
<i>Sedum moranii</i> , BSO	23-2.1 13-2b 26-4.2 2-2.2 02-2 13-2 26-4			
<i>Allium bolanderi</i> <i>var. mirabile</i> , BTO	23-2.1 02-1A			
<i>Pellaea mucronata</i> <i>ssp. mucronata</i> , BAO	26-4.2			
<i>Lewisia cotyledon</i> <i>var. howellii</i> , BTO	26-4.2			
<i>Delphinium nudicaule</i> , BAO	02-2			
<i>Lotus stipularis</i> , BAO	02-2			
<i>Bensoniella oregana</i> , BSO	36-2			



# Appendix 7. Lichens and Bryophytes found or suspected in the Wild Rogue North Watershed

Common Name	Scientific Name	Status	Occurrence in the Glendale RA	Habitat
<b>Lichens</b>				
tortured horsehair lichen	<i>Bryoria tortuosa</i>	A,B	Documented	Forest canopy in foothills & oak savannahs
Olive-thorn lichen	<i>Dendriscoaulon intricatum</i>	B	Documented	Boles of deciduous oaks
Pringle's rim lichen	<i>Lecanora pringlei</i>	BTO	Documented	High elevation rocks
kidney lichen	<i>Nephroma occultum</i>	BAO	Suspected	Forests, usually old-growth, maritime & inland wet zone
matted lichen	<i>Pannaria rubiginosa</i>	BTO	Suspected	Bark & wood
peltula lichen	<i>Peltula euploca</i>	BTO	Suspected	Rock, vertical cliffs, semiarid valley & foothill woodlands, savannahs
ragged lichen	<i>Platismatia lacunosa</i>	C	Documented	Alder bark in low-elevation riparian corridors, old-growth associated.
oldgrowth specklebelly	<i>Pseudocyphellaria rainierensis</i>	A BTO	Suspected	Bark of various trees, usually in old growth hemlock or silver fir
cartilage lichen	<i>Ramalina thrausta</i>	A	Suspected	Conifer & understory canopy, riparian, valley bottoms; old-growth
Bay horsehair lichen	<i>Sulcaria badia</i>	BSO	Documented	Hardwood & conifer bark, lowlands & valley fringes
beard lichen	<i>Usnea longissima</i>	A,F	Suspected	Hardwood canopies in riparian corridors, adjacent conifer & oak canopies; old-growth
<b>Liverworts</b>				
Hayne's liverwort	<i>Sphaerocarpos hians</i>	BSO	Suspected	Muddy riverbanks
<b>Mosses</b>				
filiform anomobryum moss	<i>Anomobryum filiforme</i> ( <i>Pohlia filiformis</i> )	BTO	Suspected	Sandstone cliffs or soil or rock in wet crevices
wideleaf crumia moss	<i>Crumia latifolia</i>	BAO	Documented	Calcareous seeps & springs from coastal to arid interior habitats
Crum's candle snuffer moss	<i>Encalypta brevicolla</i> var. <i>crumiana</i>	B BSO	Suspected	Protected soil in crevices of igneous rock, usually in fog zone
largeleaf fissidens moss	<i>Fissidens grandifrons</i>	BTO	Documented	Rocks in waterfalls & fastflowing streams, mostly on bedrock
fissidens moss	<i>Fissidens pauperculus</i>	BTO	Documented	Bare moist soil banks often as w/ Fissidens

Common Name	Scientific Name	Status	Occurrence in the Glendale RA	Habitat
				bryoides. Riparian, old-growth
Muhlenberg's funaria moss	<i>Funaria muhlenbergii</i>	BAO	Documented	Dry exposed soil in cliffs, rock outcrops & balds, seasonal wet walls
starry hedwigia moss	<i>Hedwigia stellata</i>	BTO	Suspected	Rock faces in grasslands & savannahs
wide-leaved orthotrichum	<i>Orthotrichum euryphyllum</i> syn.: <i>O. rivulare</i>	BTO	Documented	Rocks or trees, in or near streams, usually in lowland forests.
serpentine moss	<i>Pseudoleskeella serpentinense</i>	BSO	Suspected	Exposed serpentine in grassy scalds; often on rocks.
marginate splashzone moss	<i>Scouleria marginata</i>	BTO	Suspected	Rocks in streams, often in spray zone of waterfalls
mucronleaf tortula moss	<i>Tortula mucronifolia</i>	BTO	Documented	Soil or rock, lowlands to 9000 ft elev.
tortula moss	<i>Tortula subulata</i>	BTO	Documented	Roadside soil to 4200 ft elev. Young forests. Disturbed mineral soil.
tripterocladium moss	<i>Tripterocladium leucocladulum</i>	BAO	Suspected	Shaded to exposed rocks or hardwood bark, mostly in low elevations
BAO – Bureau Assessment Oregon, BTO – Bureau Tracking Oregon, BSO – Bureau Sensitive Oregon A,B,F – Survey and Manage Categories A,B,F				

Appendix 7-B: Results of 2001-2 Kelsey-Whiskey Nonvascular Surveys; Species found and the Units in which they occur.

Species found & Status	KW Fuels	Mari-Kelsey TS	CA Gulch TS	East Kelsey TS
<i>Tortula subulata</i> , BTO	29-1	22A 27-3	27-1Bcg 28-1-B	6-3north 12-4 17-3 8-1 8-2 7-2A 35-2 31-1
<i>Fissidens grandifrons</i> , BTO	26-4.2 26-4.3	27-3	26-2 22-1	
<i>Funaria muhlenbergii</i> , BAO	26-4.2			
<i>Crumia latifolia</i> , BAO	26-4.2			
<i>Tripterocladium leucocladulum</i> , BAO		27-3		1-2

## Appendix 8. Threatened, Endangered, Special Status Wildlife Species in the Planning Area.

Appendix 8-A. Federal Endangered, Threatened and Candidate Species - Wild Rogue North watershed.

Common Name	Scientific Name	Status	Presence/Inventory	Habitat	Monitoring
marbled murrelet	<i>Brachyramphus marmoratus</i>	FT,ST	U/3	Y	Y
northern spotted owl	<i>Strix occidentalis caurina</i>	FT,ST	D/3	Y	Y
bald eagle	<i>Haliaeetus leucocephalus</i>	FT,ST	D/3	Y	Y
Southern Oregon /Northern California coho salmon	<i>Oncorhynchus kisutch</i>	FT,SC	D/3	Y	Y
steelhead trout	<i>Oncorhynchus mykiss</i>	FC,SV	D/3	Y	Y
Pacific lamprey	<i>Lampetra tridentata</i>	XC, SV	S/N	Y	N

Legend follows Appendix Table 8-E

Appendix 8-B. Protection Buffer/Survey and Manage Species - Wild Rogue North watershed.

Common Name	Scientific Name	Status	Presence/Inventory	Habitat	Monitoring
del note salamander	<i>Plethodon elongatus</i>	PB,SM, SoC,SV	D/3	Y	Y
white-headed woodpecker	<i>Picoides albolarvatus</i>	PB	U/N	Y	N
back-backed woodpecker	<i>Picoides pubescens</i>	PB	U/N	Y	N
flammulate owl	<i>Otus flammeolus</i>	PB	U/N	Y	N
great gray owl	<i>Strix nebulosa</i>	PB	S/3	Y	Y
red tree vole	<i>Aborimus pomo</i>	SM	D/3	Y	Y
blue-grey tail-dropper slug	<i>Prophysaon coeruleum</i>	SM	D/3	Y	U

papillose tail-dropper slug	<i>Prophysaon dubium</i>	SM	D/3	Y	U
Oregon shoulderband snail	<i>Helminthoglypta hertelini</i>	SM	S/3	Y	N
chace sideband	<i>Monadenia chaceana</i>	SM	S/3	Y	N
Oregon megomphix	<i>Megophix hemphilli</i>	SM	U/3	U	N

Legend follows Appendix Table 8-E

Appendix 8-C. Potential Special Status Vertebrates - Wild Rogue North Watershed.

Common Name	Scientific Name	Status	Presence/Inventory	Habitat	Monitoring
white-footed vole	<i>Phenacomys albipes</i>	XC,BT	U/N	U	N
western gray squirrel	<i>Sciurus griseus</i>	SU,BT	U/N	U	N
fisher	<i>Martes pennanti</i>	XC,BS,SC	S/N	Y	N
American marten	<i>Martes americana</i>	SV	S/N	Y	N
wolverine	<i>Gulo gulo luteus</i>	XC,ST	U/N	U	N
Canada lynx	<i>Lynx canadensis</i>	FP	U	U	N
ringtail	<i>Bassariscus astutus</i>	SU,BT	U/N	Y	N
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	BS,SC	Y/3	Y	N
fringed myotis	<i>Myotis thysanodes</i>	XC,SV,BT	S/3	Y	N
yuma myotis	<i>Myotis yumanensis</i>	XC,BT	U/3	Y	N
long-eared myotis	<i>Myotis evotis</i>	XC,BT	U/3	Y	N
long-legged myotis	<i>Myotis volans</i>	XC,BT	U/3	Y	N
silver-haired bat	<i>Lasionycteris noctivagans</i>	SU,BT	U/3	Y	N
Pacific pallid bat	<i>Antrozous pallidus</i>	SV,BT	U/3	Y	N
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	BA	S/3	Y	N

Common Name	Scientific Name	Status	Presence/ Inventory	Habitat	Monitoring
dusky canada goose	<i>Branta canadensis occidentalis</i>	BT	S/N	Y	N
harlequin duck	<i>Histrionicus histrionicus</i>	XC,SU,BA	D/N	Y	N
northern goshawk	<i>Accipiter gentilis</i>	XC,SC,BS	S/2	Y	Y
Swainson's hawk	<i>Buteo swainsoni</i>	SV,BT	U/N	Y	N
ferruginous hawk	<i>Buteo regalis</i>	XC,BS	U/N	Y	N
American peregrine falcon	<i>Falco peregrinus anatum</i>	SE	D/3	Y	Y
Forster's tern	<i>Sterna forsteri</i>	BT	S/N	Y	N
black tern	<i>Chlidonias niger</i>	XC,BT	U/N	Y	N
yellow-billed cuckoo	<i>Coccyzus americanus</i>	BS	S/N	Y	N
Allen's hummingbird	<i>Selasphorus sasin</i>	BT	S/N	Y	N
acorn woodpecker	<i>Melanerpes formicivorus</i>	BT	S/N	Y	N
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	BT	S/N	Y	N
pileated woodpecker	<i>Dryocopus pileatus</i>	BT	D/N	Y	N
olive-sided flycatcher	<i>Contopus cooperi</i>	XC,BT	S/N	Y	N
willow flycatcher	<i>Empidonax trailii brewsteri</i>	XC,BT	S/N	Y	N
black phoebe	<i>Sayornis nigricolis</i>	BT	S/N	Y	N
purple martin	<i>Progne subis</i>	SC,BS	S/N	Y	N
bank swallow	<i>Riparia riparia</i>	SU	S/N	Y	N
western bluebird	<i>Sialia mexicana</i>	SV,BT	S/N	Y	N
foothills yellow-legged frog	<i>Rana boylei</i>	XC,SV,BT	S/N	Y	N
northern red-legged frog	<i>Rana aurora aurora</i>	XC,SU,BT	S/N	Y	N

Common Name	Scientific Name	Status	Presence/ Inventory	Habitat	Monitoring
tailed frog	<i>Ascaphus truei</i>	XC,BT	S/N	Y	N
western toad	<i>Bufo boreas</i>	SV,BT	S/N	Y	N
Siskiyou mountains salamander	<i>Plethodon stormi</i>	XC,BA	S/N	Y	N
clouded salamander	<i>Aneides ferreus</i>	SU,BT	S/2	Y	N
southern torrent salamander	<i>Rhyacotriton variegatus</i>	XC,SV,BT	S/2	Y	N
black salamander	<i>Aneides flavipunctatus</i>	SP,BA	S/2	Y	N
western pond turtle	<i>Clemmys marmorata</i>	XC,BS,SC	D/3	Y	N
sharp-tailed snake	<i>Contia tenuis</i>	SV,BT	S/N	Y	N
California mountain kingsnake	<i>Lampropeltis zonata</i>	SV,BT	S/N	Y	N
common kingsnake	<i>Lampropeltis getulus</i>	SV,BT	S/N	Y	N
northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	XC,BT	S/N	Y	N
green sturgeon	<i>Acipenser medirostris</i>	XC, BT	D/3	Y	N

Legend follows Appendix Table 8-E

Appendix 8-D. Potential Special Status Invertebrates - Wild Rogue North watershed.

Common Name	Scientific Name	Status	Presence/ Inventory	Habitat	Monitoring
Denning's agapetus caddisfly	<i>Agapetus denningi</i>	XC,BT	U/N	U	N
green springs mountain farulan caddisfly	<i>Farula davisi</i>	XC,BT	U/N	U	N
O'brien rhyacophilan caddisfly	<i>Rhyacophila colonus</i>	XC,BS	U/N	U	N
Siskiyou caddisfly	<i>Tinodes siskiyou</i>	XC,BT	U/N	U	N

clatsop philosaskan caddisfly	<i>Philocasca oron</i>	XC,BT	S/N	U	N
Cooley's acalypta lace bug	<i>Acalypta cooleyi</i>	BT	S/N	U	N
gray-blue butterfly	<i>Agriades glandon podarce</i>	BT	S/N	U	N
western sulpher butterfly	<i>Colias occidentals chrysomelas</i>	BT	S/N	U	N
rural skipper butterfly	<i>Ochlodes agricola agricola</i>	BT	S/N	U	N
mardon skipper butterfly	<i>Polites mardon</i>	XC,BA	S/N	U	N
coronis fritillary butterfly	<i>Speyeria coronis coronis</i>	BA	S/N	U	N
Siskiyou chloealtis grasshopper	<i>Choealtis aspasma</i>	XC,BT	S/N	U	N
Franklin's bumblebee	<i>Bombus franklini</i>	XC,BS	S/N	U	N
Klamath rim pebblesnail	<i>Flumicola sp. nov.</i>	BS	S/N	U	N
nerite pebblesnail	<i>Flumicola sp. nov.</i>	BS	S/N	U	N
montane peaclam	<i>Pisidium ultramontanum</i>	XC,BS	S/N	U	N

Legend follows Appendix Table 8-E

Appendix 8-E. Potential Neotropical Migratory Landbirds - Wild Rogue North watershed.

COMMON NAME	SCIENTIFIC NAME	PRESENCE	TREND*
green-winged teal	<i>Anas crecca</i>	unknown	insufficient data
sora	<i>Porzana carolina</i>	unknown	insufficient data
turkey vulture	<i>Coragyps atratus</i>	present	stable or increasing
osprey	<i>Pandion haliaetus</i>	present	stable or increasing
flamulated owl	<i>Otus flammeolus</i>	unknown	insufficient data
common nighthawk	<i>Chordeiles minor</i>	present	insufficient data
rufous hummingbird	<i>Selasphorus rufus</i>	present	decline
calliope hummingbird	<i>Stellula calliope</i>	unknown	insufficient data
western kingbird	<i>Tyrannus verticalis</i>	present	insufficient data

COMMON NAME	SCIENTIFIC NAME	PRESENCE	TREND*
ash-throated flycatcher	<i>Myiarchus cinerascens</i>	present	insufficient data
western wood-pewee	<i>Contopus sordidulus</i>	present	decline
olive-sided flycatcher	<i>Contopus borealis</i>	present	decline
hammond's flycatcher	<i>Empidonax hammondi</i>	present	insufficient data
dusky flycatcher	<i>Empidonax oberholseri</i>	present	insufficient data
pacific-slope flycatcher		present	insufficient data
Vaux's swift	<i>Chaetura vauxi</i>	present	decline
tree swallow	<i>Tachycineta bicolor</i>	present	insufficient data
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	present	insufficient data
violet-green swallow	<i>Tachycineta thalassina</i>	present	decline
cliff swallow	<i>Hirundo pyrrhonota</i>	present	insufficient data
barn swallow	<i>Hirundo rustica</i>	present	decline
house wren	<i>Troglodytes troglodytes</i>	present	insufficient data
blue-gray gnatcatcher	<i>Polioptila caerulea</i>	present	insufficient data
Swainson's thrush	<i>Catharus ustulatus</i>	present	decline
solitary vireo	<i>Vireo solitarius</i>	present	insufficient data
warbling vireo	<i>Vireo gilvus</i>	present	insufficient data
Townsend's warbler	<i>Dendroica townsendi</i>	present	insufficient data
hermit warbler	<i>Dendroica occidentalis</i>	present	insufficient data
black-throated gray warbler	<i>Dendroica virens</i>	present	insufficient data
nashville warbler	<i>Vermivora ruficapilla</i>	present	insufficient data
Macgillivray's warbler	<i>Oporornis tolmiei</i>	present	insufficient data
yellow warbler	<i>Dendroica petechia</i>	present	insufficient data
orange-crowned warbler	<i>Vermivora celata</i>	present	decline
common yellowthroat	<i>Geothlypis trichas</i>	present	Stable/increase
yellow-breasted chat	<i>Icteria virens</i>	present	insufficient data
Wilson's warbler	<i>Wilsonia pusilla</i>	present	decline
brownheaded cowbird	<i>Molothrus ater</i>	present	decline
northern oriole	<i>Icterus galbula</i>	present	decline
western tanager	<i>Piranga ludoviciana</i>	present	decline
chipping sparrow	<i>Spizella passerina</i>	suspected	decline
green-tailed towhee	<i>Pipilo chlorurus</i>	present	Stable/increase

COMMON NAME	SCIENTIFIC NAME	PRESENCE	TREND*
black-headed grosbeak	<i>Pheucticus melanocephalus</i>	present	Stable/increase
lazuli bunting	<i>Passerina amoena</i>	present	insufficient data

\* Based on information from Partners in Flight in Oregon and might not necessarily represent nationwide figures.

Legend for Appendix Tables 8A-8E.

Status:

- FE- Federal Endangered
- FT- Federal Threatened
- FP- Federal Proposed
- FC- Federal Candidate
- XC- Former Federal Candidate
- SM- Survey and Manage
- PB- Protection Buffer
- BA- Bureau Assessment
- BS- Bureau Sensitive
- BT- Bureau Tracking
- SE- State Endangered
- ST- State Threatened
- complete
- SC- State Critical
- SV- State Vulnerable
- SP- State Peripheral or Naturally Rare
- SU- State Undetermined Status

Presence:

- D- Documented
- S- Suspected
- U- Uncertain
- A- Absent

Habitat:

- N - Habitat is not present
- Y - Habitat is present
- U - Habitat is uncertain

Inventory:

- N-No surveys done
- 1- Literature search only
- 2- One field search only
- 3- Limited surveys done
- 4- Protocol completed

Monitoring:

- N-None planned or
- U-More info. needed
- NA- Not Applicable
- Y- Currently being monitored

Additional Legend Clarification:

The categories of FE, FT, FP, FC, ST, SE, BS, BA, and BT are mutually exclusive. Hence, if a species is a federal candidate or state listed as endangered or threatened, it is not also Bureau sensitive.

Oregon State Status SC (State Critical): Species for which listing as threatened or endangered is pending; or those for which listing as threatened or endangered may be appropriate if immediate conservation actions are not taken. Also considered critical are some peripheral species which are at risk throughout their range, and some disjunct populations.

Oregon State Status SV (State Vulnerable): Species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring. In some cases the population is sustainable and protective measures are being implemented; in others, the population may be declining and improved protective measures are needed to maintain sustainable populations over time.

Oregon State Status SP (State Peripheral/Naturally Rare): Peripheral species refer to those whose Oregon populations are on the edge of their range. Naturally rare species are those which had low population numbers historically in Oregon because of naturally limiting factors. Maintaining the status quo for the habitats and populations of these species is a minimum requirement. Disjunct populations of several species which occur in Oregon should not be confused with peripheral species.

Oregon State Status SU (Undetermined Status): Species for which status is unclear. Species may be susceptible to population decline of sufficient magnitude that they could qualify for endangered, threatened, critical, or vulnerable status, but scientific study will be required before a judgment can be made.

**Bureau Status BS (Bureau Sensitive):** Species that could easily become endangered or extinct in a state. Bureau Sensitive species are restricted in range and have natural or human-caused threats to survival. Bureau Sensitive species are not FE, FT, FP, FC, SE, or ST, but are eligible for federal or state listing or candidate status. Thus species that are Oregon state critical or Oregon Natural Heritage Program List 1 are considered Bureau Sensitive species. Bureau Sensitive species are designated by the State Director and are typically tiered to the state wildlife agencies' designations. The BLM 6840 Manual specifies policy which requires any Bureau action will not contribute to the need to list any of these species (i.e. equivalent to policy applied to federal candidate species). All anadromous fish species, unless federally listed, proposed, or candidate, are under review and are considered Bureau Sensitive until status is determined.

**Bureau Status BA (Bureau Assessment):** Species which are not presently eligible for official federal or state status but are of concern in Oregon may, at a minimum, need protection or mitigation in BLM activities. These species will be considered as a level of special status species separate from Bureau Sensitive, and are referred to as Bureau Assessment (BA) species.

**Bureau Status BT (Bureau Tracking):** Species which need an early warning to prevent becoming listed as threatened or endangered in the future. It is encouraged that occurrence data is collected on these species for which more information is needed to determine status within the state or which no longer need active management.

All status information is based upon the draft guidelines from the May, 1999 edition of the BLM Oregon/Washington Special Status Species Database.

Appendix 8-F. Northern Spotted Owl Activity Center Sites within the Wild Rogue North watershed.

Site Name	Site Number	Legal Location	Suitable Habitat Acres within 1.3 mi.
Far Out Mule	3391	32S-10W-S35	2,577
Quail Creek	0938	33S-10W-S1	1,229
Mule West	0929	32S-10W-S25	2,099
Mule Creek	0904A	32S-9W-S30	2,263
Ditch Hole	0961	33S-9W-S8	2,084
KCNA	3280	32S-9W-S26	1,826
Kelsey's Demise	2069	33S-9W-S1	2,205
Cool Springs	3283	33S-8W-S9	2,746
One 4 All	2619	33S-8W-S14	2,628
Rushin Rogue	2621	33S-8W-S29	2,861
Small Shot	2014	33S-8W-S21	2,679
Whisky Creek	2013	33S-8W-S26	2,350
Sargent Beno	Post-ROD, located 7/99	33S-9W-S14	1,518

# Appendix 9. Fuel Models.

Resource managers need a consistent method for predicting fire spread and intensity. Mathematical models have been developed for predicting rate of spread and flame length in a continuous stratum of fuel that is contiguous to the ground. The initial growth of a fire occurs in the surface fuels (fuels that are supported within 6 feet or less of the ground). If sufficient heat is generated, a fire can grow vertically into treetops causing a crown fire to develop. The nature and mechanisms of heat transfer in a crown fire are considerably different than those for a surface fire. Therefore, the models are not applicable to crown fires.

**Table A9-1. Description of fire behavior fuel models**

FUEL MODEL Typical Fuel Complex	FUEL LOADING tons/acre				FUEL BED DEPTH in ft.
	1 Hr	10 Hr	100 Hr	Live	
<b>GRASS AND GRASS-DOMINATED</b>					
1-Short Grass (1 ft.)	0.74	0.00	0.00	0.00	1.0
2-Timber (Grass and understory)	2.00	1.00	0.50	0.50	1.0
3-Tall Grass (2 ft.)	3.01	0.00	0.00	0.00	--
<b>CHAPARRAL AND SHRUB FIELDS</b>					
4-Chaparral (6 ft.)	5.01	4.01	2.00	5.01	6.0
5-Brush (2 ft.)	1.00	0.50	0.00	2.00	2.0
6-Dormant Shrub & Hdw. Slash	1.50	2.50	2.00	0.00	2.5
7-Southern Rough	1.13	1.87	1.50	0.37	2.5
<b>TIMBER LITTER</b>					
8-Closed Timber Litter	1.50	1.00	2.50	0.00	0.2
9-Hardwood Litter	2.92	0.41	0.15	0.00	0.2
10-Timber (Litter and Understory)	3.01	2.00	5.01	2.00	1.0
<b>SLASH</b>					
11-Light Logging Slash	1.50	4.51	5.51	0.00	1.0
12-Medium Logging Slash	4.01	14.03	16.53	0.00	2.3
13-Heavy Logging Slash	7.01	23.04	28.05	0.00	3.0

### Fuel Model Definitions

There are 13 fuel models that predict fire behavior in four groups of fuels: grasses, brush, timber and slash. The differences in these groups are related to the fuel load and distribution of fuel among size classes. Size classes are: 0-1/4 inch (1 hour fuels), 1/4-1 inch (10 hour fuels), 1-3 inches (100 hour fuels), and 3 inches and greater (1,000 hour fuels). The criteria for choosing a fuel model includes the fact that the fire burns in the fuel stratum best conditioned to support the fire. A description of the fire behavior fuel models documented by Albini (1976) is contained in the following table:

#### GRASS GROUP

**Fire Behavior Fuel Model 1** - Fire spread is governed by the very fine, porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass. Very little timber or shrub are present.

**Fire Behavior Fuel Model 2** - Fire spread is primarily through cured or nearly cured grass where timber or shrubs cover one to two-thirds of the open area. These are surface fires that may increase in intensity as they hit pockets of other litter.

**Fire Behavior Fuel Model 3** - Fires in this grass group display the highest rates of spread and fire intensity under the influence of wind. Approximately one-third or more of the stand is dead or nearly dead.

#### SHRUB GROUP

**Fire Behavior Fuel Model 4** - Fire intensity and fast spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary over story. Stands of mature shrubs six feet tall or more are typical candidates. Besides flammable foliage, dead woody material in the stands contributes significantly to the fire intensity. A deep litter layer may also hamper suppression efforts.

**Fire Behavior Fuel Model 5** - Fire is generally carried by surface fuels that are made up of litter cast by the shrubs and grasses or forbs in the understory. Fires are generally not very intense because the fuels are light and shrubs are young with little dead material. Young green stands with little dead wood would qualify.

**Fire Behavior Fuel Model 6** - Fires carry through the shrub layer where the foliage is more flammable than Fuel Model 5, but requires moderate winds greater than eight miles per hour.

**Fire Behavior Fuel Model 7** - Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel mixtures because of the flammability of live foliage and other live material.

#### TIMBER GROUP

**Fire Behavior Fuel Model 8** - Slow burning ground fuels with low flame lengths are generally the case, although the fire may encounter small “jackpots” of heavier concentrations of fuels that can flare up. Only under severe weather conditions do the fuels pose a threat. Closed canopy stands of short-needled conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mostly twigs, needles, and leaves.

**Fire Behavior Fuel Model 9** - Fires run through the surface faster than in Fuel Model 8 and have a longer flame length. Both long-needle pine and hardwood stands are typical. Concentrations of dead, down woody material will cause possible torching, spotting, and crowning of trees.

**Fire Behavior Fuel Model 10** - Fires burn in the surface and ground fuels with greater intensity than the other timber litter types. A result of over maturing and natural events create a large load of heavy down, dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more likely to occur, leading to potential fire control difficulties.

#### SLASH GROUP

**Fire Behavior Fuel Model 11** - Fires are fairly active in the slash and herbaceous material intermixed with the slash. Fuel loads are light and often shaded. Light partial cuts or thinning operations in conifer or hardwood stands. Clearcut operations generally produce more slash than is typical of this fuel model.

**Fire Behavior Fuel Model 12** - Rapidly spreading fires with high intensities capable of generating fire brands can occur. When fire starts, it is generally sustained until a fuel break or change in conditions occur. Fuels generally total less than 35 tons per acre and are well distributed. Heavily thinned conifer stands, clearcuts, and medium to heavy partial cuts are of this model.

**Fire Behavior Fuel Model 13** - Fire is generally carried by a continuous layer of slash. Large quantities of material three inches and greater is present. Fires spread quickly through the fine fuels and intensity builds up as the large fuels begin burning. Active flaming is present for a sustained period of time and firebrands may be generated. This contributes to spotting as weather conditions become more severe. Clearcuts are depicted where the slash load is dominated by the greater than three inch fuel size, but may also be represented by a “red slash” type where the needles are still attached because of high intensity of the fuel type.



# Appendix 10. Proposed Management Plan, East Fork Whisky Creek ACEC

## Bureau of Land Management Medford District

### East Fork Whisky Creek Area of Critical Environmental Concern Management Plan

#### I. POLICY

This management plan is written in accordance with guidelines developed by the Pacific Northwest Interagency Natural Area Committee and is consistent with direction in the Medford District Bureau of Land Management and the Record of Decision and Resource Management Plan, 1995 (RMP). The BLM's role is primarily guided by the mission described in FLPMA (102(a)(8)) which states that public lands be managed in a manner that will protect scientific and environmental values, and to "preserve and protect certain public lands in their natural condition". Natural processes will govern management of the Areas of Critical Environmental Concern (ACEC) and people will intervene only when a unique component of the area is at risk. This document and the recommendations within it can be updated as appropriate.

#### A. East Fork Whisky Creek ACEC Policy Statement

ACECs are established for their significant biological and physical features. They are important in preservation and protection of unique terrestrial and aquatic ecosystems for research and education. ACECs serve as natural laboratories and as baselines for the comparison of the effects of human manipulations on similar geographical and natural settings. They provide valuable gene pools for native organisms, including plant and animal species designated as endangered, threatened, or sensitive. The Bureau of Land Management recognizes their role in sound land use management, and has provided for establishment and management of ACECs in the following policies and regulations.

The guiding principal of ACEC management is to allow natural, ecological, and physical processes to predominate, while preventing human-induced encroachments and activities which directly or indirectly modify ecological processes in the area. Active management to try to reintroduce natural processes should be undertaken where these processes have been interrupted. Natural areas in which ecological processes have not been interrupted should be managed to maintain and preserve current ecological processes.

#### II. BASIS FOR DESIGNATION OF AN ACEC AND SETTING OBJECTIVES

##### A. Basis for Designation of an Area of Critical Environmental Concern and a Research Natural Area.

##### 1. Uniqueness and Size

The large size of the East Fork Whisky Creek subwatershed represents an ecologically

functional Douglas fir/Tan oak system that has had very little human-caused disturbance. The area is unique for the following reasons:

Historical;

There are several historical sites in and surrounding the East Fork Whisky Creek basin. These sites include historic trails, mine adits, mine tailings and remnants of structures.

Cultural;

The entire basin has an unroaded character, undisturbed by timber harvest and seemingly wild and natural.

Scenic;

The 34-8-1 road serves as the eastern boundary and is currently a designated Back Country Byway to Marial. There are several vista opportunities along this route that provide very good looks into the East Fork Whisky Creek as well as into the Rogue Canyon in the distance.

Natural Processes;

East Fork Whisky Creek lies amid the transition area between the Klamath Province and the Oregon Coast Range Province. The location makes it quite unique because the area contains features not only representative of both provinces, but also other unique elements which are not easily classified into either province according to the Oregon Natural Heritage Plan. Areas that are ecotonal in nature can provide important ecological information about species and community interactions relating to both provinces.

There are seven factors concerning natural processes that exemplify its value:

1. East Fork Whisky Creek contributes to Watershed Analysis recommendations for late succession corridors to the east along the Rogue/Umpqua divide for connectivity between Fishhook/Galice and Galesville LSRs.
2. The ACEC area is large enough to function as an independent ecological system. It is large enough to support species that range over a large area and require the habitats and vegetation diversity provided by ecosystems represented in the basin.
3. The area is composed of tertiary, secondary, and primary drainages. The drainages contain undisturbed riparian areas.
4. The ACEC area already contains species known to be associated with and used as indicator species of healthy old growth habitat. Spotted Owls, Goshawk, Pileated Woodpeckers etc. are common to the area.
5. It is the largest known block of relatively unentered forest representing the Douglas Fir/tanoak series in the Medford District.
6. It contains a mosaic of seral stages representative of the Douglas Fir / tanoak vegetation community, and can therefore provide important data on the natural processes occurring in the range of successional stages from early seral through old growth conifers.
7. The vegetation composition on 91 acres would fill the Oregon Natural Heritage cell for Tan oak-Douglas fir/salal-evergreen huckleberry (LIDE3-PSME/GASH-VAOV2.)

**2. Relevance:** Given the above mentioned unique factors, the East Fork Whisky Creek area has relevance in that it will provide an excellent standard for comparison when determining the success of implementing some of our proposed forest management activities identified in the Resource Management Plan decisions. The area will also provide an opportunity to better understand the ecological interactions of functional forest communities with minimal human disturbance. Adequate preservation and research of the East Fork Whisky Creek ACEC will enable us do a better job of insuring the long term health of forest ecosystems in managed forest stands.

### 3. Current Research

There are no research projects currently occurring in the ACEC.

## B. Setting Objectives

### 1. Natural Systems

The objective is to preserve natural systems that exist in the East Fork Whisky Creek area. These include: a) old growth ecological processes, b) successional processes and seral development, and c) relatively undisturbed sub-basin of the East Fork.

### 2. Special Status Species

The objective is to preserve special status species that occur in the area, including a) Northern Spotted Owl, b) Northern Goshawk, c) Clouded Salamander, d) Pileated Woodpecker, e) Tailed Frog, and f) Western Bluebird

### 3. Research and Education

The objective is to serve as an area of reference for the study of succession, as a baseline for measuring long-term ecological changes, and as a standard for comparing the results of manipulative management.

## III. NATURAL AREA AND ELEMENT DESCRIPTIONS

### A. East Fork Whisky Creek ACEC description

#### 1. Location

The East Fork Whisky Creek subwatershed is situated in the Glendale Resource Area of the Medford Bureau of Land Management in Josephine County, Oregon (Map10-1) and within the Wild Rogue watershed; T33S, R08W, sections 10, 11, 12, 13, 14, 15, 22 and 23. East Fork Whisky Creek is surrounded on the west by West Fork Whisky Creek, Bonnie Creek to the North and Reuben Creek to the east.

#### 2. Site History

The East Fork Whisky Creek area was relatively undisturbed prior to the 1850's. Historical information indicated Native Americans had a few trails into the Rogue River Canyon most of which were on ridge tops. In the 1850's, gold was discovered in the general area and miners enlarged many of the trails into pack routes. Placer and load exploration occurred through the 1930's also in the general area. There are several exploration pits and adits within the subwatershed. For the most part, this early exploration has been healed over by vegetation. During the early 1930's the first road into the area was constructed by the CCC's. This road currently forms the eastern and northeastern boundary of the subwatershed. Several small units were harvested in the 1960's and then about once a decade up to present. These were seeded or planted back to conifer and are early/mid seral stages at present. The youngest of the harvest units was planted in 1994. The total acreage of harvest was 67 acres. All of the harvested acres are near the eastern boundary road. The core of the entire watershed is intact and undisturbed except for early mining exploration.

#### 3. Aspect and Elevation

The East Fork Whisky Creek subwatershed encompasses almost all aspects and ranges in elevation from 1450 feet near the confluence with the West fork of Whisky Creek to 4017 ft on Mount Reuben.

#### 4. Geology

The East Fork Whisky Creek basin is comprised of two geologic formations. The Dothan, late Jurassic in age, consists of both metamorphic sediments and volcanics. This formation encompasses about 2/3rds of the basin. The Rogue Formation, also late Jurassic in age, is composed of ultramafic materials including serpentinite. Most of the mining activity occurred in this formation which is found in the southeastern portion of the basin because of its unique geology. Because of the unique geology of the area, This unique mix of geology allows a great diversity of plant communities to be present.

## 5. Precipitation

Annual rainfall at the area in 40 to 60 inches.

## 6. Soils

Variation in the hardness, grain, and possibly chemical composition of the sediments helped to produce a variety of soils. Soil depths range from over 40 inches to less than a foot. Some soils are buried by colluvial rock and are likely skeletal. Since rainfall, clouds, or fog does not totally compensate for low soil moisture holding capacity, the vegetation patterns tend to reflect soil depth and water availability. Deeper soils may be found in “pockets” close to the ridge tops in some drainages. Such lenses or pockets are not atypical.

### Josephine County Soil Survey

Speaker Josephine	72F	
Beakman Vermissa	8G	<60% slope
Vermissa Beekman	81G	60 to 100% south slope
Vermissa rock outcrop	82G	
Vermissa Beekman	80G	60 to 100% north slope

## 7. Hydrology

There are few sub-basins in existence that have not been disturbed by roads or logging. The East Fork Whiskey Creek is one of the few relatively undisturbed watersheds in Southwest Oregon. The area contains primary, secondary, and tertiary drainages.

## 8. Riparian Ecology

The riparian zone contains abundant downed wood and old growth conifers including Douglas fir, Ponderosa pine, and Pacific yew. Riparian hardwoods such as big leaf maple, red alder, and vine maple are major components of the understory. The riparian habitat and its microclimate are intact throughout the 7th field watershed due to the absence of road construction and timber harvest. Stream conditions are typical of undisturbed forests: abundant large woody debris, excellent habitat diversity, minimal sedimentation, and cool water temperatures during summers. Few riparian ecosystems with these characteristics still exist in southwest Oregon. The lower quarter mile of the stream is currently an active placer mine. Riparian vegetation has largely been altered in this area.

## 9. Vegetation

Both xeric and mesic plant communities are in the drainage as well as a broad range of age classes. Elevation differences and varied geology help to provide niches for the Sugar pine, ponderosa pine, tanoak, and Douglas-fir communities. Patterns are also associated with aspect, slope, and soil differences. Age classes and community differences produced by fire are also evident. Low intensity underburns and stand replacement events have occurred leaving patches 5 to 25 acres in size throughout the variable matrix. There are several stands of very old trees on the upper slopes and along the creek bottom, with an array of age classes along the mid-slopes representing the varied fire history. Below is a synopsis of the different types of vegetation associations that occur, as well as a preliminary list of species in or immediately near the area.

### Tanoak - Douglas-fir / rhododendron-salal areas

These areas are found to occur on moderate slopes, various aspects, and on moderately drier areas within the ACEC. Douglas fir (*Pseudotsuga menziesii*) is dominant in the overstory and in the regeneration layer. Hardwoods such as rhododendron (*Rhododendron macrophyllum*) and tanoak (*Lithocarpus densiflorus*) are codominants. The shrub layer is shared by salal (*Gautheria shallon*), chinkapin (*Castanopsis chrysophylla*). The absence of hemlock in the regeneration layer, and the fact that this association is found on somewhat drier sites with less northerly aspects differentiates it from the Douglas fir - western hemlock / Rhododendron / salal forest association.

### Riparian vegetation zones

The riparian zones within East Fork Whiskey Creek are characterized by an overstory dominated by Douglas Fir (*Pseudotsuga menziesii*). The subdominant layer is shared by vine maple (*Acer circinatum*), big-leaf maple (*Acer macrophyllum*), Alder (*Alnus rubra*), and the regenerating conifers. The Shrub layer contains mainly stink currant (*Ribes bracteosum*) and red huckleberry (*Vaccinium parviflorum*), and herbs include *Boykinia major*, western inside-

out flower (*Vancouveria hexandra*), fairy bells (*Disporum hookerii*), sword fern (*Polystichum munitum*), woods sorrel (*Oxalis oregana*), vanilla leaf (*Achlys triphyllum*), and pathfinder (*Adencaulon bicolor*).

#### Evergreen Hardwood Area

There are some areas within the drainage that are dominated by evergreen hardwoods. These evergreen hardwood areas occur mainly on moderate slopes (30 to 60 %), and on the Speaker Josephine soils which are deeper and well drained. Dominant overstory vegetation species include madrone (*Arbutus menziesii*), tanoak (*Lithocarpus densiflorus*). Canyon live oak (*Quercus chrysolepis*) is found interspersed within these areas. Douglas fir (*Pseudotsuga menziesii*) occurs within these areas in the overstory and within the regeneration layer. The understory in these areas contains very little vegetation, but Oregon grape (*Berberis nervosa*), and goundcones (*Boschniakia sp.*) occur occasionally.

#### Canyon Live Oak / Douglas fir Vegetative areas

There are a few areas within the subbasin where soils occur on extreme south facing slopes (over 60%). These areas are characterized by rocky steep ground with very thin, nutrient poor soils. Canyon live oak (*Quercus chrysolepis*) and Douglas fir (*Pseudotsuga menziesii*) are the only two overstory species that can tolerate such conditions. Fire has historically swept through these slopes leaving the understory relatively clean, and the Douglas firs within these areas could be as old as 400 years.

#### Preliminary Vascular Plant Species List Proposed East Fork Whisky Creek ACEC May 3, 2001

#### Tanoak - Douglas-fir/salal-evergreen huckleberry

TREES	<i>Polystichum munitum</i>	HERBS
<i>Arbutus menziesii</i>	<i>Pteridium aquifolium</i> var. <i>pubescens</i>	<i>Achlys triphylla</i>
<i>Calocedrus decurrens</i>	<i>Syntheris reniformis</i>	<i>Adenocaulon bicolor</i>
<i>Chrysolepis chrysophylla</i>	<i>Trientalis latifolia</i>	<i>Aira caryophylla</i>
<i>Cornus nuttallii</i>	<i>Whipplea modesta</i>	<i>Allotropa virgata</i>
<i>Lithocarpus densiflorus</i>	<i>Xerophyllum tenax</i>	<i>Arnica spathulata</i>
<i>Pinus lambertiana</i>		<i>Boschniakia strobilacea</i>
<i>Pseudotsuga menziesii</i>		<i>Chimaphila menziesii</i>
<i>Quercus chrysolepis</i>	Tanoak - Douglas-fir - canyon live oak/poison	<i>Claytonia sibirica</i>
SHRUBS	oak	<i>Collomia heterophylla</i>
<i>Arctostaphylos canescens</i>	TREES	<i>Disporum hookeri</i> var. <i>oreganum</i>
<i>Berberis nervosa</i>	<i>Arbutus menziesii</i>	<i>Dryopteris arguta</i>
<i>Berberis aquifolium</i> var. <i>aquifolium</i>	<i>Calocedrus decurrens</i>	<i>Epilobium angustifolium</i>
<i>Gaultheria shallon</i>	<i>Chrysolepis chrysophylla</i>	<i>Festuca occidentalis</i>
<i>Lonicera hispidula</i> var. <i>vacillans</i>	<i>Lithocarpus densiflorus</i>	<i>Goodyera oblongifolia</i>
<i>Rosa gymnocarpa</i>	<i>Pinus lambertiana</i>	<i>Hieracium albiflorum</i>
<i>Rubus ursinus</i>	<i>Pinus ponderosa</i>	<i>Iris chrysophylla</i>
<i>Toxicodendron diversilobum</i>	<i>Pinus attenuata</i>	<i>Lathyrus polyphyllus</i>
<i>Vaccinium ovatum</i>	<i>Pseudotsuga menziesii</i>	<i>Osmorhiza chilensis</i>
HERBS	<i>Quercus chrysolepis</i>	<i>Polypodium glycyrrhiza</i>
<i>Achlys triphylla</i>	SHRUBS	<i>Polystichum munitum</i>
<i>Calypso bulbosa</i>	<i>Arctostaphylos patula</i>	<i>Pteridium aquifolium</i> var. <i>pubescens</i>
<i>Carex geyeri</i>	<i>Arctostaphylos canescens</i>	<i>Pyrola picta</i>
<i>Festuca californica</i>	<i>Berberis aquifolium</i> var. <i>aquifolium</i>	<i>Sedum spathulifolium</i>
<i>Fragaria vesca</i>	<i>Holodiscus discolor</i>	<i>Smilacina racemosa</i>
<i>Goodyera oblongifolia</i>	<i>Lonicera hispidula</i> var. <i>vacillans</i>	<i>Syntheris reniformis</i>
<i>Hieracium albiflorum</i>	<i>Symphoricarpos mollis</i>	<i>Tauschia glauca</i>
<i>Iris chrysophylla</i>	<i>Toxicodendron diversilobum</i>	<i>Trientalis latifolia</i>
<i>Lathyrus polyphyllus</i>		<i>Whipplea modesta</i>
		<i>Xerophyllum tenax</i>

Douglas-fir - canyon live oak/poison oak  
(grades into gravelly openings with canyon live oak, buckbrush and grasses)

TREES

*Arbutus menziesii*  
*Pinus attenuata*  
*Pseudotsuga menziesii*  
*Quercus chrysolepis*

SHRUBS

*Arctostaphylos canescens*  
*Arctostaphylos patula*  
*Ceanothus cuneatus* var. *cuneatus*  
*Garrya buxifolia*  
*Lonicera hispidula* var. *vacillans*  
*Toxicodendron diversilobum*

HERBS

*Achillea millefolium*  
*Achnatherum lemmonii*  
*Agoseris heterophylla*  
*Cardamine oligosperma*  
*Claytonia parviflora*  
*Claytonia perfoliata* var. *perfoliata*  
*Collinsia parviflora*  
*Collomia heterophylla*  
*Lithophragma affine*

*Luzula comosa*  
*Myosotis discolor*  
*Pentagramma triangularis*  
*Plectritis brachystemon*  
*Poa secunda*  
*Polystichum imbricatum*  
*Sanicula graveolens*  
*Whipplea modesta*

Species restricted to riparian areas

TREES

*Acer macrophyllum*  
*Taxus brevifolia*

SHRUBS

*Cornus sericea*

HERBS

*Aralia californica*  
*Aralia californica*  
*Asarum caudatum*  
*Oxalis oregana*  
*Petasites frigidus*  
*Tolmiea menziesii*  
*Woodwardia fimbriata*

### 10. Fisheries

East Fork Whiskey Creek is one of the few streams in the Medford District that has been minimally affected by timber harvest, road construction or other land uses that are known to adversely affect streams and the native species that they support. Cutthroat trout and sculpin are the only two fish species known to inhabit East Fork Whiskey Creek although it provides marginal habitat for steelhead trout and coho salmon. Cutthroat trout and sculpins are sensitive to and are adversely affected by increases in sedimentation, water temperature, and loss of large woody debris that often occur as a result of forest management activities.

Use of the Klamath Province/Siskiyou Mountains Matrix of Factors and Indicators indicates that fish habitat on the mainstem, east and west forks of East Fork Whiskey Creek is in proper functioning condition. Summer water temperature, one of the most important limiting factors for salmonids in southwest Oregon, is consistently less than 60F, even during drought years. Habitat analysis using aquatic macroinvertebrates as indicators, indicates that habitat integrity in the East Fork Whiskey Creek is moderate to high.

### 11. Wildlife

Although cut by coastal rivers, the coast range provides a continuous, high elevation, migratory pathway into the Klamath Province. Elevations average about 2000 feet in the coast range but increase in the Klamaths. The Klamaths, central to the southern part of the Pacific Northwest also link with the California Coast Ranges, the Cascades and the Sierra Nevada Ranges.

The East Fork Whiskey Creek area lies amid the migratory axes on the crest. The climate is influenced by marine air and colder, drier, inland highs. It is also located in the north-south transition between the temperate and Mediterranean ecosystems. It typifies the southern coast range transitional ecosystems.

The East Fork Whisky Creek subwatershed has several important wildlife habitat values due to the large amount of undisturbed and unfragmented old growth conifer forest, the high quality riparian zones, and the range of elevation. Several important wildlife species have been observed in the area including the federally threatened Northern Spotted Owl. In addition, habitat potential exists for the following additional species, although direct observations have not been recorded: a) Peregrine Falcon, b) Bald Eagle (Federal Threatened), c) Del Norte salamander (Bureau sensitive and species of concern), d) Townsend's Big-eared Bat (Bureau sensitive and species of concern), e) Pacific Fisher (Bureau sensitive and species of concern), f) Fringed Myotis (Oregon State vulnerable), and g) Marten (Oregon State vulnerable)

The area has a wide variety of birds associated with coniferous and hardwood forests, including all the neotropical migrant species found in the Klamath Province. Roosevelt elk, black-tailed deer, black bear, cougar, and ringtail are also found in the area.

## **12. Threats**

The East Fork Whisky Creek subwatershed may be impacted by timber harvests bordering the area. Clearcuts on the border pose the threats of windthrow to border trees, temperature increases, and light increases. These threats may disrupt the ecological processes for which the area has been dedicated. Road construction for bordering timber activities will create further access to the area and possibly adversely effect wildlife. Road construction may also introduce non-native vegetation, including noxious weeds.

**B.** The northern spotted owl was listed as a threatened species by the US Fish and Wildlife Service in 1991. There is currently one nesting pair of spotted owls within the East Fork Whisky Creek subwatershed. The spotted owl is an obligate old growth species that requires old growth forests for foraging and nesting.

## **C. Surrounding Land Use**

Some of the surrounding lands have been in timber production for decades. Along the edges of the East Fork Whisky Creek subwatershed are several clearcuts of various ages, though there are a few clearcuts actually within the boundaries. These units have resulted in timber removal and fragmentation of the forest. Associated with the harvest practices has been the development of roads in the area which indirectly impact the East Fork Whisky Creek ACEC by creating barriers to wildlife species and ecological processes. Some non-native plant species have been introduced to the area via the road maintenance and construction.

## **IV. MANAGEMENT CONSIDERATIONS**

### **A. Introduction**

Based on the ecological requirements of old growth Tanoak/Douglas fir forests, and the management objectives developed for the East Fork Whisky Creek ACEC, fire management and public use are currently the primary management issues in the area. The following is a statement of policy, existing and needed information, and management actions required for the area.

Some land is currently designated GFMA, and some LSR. Much of the area is currently withdrawn from the timber base (Map 10-3a) because of several factors which include riparian zones, Spotted Owl Core areas, and soils and slope limiting factors. .

No road construction would occur and most logging would be prohibited. Active timber management would be limited to stand establishment and manipulation in previously harvested areas and treatments that directly supported the values of the ACEC. Fire suppression would be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment would stay primarily on existing ridge roads. Approximately 10 acres on the northwestern ridge line adjacent to existing ridge road would be treated for fuels to reduce the chance of fire in the ACEC. Several portions of the area may be designated as Research Natural Area (RNA) in the future..

## **B. Timber Resources and Special Forest Products**

### **1. Policy**

Under the RMP (pg 72), ACECs are unavailable for planned forest management or harvest of Special Forest Products (pg 76). Timber harvest will occur only as part of strategies to enhance other resources. In the East Fork Whiskey Creek ACEC timber harvest should not occur unless it is a component of an approved research project. Hazard trees should not be knocked or cut down except in an emergency situation. Downed trees should not be removed from the site. Any trees cut for trail construction will remain on site. Firewood gathering shall be prohibited.

### **2. Current and Needed Information**

Within the East Fork Whiskey Creek ACEC, there are several units comprising a total of 67 acres that have been previously harvested. There is only one unit (9 acres) that is early seral. This unit received brushing and release treatment in 2001. No further timber or silviculture activities will occur within the ACEC. Natural ecological processes will be allowed to resume in order to provide for seral stage comparison and future research.

### **3. Management Actions Needed**

Sale planners should notify ACEC coordinators of nearby sales and discuss ways in which ACEC objectives can be protected. Modifications of management projects to reduce adverse effects such as feathering edges of cuts to avoid straight boundaries, using seed source from Natural Areas, cautioning timber operators, and timing cuts to reduce adverse effects to the ACEC are necessary.

## **C. Insects and Disease**

### **1. Policy**

The ACEC Coordinator will authorize any actions taken against endemic insects, diseases, wild plants, or animals if they deem such actions necessary to protect the features for which the ACEC was established. Where pest management activities are prescribed, they shall be as specific as possible against target organisms and induce minimal impact to other components of the ecosystem.

### **2. Current Information**

White Pine Blister Rust is present within the ACEC. Surveys for other pest or disease have not been initiated or completed.

### **3. Management Actions Needed**

Surveys in the ACEC should be conducted on a regular basis by knowledgeable individuals to detect early signs of pest and disease outbreaks. Timber staff and silviculture staff working in adjacent areas should notify the East Fork Whiskey Creek ACEC coordinator if any signs of disturbance arise locally. A review of timber cruises of neighboring stands may be useful to determine whether pests and diseases pose serious threats to the area. Monitoring of infections should be conducted when outbreaks occur.

## **D. Fire management**

### **1. Policy**

Throughout the ACEC full fire suppression would occur. However due to the unique characteristics of the ACEC some special suppression tactics would be utilized. Fire suppression will be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment will stay primarily on existing ridge roads. The fuels reduction acres designated on the upper western ridge road are part of a design to reduce wide spread wildfire throughout the BLM managed land adjacent the Wild Rogue River corridor north of the river. Salvage of burned timber in the event of a wildfire will not be permitted.

### **2. Current Information**

Throughout history, fire has swept through the East Fork Whiskey Creek area. Exact dates of past fires are not known, but many of the older trees within the ACEC have fire scars. Since fire has played a natural role in the ecological processes occurring in the area, suppressing fire would be counter to maintaining future natural processes. It is unlikely that natural fires within the area will disrupt the seral climax ecological communities within the ACEC.

### **3. Management Actions Needed**

A post wildfire management plan should insure that the East Fork Whisky Creek ACEC will be allowed to regenerate without human intervention. No post fire treatments will be permitted, and no burned timber will be salvaged. All activities at the post fire stage will be closely monitored by the ACEC coordinator along with the fire specialists on the District.

### **E. Domestic Livestock Grazing**

#### **1. Policy and Current Information**

Domestic livestock grazing does not occur within the East Fork Whisky Creek subwatershed or within the nearby area. It is highly unlikely that grazing will be proposed for the area in the future.

### **F. Mining**

#### **1. Policy**

The RMP provides that relative to leaseable minerals, surface occupancy and use is prohibited in ACECs and research natural areas to protect important historic, cultural, scenic values, natural resources, natural systems or processes, etc. (pg 78, 207). Relative to locatable minerals, areas not specifically withdrawn from mineral entry will continue to be open under the mining laws. Mineral exploration and development will be regulated under 43 CAR 3802 and 3809 to prevent “unnecessary or undue degradation.” Mining operations will be allowed in designated ACECs but only in a manner that would not impair or degrade those significant resource values that lead to area of critical environmental concern designation. A plan of operations will be required in all designated ACECs. A plan of operations will not be approved if operations would irreparably damage those resource values for which the ACECs was designated (pg 79).

#### **2. Current Information**

Currently there are claims within the East Fork Whisky Creek ACECs.

### **3. Management Actions Needed**

### **G. Public Use**

#### **1. Policy**

ACECs must be protected from activities that directly or indirectly modify ecological processes. Maintenance of unmodified conditions and natural processes is the prime management goal. Incidental dispersed use may be permitted, but recreational use of the area will not be encouraged. Camping, collecting of plants or animals, berry picking, and other uses which threaten or interfere with research, educational opportunities, or other purposes for which the ACECs was established, will be prohibited. Trail construction or reconstruction will be permitted only if required to meet the needs of research, for educational purposes, or to protect ACECs values. Any trails within the ACECs will not be mapped for public use. The information will be given to researchers when necessary.

Scientists interested in using a ACECs must contact the District ACECs/RNA coordinator to outline to the coordinator the activity planned. RNA coordinators approve study plans proposed by non - B.M. scientists and execute cooperative agreements where appropriate.

The use of ACECs and RNA by responsible scientists and educators will be encouraged. Generally, educational use by anyone below the upper class college or graduate student level will be discouraged. Access to ACEC/RNA areas by parties external to the BLM is authorized and approved by the RNA coordinator on the district, and shall conform to conditions specified in approved study plans and/or cooperative agreements.

BLM scientists shall cooperate in research conducted by scientists from outside of the BLM whenever possible, keep informed on the nature and progress of their work, and ensure that research natural area values are maintained. Scientists conducting research on a ACEC/RNA are required to file copies of all research data, reports and other pertinent documents with the RNA coordinator.

## **2. Current and Needed information**

Research - Baseline data gathering on plants, animals and overall ecology needs to occur. Determination of guilds and ecological niches and processes needs to occur.

Trails - There are no known trails into the area covered by this plan expect natural surface roads described below.

## **3. Management Actions Needed**

### **H. Roads and Utility Rights of Way**

#### **1. Policy**

#### **2. Current Information**

Currently there is one road, (34-8-1) that borders the East Fork Whiskey Creek ACEC along the eastern and northeastern boundary. This is a gravel surfaced road. Two more roads, which are natural surfaced, are currently being considered for decommissioning. These are ridge top roads that are grown in and no longer passable by vehicles. (33-8-23 and 33-8-11.1) There is a trail or fire access route on the ridge top between the east and west forks of Whiskey Creek..

Road Maintenance on any of the roads within the ACEC or bordering the ACEC should not utilize exotic species for road stabilization projects. Culverts and water ditches on these roads should be checked as frequently as possible to avoid excess runoff during storms. Coordination with District Road engineers is highly recommended to keep current with all proposed road maintenance and construction activities.

### **I. Hunting, Fishing, and Trapping**

#### **1. Policy**

The management of fish and wildlife populations is controlled by the Oregon Department of Fish and Wildlife. Regulations for hunting, fishing, and trapping are set on a yearly basis. The East Fork Whiskey Creek drainage is within the Powers Wildlife Management Unit, # 26. Hunted species include: bear, deer, elk, cougar, silver gray squirrel, ruffed grouse, blue grouse, and mountain quail. Trapped species include: bobcat, beaver, otter, weasel, striped skunk, spotted skunk, coyote, red fox, racoon, and gray fox. Fished species include: cutthroat trout, winter steelhead, and coho salmon (only the Rogue River is open for angling). In general, hunting and fishing are not encouraged in ACECs because the primary goal of these areas is to protect functioning ecosystems with minimal interference from people.

#### **2. Current and Needed Information**

Regulations regarding seasons, bag limits, stream stocking, licenses, and techniques are established by the Department through the Fish and Wildlife Commission and are applicable on all lands within the state including private property. Due to the limited access into the ACEC on roads, hunting, fishing, and trapping are unlikely to occur within the area on a large scale.

#### **3. Management Actions Necessary**

None.

### **J. Introduced Species**

#### **1. Policy**

Objectives under the 1995 Resource Management Plan are to contain and/or reduce noxious weed infestations on BLM-administered land using an integrated pest management approach, to avoid introducing or spreading noxious weed infestations in any area, and to reduce infestations where possible (RMP pg. 92).

#### **2. Current and Needed Information**

Presently there are noxious weeds found on several roadsides bordering the ACEC but have been identified within the ACEC. Yellow starthistle, tansy ragwort, St. John's wort, knapweed, and scotchbroom are species known to exist along roads bordering the area. Presently surveys are being conducted to map all populations of noxious weed that occur

along boundaries or along access roads within the district. Once mapping has been completed, a management plan will be developed on a species by species basis. Plant inventories of the area should be conducted as soon as possible to evaluate the presence of any noxious weeds.

### **3. Management Actions Needed**

Conduct plant inventories within the ACEC. No other management actions are needed at this time. If control becomes necessary, several options exist for safe removal. Pulling noxious weeds, with careful disposal, may be adequate for small infestations. If this method is unsuccessful or deemed inappropriate by the District Noxious Weed Coordinator, biological control insects may be considered. herbicides, which are not considered appropriate in the ACEC.

## **V. MONITORING PLAN**

### **A. Goals and Objectives**

The goal of this monitoring program is to gather information that would be applicable to management in similar ecosystems. This plan will:

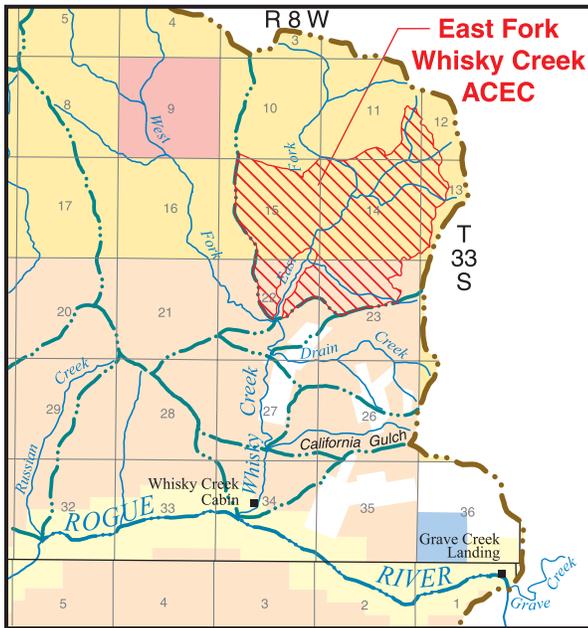
1. Identify baseline species and plant associations needs for the ACEC,
2. Establish specific monitoring objectives,
3. Identify monitoring time frames and consistent standardized procedures,
4. Interpret monitoring results relative to the baseline information as well as monitoring and implementation objectives.

### **B. Types of Monitoring**

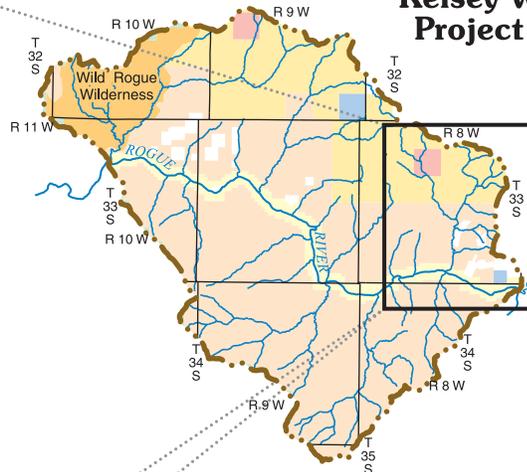
Ecological status monitoring will be conducted in the East Fork Whisky Creek ACEC:

- a. Monitor RNA plant cell for changes over time } temporal/ spatial analysis
- b. Monitor ACEC for forest pests and diseases }with aerial photos at 5 year intervals
- c. Monitor effects of wild fire should they occur } and field verification of spatial change; Area botanist, silviculturist, fire ecologist to complete.
- d. Monitor for spread of noxious weeds - annual roadside survey along perimeter roads

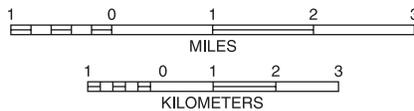
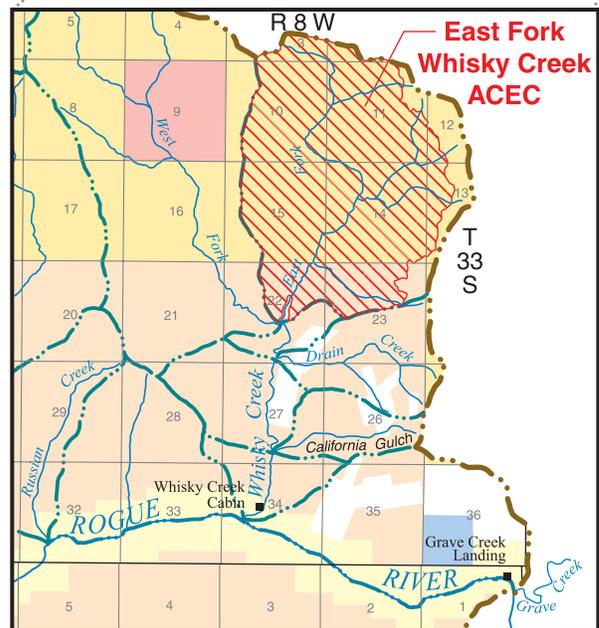
**Alternative 2**



**Kelsey Whisky Project Area**



**Alternative 4**



**LEGEND**

- Sub-Watershed Boundary
- Proposed Area of Critical Environmental Concern (ACEC)
- Kelsey Whisky EIS Planning Area Boundary

**Land Status**

- Bureau of Land Management
  - Wild Rogue Wilderness
  - Wild and Scenic River Corridor
  - Connectivity / Diversity Block
  - Late Successional Reserve
  - General Forest Management Area
- U.S. Forest Service
- State of Oregon
- Private



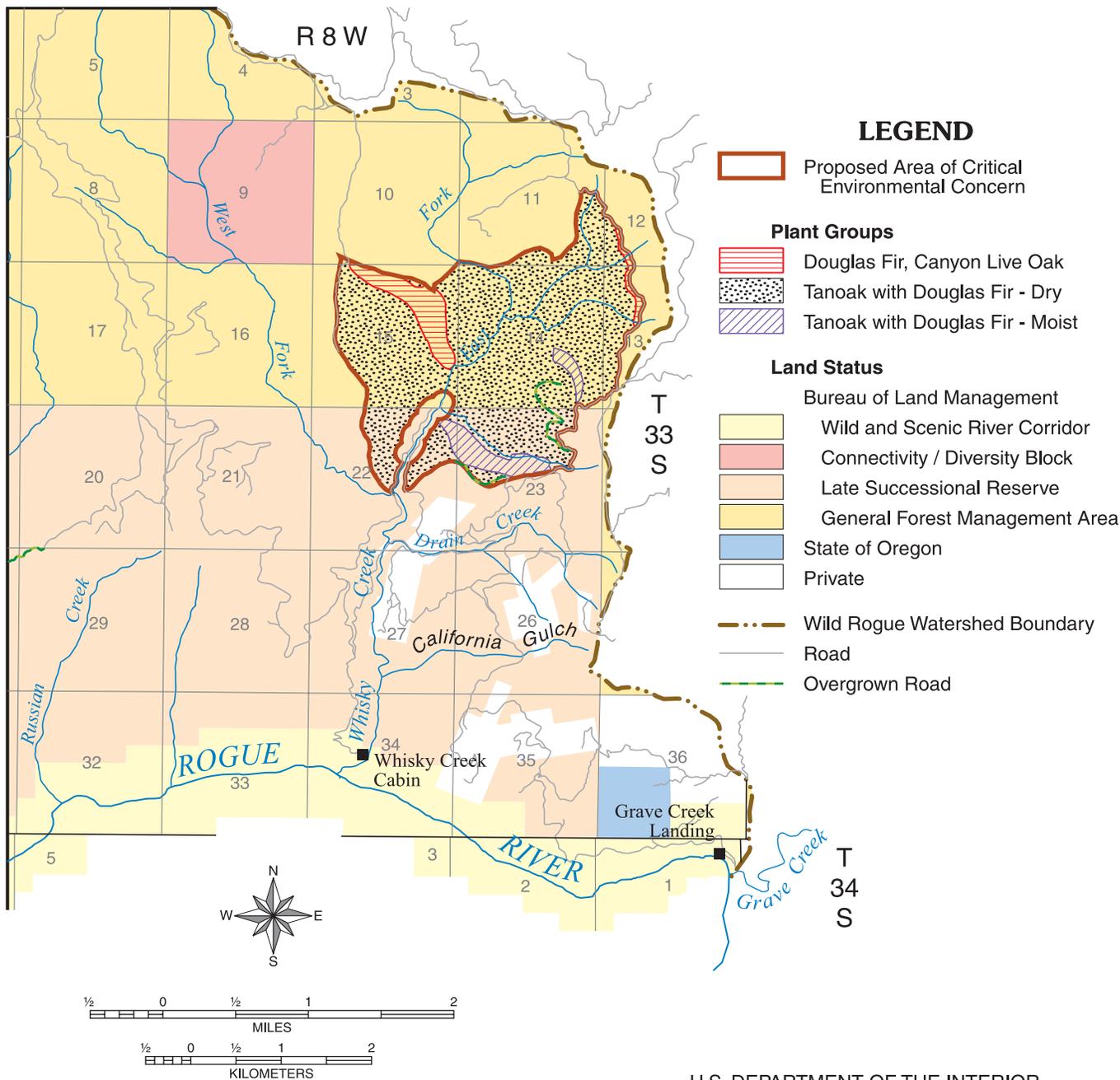
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**MEDFORD DISTRICT**  
2003



**KELSEY WHISKY ENVIRONMENTAL IMPACT STATEMENT**

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**Map A10-1: East Fork Whisky Creek ACEC Proposals**



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 2003

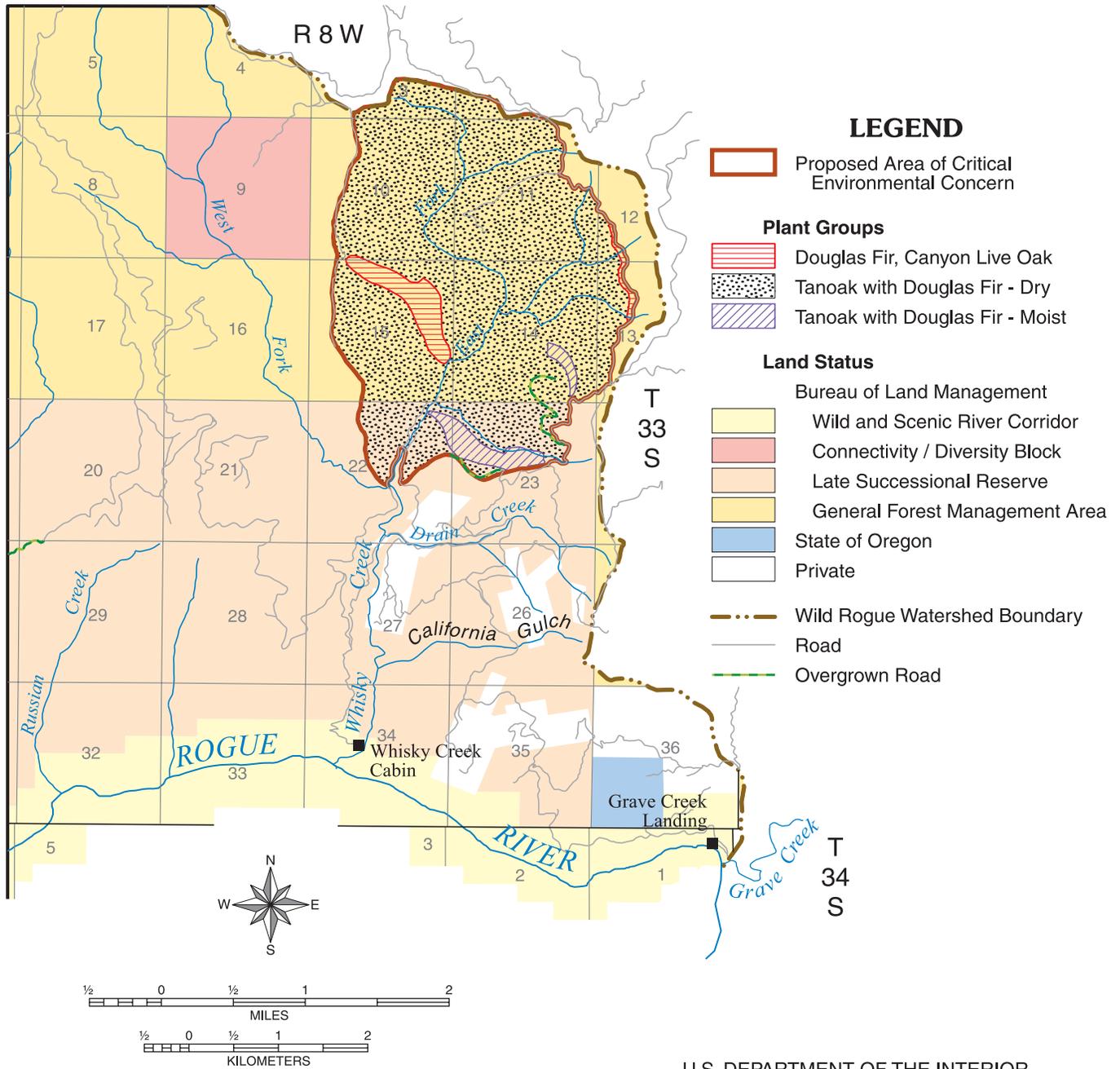


**KELSEY WHISKY  
 ENVIRONMENTAL IMPACT STATEMENT**



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**Map A10-2a:** East Fork Whisky Creek  
 ACEC Alternative 2 Plant Groups



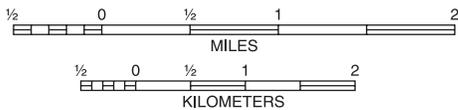
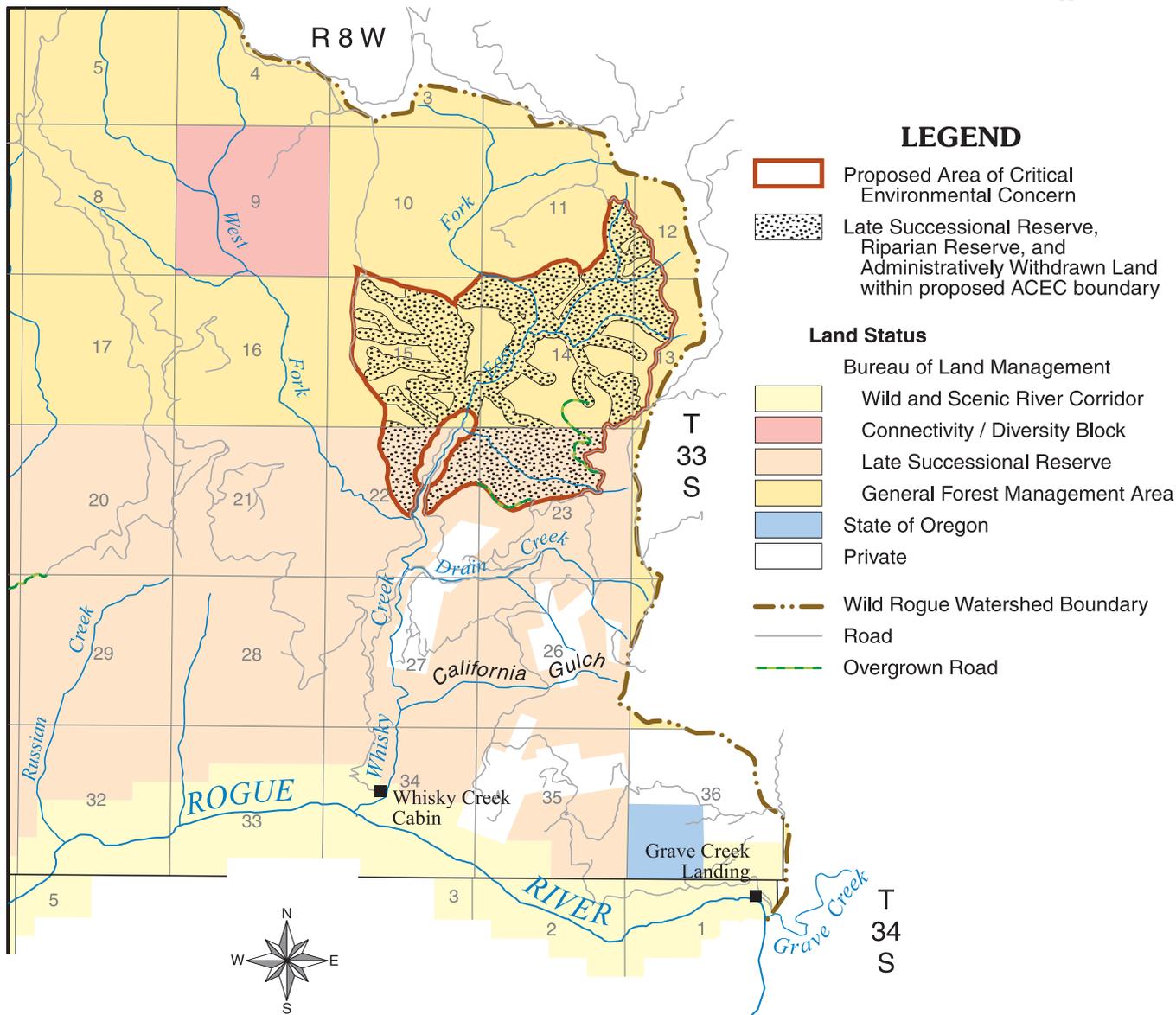
U.S. DEPARTMENT OF THE INTERIOR  
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**MEDFORD DISTRICT**  
 2003



**KELSEY WHISKEY  
 ENVIRONMENTAL IMPACT STATEMENT**

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**Map A10-2b: East Fork Whisky Creek ACEC Alternative 4 Plant Groups**



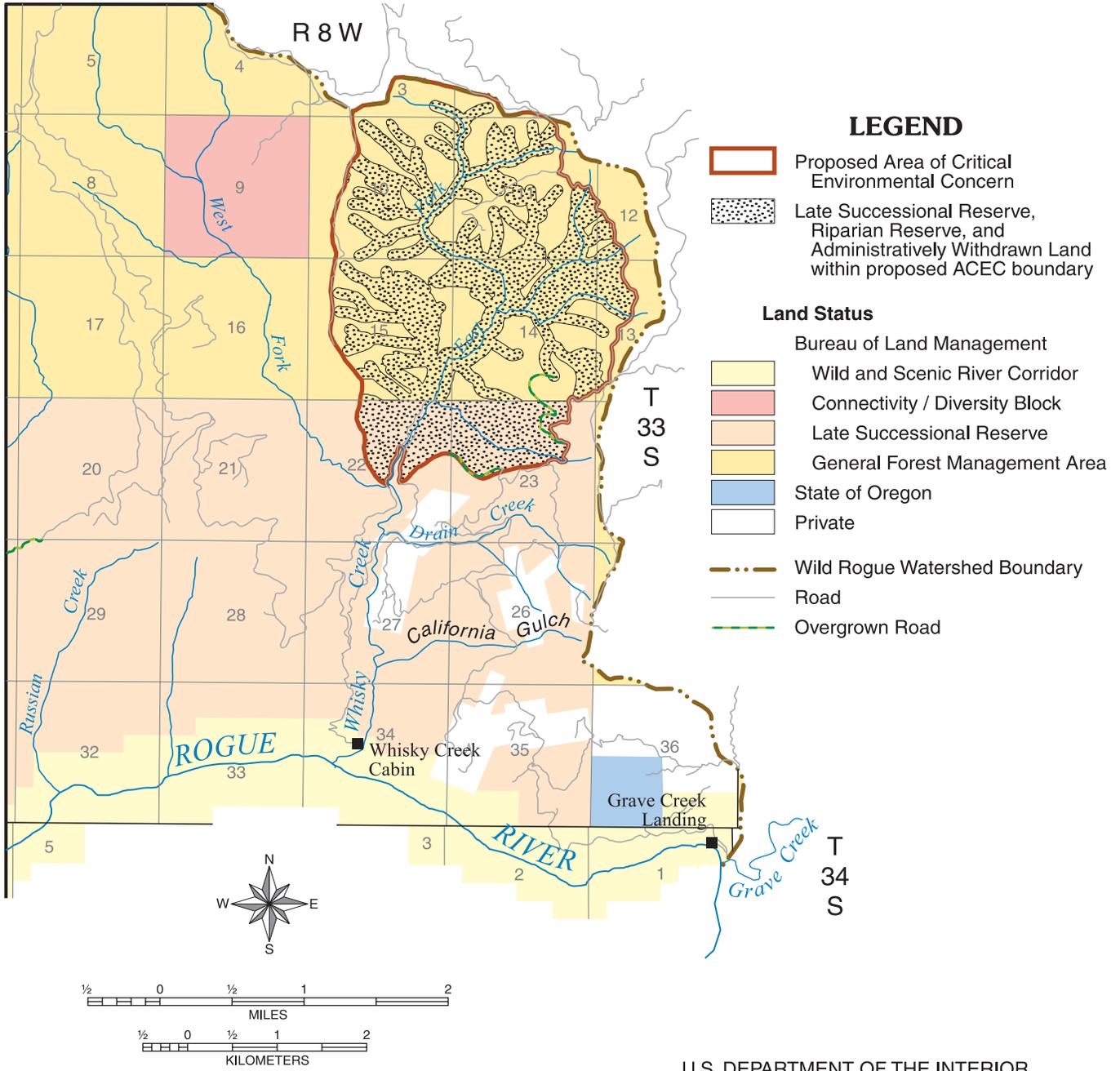
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 ENVIRONMENTAL IMPACT STATEMENT**

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**Map A10-3a: East Fork Whisky Creek  
 Proposed ACEC Alternative 2 Existing Land Use Allocations**



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**Map A10-3b:** East Fork Whisky Creek  
 Proposed ACEC Alternative 4 Existing Land Use Allocations

# Appendix 11. Aquatic Conservation Strategy Consistency Analysis For The Kelsey-Whisky Landscape Plan and Proposed RMP Amendment

1. Maintain and restore the distribution, diversity and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.

Units proposed for commercial harvest under the various alternatives range from previously unmanaged late-successional forest to old partial cuts and young forest stands in need of thinning. Although regeneration harvest would degrade habitat and connectivity for the northern spotted owl and other late successional species, it would have no significant effects on aquatic and riparian-dependent species. A watershed can be functioning properly hydrologically without being largely or totally vegetated by mature and late successional forest. Coniferous forests in the Pacific Northwest are considered on average to be hydrologically recovered from past disturbance (e.g. timber harvest or wildfire) when they are about 30 years of age.

Riparian reserves would maintain fully-functioning riparian habitat adjacent to all harvest units. No new permanent roads would be constructed. Several roads in riparian reserves would be decommissioned and planted with conifers.

Treatments to improve forest health and pine enhancement/maintenance and thinning in the LSR would help restore the complexity of forest stands and meet this objective.

An Area of Critical Environmental Concern would be established in Alternatives 2 and 4 to protect and manage an example of the tanoak/Douglas fir/salal/evergreen huckleberry plant group. Any activity in the area would need to be compatible with a management plan that would emphasize protection and enhancement of non-commodity values.

All effects of the proposed action would be within the range of natural variation. The distribution, diversity and complexity of watershed and landscape-scale features necessary for ensuring the protection of aquatic systems would be maintained. The proposed action is therefore consistent with ACS objective #1.

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Harvest units are scattered throughout a large area such that proposed harvest would not create any large barriers to wildlife dispersal. But organisms which have little ability to disperse (e.g. salamanders, red tree voles) may have a problem where several units are proposed for harvest in Upper East Kelsey Creek. However there would be no disruption or degradation of lateral, longitudinal and drainage network connections. Connectivity would be maintained for aquatic and riparian-dependent species.

Retaining Riparian Reserves will in the long term allow this habitat type to recover from past human and natural disturbances and to improve their value as connectivity corridors. Non-commercial thinning in some Riparian Reserves would accelerate growth of residual trees and reduce the time required for riparian forest to attain late successional characteristics and optimum connectivity.

Commercial density management treatment in the LSR is designed to enhance habitat conditions and connectivity. Maintaining a high degree of canopy closure (60%) would continue to provide forest habitat connectivity across the landscape.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks and bottom configurations.

93% of the Wild Rogue North watershed is under BLM management. Most streams in this fifth field watershed are functioning properly due the relatively low road density and general absence of management activity in most of the watershed. For instance overall road density is 2.4 miles per square mile and 75% of all Riparian Reserve acreage is greater than 80 years of age, the age at which late successional characteristics begin to occur.

Designing location and width of Riparian Reserves includes protecting the inner gorge along streams to avoid causing mass failures.

Fuels treatment and thinning in selected Riparian Reserves will accelerate the development of late successional characteristics and the input of large down wood into streams.

Replacing aging road cross drain culverts and installing additional structures may reduce stream channels scour and help restore a more natural hydrologic response to storm events.

Decommissioning 10 to 14 miles of existing roads (KWEIS - Table 2-1) would temporarily disturb streambanks at crossings but the action would also help restore the natural flow regime and reduce stream sedimentation. Effects would be locally important but would not be detectable at the watershed scale.

Constructing new permanent and temporary roads would not contribute sediment to streams because proposed road locations do not involve crossing stream channels. Therefore there would be no direct or indirect effects on shorelines, banks and bottom configurations.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

The major water quality parameters of concern are sediment and water temperature. Retaining Riparian Reserves would help maintain and improve water temperature over the longterm and to filter sediment that may be mobilized in harvest units. Fuels and forest health treatments in Riparian Reserves would not affect water temperature. The State of Oregon has identified Mule Creek, Whiskey Creek and the Rogue River as “water quality limited streams” for temperature. However, elevated water temperatures appear to be the result of natural conditions.

Landings would not be located in Riparian Reserves so oil, fuel and other contaminants would not be transported to streams.

Although some types of site preparation would expose mineral soil, designing Riparian Reserve on a site specific basis would help ensure that they are effective at capturing any soil that may be mobilized during storm events.

Establishment of an ACEC under Alternatives 2 and 4 would help maintain and improve water quality since any activity in the area would have to be consistent with maintenance and protection of non-commodity values.

Decommissioning roads would help restore the natural flow regime and reduce stream sedimentation over the longterm at the local scale but would not be detectable at the watershed scale.

The proposed action would incorporate all appropriate measures for preventing or minimizing the amount of sediment that roads in the proposed action may contribute (Chapter 2 of this document; Best Management Practices, Appendix D, Medford District ROD and RMP; and Standards and Guidelines, Appendix B-6, FSEIS Vol. II.)

Renovating 7 miles of roads (KWEIS - Appendix 3) would result in localized stream turbidity during the first major rainstorm of the wet season. However, it would be negligible, short-term effect and would not impede recovery of the streams' historic sediment regimes. The action would reduce potential for failure of the road prism and substantially reduce stream sedimentation that would degrade aquatic habitat. Closing as many as 9 miles of roads using gates or barricades would eliminate vehicle use and erosion of unsurfaced roads during winter.

Restricting log hauling and road renovation, maintenance and decommissioning on roads listed in Appendix 3 to the dry season would minimize the amount of sediment that could reach streams. Any sediment that is generated from these activities would be local and transitory, dispersing during the first several months of the wet season.

New permanent and temporary roads would not contribute sediment to streams because they would be built on ridges and on other stable terrain away from streams.

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate and character of sediment input, storage and transport. Again, retaining Riparian Reserves would filter out soil that may be mobilized in harvest units and appropriate S&Gs, BMPs and PDFs (as cited above) would be implemented to prevent or minimize the amount of sediment from roads that reaches streams. Blocking and renovating roads would improve drainage, reduce stream sedimentation and reduce the risk of major road failure.

Establishment of an ACEC under Alternatives 2 and 4 would help maintain and improve water quality since any activity in the area would have to be consistent with maintenance and protection of non-commodity values.

Treatments for forest health and fuels reduction would reduce potential for stand replacement fires that can contribute large quantities of sediment to streams. Conversely, large stand replacement fires followed by high intensity storms have historically caused landslides and debris flows that reached streams and improved aquatic habitat diversity and fish production.

All potential harvest units were inspected for indications of current and potential slope instability; problem areas were eliminated from further consideration or buffered where appropriate.

New permanent and temporary roads would not contribute sediment to streams because they would be built on ridges and on other stable terrain away from streams.

Tractor yarding, which results in more soil disturbance than other yarding types, would be used on a minor percentage of all harvest acres. Skid trails would be discontinuously ripped and waterbarred to prevent movement of soil off site into streams. No blades would be allowed, which will help protect soils.

Not constructing firelines in Riparian Reserves and burning under fall-like conditions would help minimize potential for sediment to enter streams.

6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high and low flows must be protected.

Peak flows would not measurably increase under the proposed action because:

(a) more than 90 percent of the forested acres in the fifth field watershed are greater than 30 years of age (Wild Rogue North Watershed Analysis p. 54) and therefore hydrologically

recovered from past natural and human disturbance. In addition, regeneration harvest, which has the highest potential for increasing streamflow, accounts for less than one half (27-42%) of all harvest acres under Alternatives 1 and 2 and represents 1% of all acres in the watershed; there is no regeneration harvest in Alternative 4 (b) road density would not increase (c) some potential harvest units were deferred and others dispersed in order to minimize potential for increasing peak flows in small watersheds (d) riparian reserves would partially buffer any increases in water yield from harvest units on streamflow and (e) soil depth is adequate in harvest units to allow precipitation to percolate into soil during storm events for slow release (f) landings and tractor skid roads would be sub-soiled and waterbarred to encourage infiltration rather than rapid runoff.

Summer stream flows are not expected to decrease because removal of commercial size trees in Riparian Reserves would generally not take place; a 25 foot buffer would be retained on any streams that are treated for fuels reduction, forest health or for wildlife habitat improvement. Buffering streams will help ensure that vegetation treatments would not encourage growth of alder, maple or riparian hardwoods that consume large amounts of water. In addition, Riparian Reserves would tend to utilize excess groundwater from up-slope where vegetation has been removed through timber harvest.

7. Maintain and restore the timing, variability and duration of floodplain inundation and water table elevation in meadows and wetlands.

The type and amount of timber harvest and other vegetation treatments would not alter flooding frequency or intensity at the watershed scale (refer to Objective #6). Floodplains associated with streams are restricted to the toe of side slopes adjacent to streambanks because of high stream gradient. There are no known wet meadows and wetlands adjacent to any harvest unit. Seeps and springs would be protected with a 100 foot wide Riparian Reserve.

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Retaining no-cut Riparian Reserves one to two site potential trees in width adjacent to most timber harvest units will help meet this objective. However, several decades of fire suppression has created situations where active management of Riparian Reserves is needed in order to meet this objective. Planned treatments include non-commercial density management and prescribed burning to restore forest health and to reduce fuel loading and potential for stand replacement fires. Non-commercial thinning would be used to improve vigor and maintain large pines inside and outside Riparian Reserves in the West Fork Whiskey Creek watershed.

9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

There would be some adverse, localized effects on populations and species distributions in upland areas, an effect has been thoroughly discussed in the FSEIS. Refugia would remain within the watershed and its high value as connectivity to adjacent watersheds would be maintained. Riparian Reserves recovering from past harvest or wildfire would continue to do so over the long term and contribute to supporting a diversity of species in the watershed.

Based on this analysis, the proposed project would be consistent with the Wild Rogue North Watershed Analysis recommendations and findings, applicable Northwest Forest Plan Standards and Guidelines, NEPA documentation and applicable aspects of the National Marine Fisheries Service March 18, 1997 Biological Opinion. The project would not hinder or prevent attainment of Aquatic Conservation Strategy objectives at the 5<sup>th</sup> field watershed scale over the long term.

## Consistency Evaluation

### A. Evaluation of Consistency with the Northwest Forest Plan Standards and Guidelines

This project is located on lands classified as Matrix (General Forest Management Area); therefore the S&G's for this Land Use Allocation would apply. The following S&G's, which are required by the NFP, (USDA, USDI 1994) particularly apply to this action.

- 1). Riparian Reserves are specified for five categories of streams or waterbodies (C-30). Riparian Widths were established based on the height of an average site potential tree (NFP, C-31; KWEIS - 2.3.1.4).
- 2). S&G RF-2a (C-32) states that ACS objectives are to be met by "minimizing road and landing locations in Riparian Reserves." No roads or landings in Riparian Reserves are planned (KWEIS - 2.3.1.4).
- 3) S&G RF-2e (C-32) states that ACS objectives for roads are to be met by "minimizing disruption of hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow." New road construction, renovation and improvement would incorporate all appropriate Best Management Practices cited in the Medford District ROD and Resource Management Plan (June 1995).
- 4) S&G RF-3a (C-32) states that ACS objectives are to be met by reconstructing/renovating roads and associated drainage features that pose a substantial risk to aquatic and riparian habitats. Seventeen to 20 miles of road renovation and improvement are planned, depending on alternative (KWEIS - Appendix 3).
- 5) S&G RF-3c (C-32) states that ACS objectives are to be met by closing and stabilizing, or obliterating and stabilizing roads based on ongoing and potential effects to ACS objectives and considering short-term and long-term transportation needs. Ten to 14 miles of road would be decommissioned, depending on alternative (KWEIS - Table 2-1).
- 6) S&G RF-4 (C-32) states that ACS objectives are to be met by constructing new stream crossings and improving existing crossing structures to accommodate at least the 100-year flood, including associated bedload and debris. Projects should be prioritized based on potential impact to aquatic and riparian resources. Crossings should be designed and maintained to prevent diversion of streamflow out of the channel and down the road during storm events. This would be implemented during road renovation and improvement activities.
- 7) S&G RF-5 (C-33) states that ACS objectives are to be met by minimizing delivery of sediment from roads to streams by whatever site specific techniques may be appropriate. This would be accomplished by incorporating all appropriate measures contained in Best Management Practices, Appendix D, Medford District ROD and RMP
- 8) S&G RF-6 (C-33) states that ACS objectives are to be met by providing and maintaining fish passage at all road crossings of existing and potential fish-bearing streams. No culverts important for fish passage would be installed or replaced under the proposed action.
- 9) S&G RF-7 (C-33) states that a Road Management Plan should be developed and implemented that will meet ACS objectives. The plan is in progress.
- 10) S&G WR-1 (C-37) calls for designing and implementing watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems and attains ACS objectives. Effects of proposed fuels, forest health and LSR treatments are discussed in Chapter 4.
- 11) S&G FW-1 (C-37) calls for designing and implementing fish and wildlife habitat restoration and enhancement activities in a manner that contributes to ACS objectives. Effects of proposed fuels, forest health and LSR treatments are discussed in Chapter 4.



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# Appendix 13. Silvicultural Prescription for Alternative 1.

## KELSEY WHISKEY EIS Silvicultural Prescription for Alternative 1

### INTRODUCTION

The Kelsey Whiskey EIS project proposes to harvest timber, do forest development and forest health related treatments, do fuels reduction treatments, and conduct follow-up vegetation treatments (e.g., site preparation, planting of conifers, maintenance treatments, protection treatments, spacing of residual regeneration, and associated treatments to reduce activity fuels) in 95 units within the Wild Rogue watershed. This prescription assesses stand conditions and recommends treatments within the project area. Stands from which timber is proposed to be harvested are allocated Matrix (Northern GFMA / Connectivity-Diversity Blocks). Treatment within Late Successional Reserves is proposed to promote stand vigor, retain stand components, and reduce fuels. Removal of commercial size conifers as a by-product of the treatment is proposed for some of these areas. Riparian reserves are being proposed for treatment under this project. Removal of commercial size conifers from Riparian Reserves is not proposed.

Areas proposed for harvest are outside of any Tier 1, Key watersheds.

Stands proposed for treatment can be categorized as being Mixed Evergreen or Mixed Conifer as described by Franklin and Dyness in Natural Vegetation of Oregon and Washington (1973). Units are in the tanoak and Douglas fir series. Douglas fir is the primary conifer species. Ponderosa pine, sugar pine, and incense cedar occur within the project area. Primary hardwood and shrub species include Pacific madrone, golden chinquapin, tanoak, canyon live oak, rhododendron, and salal.

### OBJECTIVES

#### Land Use Allocation Objectives:

##### Objectives for lands allocated to Matrix:

- Production of a sustainable supply of timber and other forest commodities,
- Providing connectivity (along with other allocations such as riparian reserves) between Late-Successional Reserves
- Providing habitat for a variety of organisms associated with both late-successional and younger forests,
- Providing for important ecological functions, and
- Providing early successional habitat.

Connectivity/Diversity Blocks have slightly different guidelines that provide for greater connectivity over time.

##### Objectives for lands allocated to Late Successional Reserve:

- Protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth forest-related species including the northern spotted owl and marbled murrelet.
- Maintain a functional, interacting, late-successional and old-growth forest ecosystem.

Objectives for lands allocated to Riparian Reserve:

- The objectives of the Aquatic Conservation Strategy.
- Provide habitat for terrestrial species associated with late-successional forest habitat.
- Provide dispersal habitat for northern spotted owls.
- Implement strategies to achieve the goals established in the BLM's Riparian Wetland Initiative for the 1990s.

Unit Specific Objectives (see also Appendix 4. Objective-based Cutting and Treatment Methods):

Regeneration Harvest Units (RH): 31-1, 5-1, 6-3, 6-4,6-5, 7-1, 35-1, 1-1, 1-2, 8-1, 18-1, 13-1, 23-1A, 4-1, and 4-2

The objective of regeneration harvests (RH) within these units is to harvest timber and replace existing mature and older stands with young vigorous conifer stands while retaining green conifers, a hardwood component, and providing for future coarse woody debris. Production is wood volume is a primary objective.

Overstory Removal Units (OR): 12-1, 26A, and 26A1

The objective of overstory removal harvests (OR) within these units is to harvest timber and replace existing mature and older stands with young vigorous conifer stands with the emphasis on retaining existing conifer regeneration within the units while retaining green conifers, a hardwood component, and providing for future coarse woody debris. Conifer regeneration would be released. Production is wood volume is a primary objective.

Regeneration Harvest/Overstory Removal Units (RH/OR): 33A

The objective of the RH/OR treatment within unit 33A is to harvest timber and replace an existing mature stand with a young vigorous conifer stand while retaining green conifers, a hardwood component, and providing for future coarse woody debris. In areas where there is existing conifer regeneration, emphasis will be placed on retaining and releasing it for development of the next stand. Production is wood volume is a primary objective.

Regeneration Harvest/Commercial Thin Units (RH/CT): 6-2, 28A, 33-2  
Overstory Removal/Commercial Thin Units (OR/CT): 33-1

These units contain areas that meet RMP criteria for regeneration harvests and overstory removal as well as have areas suitable for commercial thinning. That is, they contain areas of pole and sawtimber size conifers as well as areas of larger mature and older conifers. Releasable conifer regeneration is present within overstory removal units. The objectives of the treatments are same as for the individual treatments. In areas of regeneration harvest and overstory removal, existing mature and older timber would be harvested and replaced with young vigorous conifers. In areas of pole and sawtimber size conifers (areas that do not fit RMP criteria for regeneration harvest) timber harvest would reduce stand densities so that increased growth would occur on selected leave trees. Production of wood volume at the present time and for the future is a primary objective.

Commercial Thinning Units (CT): 35-2, 7-2A, 7-2B, 8-2, 12-4, 17-3, 13C, 27-1D, 27-3, and 27-4

Commercial Thin/Precommercial Thin (CT/PCT): 14A, 22A, 23A, 24A, 27-1C, 27-2, 33B, 5-4, 16-1, 17-1, 17-2

Precommercial Thin (PCT): 14C, 23B, 23E, 33D,

The objective of Commercial Thinning (CT) within these units is to reduce stand densities in areas occupied by conifers so that increased growth can occur on selected trees. Harvest of

some wood volume at the present time and an increase/maintenance of growth rates for wood volume harvest in the future are primary objectives. Unit 14A is south of the 32-8-31 road. No harvest will occur in the Bobby Creek RNA. Units 5-4, 16-1, 17-1, and 17-2 have another primary objective. Treatment is proposed to maintain a large pine component in these stands for the present and for the future.

Commercial Thin/Precommercial Thin (CT/PCT) units contain areas of commercial size conifers and areas of non-commercial conifers. The objective of the treatment is the same as for commercial thin units. Stand densities would be reduced to harvest wood volume at the present time and to increase/maintain growth rates for wood volume harvest in the future.

Precommercial Thin (PCT) units are units of primarily non-commercial size conifers sometimes mixed with hardwoods and brush. The objective of the treatment is to reduce stand densities so that growth conifer growth rates will increase or be maintained for wood volume harvest in the future.

Commercial Density Management Units (CDM): 11-1, 22-1, 26-3, 27-1A, 27-1B, 28-1A, 28-1B, 12-2

Commercial Density Management/Non-Commercial Density Management (CDM/NDM): 26-2

The objective of Commercial Density Management (CDM) within these units is similar to that of commercial thinning and to commercial thinning/precommercial thinning. However, stand density reduction treatments would be designed to enhance and promote desired stand characteristics for wildlife or other non-production objectives. Stand vigor (forest health) is a concern. Production of wood volume at the present time or for the future is not a primary objective.

Pine Enhancement/Maintenance Unit (PEMU): West Fork Whisky Creek Uplands, West Fork Whisky Creek Riparian Reserves

The objective of the pine enhancement/maintenance treatment is to maintain a large pine component in these stands for the present and for the future.

Pine Conversion Non-Commercial Density Management Unit: 2-3

The objective of the pine conversion non-commercial density management treatment is to accelerate the development of a mixed conifer stand (predominantly a stand of Douglas-fir with a lesser component of pine) within a stand that is currently dominated by ponderosa pine that was planted after a wildfire in the 1970s.

**STAND DESCRIPTIONS / ANALYSES / RECOMMENDED TREATMENTS**

UPPER EAST KELSEY

UNIT 31-1      T.32S., R.8W., section 31  
**T.33S., R.8W., section 6**

**Stand Description:** Unit 31-1 is a two-storied stand the has an overstory of mature and older Douglas-fir and sugar pine generally 24-40" dbh. The understory consists of brush for chinkapin, canyon live oak, rhododendron and areas of thick Douglas fir and sugar pine regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Crowns within the unit are starting to thin. Crowns are starting to flatten. Mortality is occurring as evidenced by presence of snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of a mixture of Douglas-fir regeneration currently on the site and young conifers that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 31-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Helicopter yard. Handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Slashing and broadcast burning was considered. No treatment under this project was considered for Alternative 4.

## UNITS 5-1, 6-3South T.33S., R.8W., section 5

**Stand Description:** Units 5-1 and 6-3south are unentered two-storied stands with an overstory of mature Douglas fir generally 24-36" dbh. Occasional large sugar pine can be found within the stands. The understory consists of thick rhododendron mixed with canyon live oak and chinkapin brush. There is a limited amount of Douglas-fir regeneration present. Few tree form hardwoods occur.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. A limited amount of mortality is occurring as evidenced by presence of snags. Some blowdown is present. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of a mixture of Douglas-fir regeneration currently on the site and young conifers that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for units 5-1 and 6-3south. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

Treatment within units 6-3R2, and 6-3R3 is recommended to establish and promote an understory of conifers within these riparian reserves. Slash brush and hardwoods 7 inches in diameter and less to within 25 feet of streams. Underburn concurrently with site preparation on adjacent harvest units. Within these units precommercial thin remaining conifer regeneration at a 10'x10' spacing. Interplant with a mixture of 50% Douglas fir and 50% minor species predominantly late-successionally associated conifers. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Harvest of Subunit 6-3North and treatment of riparian unit 6-3R1 was considered. No treatment under this project of unit 5-1 was considered in Alternatives 2 and 4. No treatment under this project of unit 6-3North or 6-3South was considered in Alternative 4.

**UNIT 6-2 T.33S., R.8W., sections 5, 6**

**Stand Description:** Unit 6-2 is an unentered multi-storied stand. The overstory consists of mature and older Douglas fir generally 24-36" dbh. Some large ponderosa pines are present. A middle canopy layer of pole and post size Douglas fir is present in some portions of the unit. The understory consists of limited amounts of Douglas-fir regeneration mixed with canyon live oak and tanoak brush.

**Analysis:** This unit is designated Matrix. Areas within the unit meet RMP guidelines for regeneration harvest. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment. There are areas of pole size Douglas fir that would respond to the release provided by a commercial thin. Growth would be concentrated into existing stems with a thinning treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that retained multiple canopies. Overall, the unit would retain considerable diversity. Where there are currently large Douglas fir and pine over pole size Douglas fir, advanced Douglas-fir regeneration, and hardwoods. The upper canopy layer would consist of larger, older Douglas fir and ponderosa pine. Trees within this canopy layer would provide future larger structural elements such as snags and coarse woody debris. A middle canopy layer would consist of pole-size Douglas fir. The lowest canopy layer would consist of existing conifer regeneration, hardwoods, and shrubs. Where there are currently pole size conifers, stand densities would be reduced. These areas would still retain many of the characteristics they currently have. Throughout the unit, ponderosa pine would be favored for retention. Areas of smaller post/sapling size conifer regeneration would be spaced and retained trees would respond to the release.

In the long-term the unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of three canopy layers. There would be dominant conifers over pole size and mature Douglas fir. These two canopy layers would be over conifer regeneration. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for the eastern three-quarters of unit 6-2. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present.

In the western one quarter of the unit, in areas of pole-size conifers, and areas of pole-size conifers mixed with non-merchantable conifers and hardwoods, commercial thin (CT) is the recommended treatment. The thinning should be primarily from below with the emphasis on maintaining a canopy cover of 40%. When clumped, codominant and dominant trees may be removed to achieve better spacing. Emphasize retaining vigorous, well-formed ponderosa pine where possible. Hardwoods may be counted for up to 10% of the desired canopy cover.

Cable yard. Slash brush and damaged conifer regeneration. Handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Regeneration harvest for the entire unit followed by slashing of brush and damaged conifers and broadcast burning was considered. No treatment under this project was considered in Alternative 4.

**UNIT 6-4 T.33S., R.8W., sections 6, 7**

**Stand Description:** Unit 6-4 is an unentered multi-storied stand. The overstory consists of mature and older Douglas-fir generally 28-40" dbh. There are occasional sugar pines of this size and larger. Hardwoods consist of tree form chinkapin, 8-12" dbh and a limited amount of madrone generally <8" dbh. There are areas of thick rhododendron and salal mixed with chinkapin and tanoak brush. Canyon live oak is present as is some Douglas fir and sugar pine regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Tree crowns within the unit are starting to thin. Mortality is beginning to occur as evidenced by presence of snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of a mixture of Douglas-fir regeneration currently on the site and young conifers that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 6-4. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard portions of the unit that can be yarded from the temporary road. Helicopter yard remainder of the unit. Handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** A longer and permanent road that would have provided better access was considered. Construction of the road would allow the entire unit to be cable yarded. Damaged conifers and brush followed by broadcast burning was considered if the longer, permanent road was built. No treatment under this project was considered in Alternative 4.

UNIT 6-5            T.33S., R.8W., sections 6, 7  
                          **T.33S., R.9W., sections 1, 12**

**Stand Description:** Unit 6-5 is multi-storied stand of mature and older Douglas-fir generally 24-40" dbh. Some sugar pine of similar size and larger exists. A middle canopy layer of pole and sawtimber size Douglas-fir and 4-12" dbh madrone is present in areas. The lowest canopy level consists of tanoak and chinkapin brush. The unit contains slick leaf ceanothus, canyon live oak, and patches of Douglas-fir regeneration. Portions of the stand have been previously entered for timber harvest. Pacific yew is present.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Some of the overstory trees show signs of decay (conk). Mortality is beginning to occur as evidenced by presence of snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of Douglas-fir regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation such as ceanothus.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 6-5. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternatives 2 and 4.

## UNIT 7-1 T.33S., R.8W., section 7

**Stand Description:** Unit 7-1 is an unentered multi-storied stand. The overstory consists of mature Douglas-fir 28-40" dbh. Some sugar pine of the same size and larger exists. Some snags are present. The unit contains a middle canopy layer of tree form tanoak, chinkapin, and canyon live oak. The lowest canopy level consists of tanoak and chinkapin brush, smaller diameter canyon live oaks, and patches of rhododendron. There are areas of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Mortality is beginning to occur as evidenced by presence of snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of Douglas-fir regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak, chinkapin, and rhododendron. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 7-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternative 4.

**UNIT 35-1 T.32S., R.9W., section 35**

**Stand Description:** Unit 35-1 is a multi-storied stand. The overstory consists of areas of mature and older Douglas-fir 32-40" dbh mixed with a limited number of sugar pine the same size and larger. Within the unit there are areas of tree form chinkapin 4-8" dbh. These chinkapin form a middle canopy layer. The lowest canopy level consists of areas of salal and tanoak brush mixed with patches of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Mortality is beginning to occur as evidenced by presence of snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of Douglas-fir regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak and chinkapin. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 35-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retained trees should be as mistletoe-free as possible. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** A fuels treatment only was considered in Alternative 4.

## UNIT 35-2 T.32S., R.9W., section 35

**Stand Description:** Unit 35-2 is a stand of pole and sawtimber size Douglas fir mixed with tree form chinkapin and madrone. Conifer diameters generally range from 8-16" at breast height. Scattered larger Douglas fir exists in the stand. There is a limited amount of sugar pine. The sugar pine and hardwoods are falling out of the stand. Many of have died in recent years or will die in the near future. An estimated 5% of the conifers show snow or wind damage. The understory is open with areas of salal. The stand is for the most part a single-storied stand.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Existing pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Suppression mortality is occurring in smaller conifers and hardwoods.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. There would be development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 35-2. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

**Silvicultural Options Considered:** None.

UNIT 1-1 T.33S., R.9W., section 1

**Stand Description:** Unit 1-1 is an unentered stand that has an overstory of mature and older Douglas fir generally 28-36" dbh mixed with a limited number of larger dominant sugar pine. The overstory is fairly open with an estimated canopy closure (in the upper canopy layer) of 30-40%. As a result of this open condition, tree crowns are fuller and overstory trees have a greater live crown ratio than trees in more closed stands. A middle canopy layer of tree form chinkapin and canyon live oak exists. The lowest canopy layer consists of thick chinkapin, tanoak, rhododendron, and canyon live oak brush. There is a small amount of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Stand is not currently occupied by actively growing conifers. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of Douglas-fir regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. There would be a scattering of hardwoods between the two canopy layers. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak and chinkapin. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 1-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Helicopter yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Broadcast burning was considered in Alternative 2. No treatment under this project was considered in Alternative 4.