

# Appendix A: Standards and Guidelines Alternatives S1 and S2:

## Table of Contents

Aquatic/Riparian .....	337
Amphibians .....	337
Range.....	338
Riparian Conservation Areas.....	338
Roads.....	349
Willow Flycatcher.....	349
Home Range Core Area .....	352
California Spotted Owl.....	352
Forest Wide.....	354
Air Quality.....	354
Snags, Down Wood, Post-Fire Restoration, Salvage .....	354
Range.....	357
Soils.....	359
Fire .....	359
Fisher.....	361
Sierra Nevada Red Fox, Wolverine.....	361
Mining .....	362
Oaks/Hardwoods .....	363
Old Forest Ecosystems and Associated Species.....	364
California Spotted Owl.....	365
TEPS Plants.....	366
Roads.....	366
Vegetation Management.....	367
Noxious Weeds .....	369
Willow Flycatcher.....	371
Forest Carnivore Den Sites .....	372
Fisher.....	372
Marten .....	373
General Forest.....	374
California Spotted Owl.....	374
Urban Wildland Intermix Threat Zone .....	375
California Spotted Owl.....	375
Old Forest Emphasis and Owl Home Range Core Areas .....	376
California Spotted Owl.....	376
Old Forest Patches or Stands .....	378
PACs, Den Sites.....	379
Owls, Goshawk .....	379
Goshawk.....	379
Great Gray Owl .....	381
California Spotted Owl.....	382
Southern Sierra Fisher Conservation Area.....	386
Herger-Feinstein Quincy Library Group Pilot Project Area .....	387
Herger-Feinstein Quincy Library Group Pilot Project Area .....	388



## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
<b>Amphibians</b>			
X		Ensure that vegetative management activities including fuels reduction actions within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic/riparian dependent species. The protection of human life and property must be considered as part of the Conservation Objectives.	Assess and document aquatic conditions following the Regional Stream Condition Inventory protocol prior to implementing ground disturbing activities within suitable habitat for California red-legged frog, Cascades frog, Yosemite toad, foothill and mountain yellow-legged frogs, and northern leopard frog.
	X	Ensure that vegetative management activities including fuels reduction actions within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic/riparian dependent species. The protection of human life and property must be considered as part of the Conservation Objectives.	As appropriate, assess and document aquatic conditions following the Regional Stream Condition Inventory protocol prior to implementing ground disturbing activities within suitable habitat for California red-legged frog, Cascades frog, Yosemite toad, foothill and mountain yellow-legged frogs, and northern leopard frog.
X	Covered by existing law, regulation, or direction	Ensure that vegetative management activities including fuels reduction actions within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic/riparian dependent species. The protection of human life and property must be considered as part of the Conservation Objectives.	In suitable habitat for California red-legged frog, Cascades frog, Yosemite toad, foothill and mountain yellow-legged frogs, and northern leopard frog, develop mitigation measures to avoid impacting these species whenever ground disturbing equipment is used within RCAs or CARs.
X	X		Limit application of pesticides in RCAs and CARs to cases where project-level analysis indicates their application is consistent with the Riparian Conservation Objectives. Avoid application of pesticides to areas within 500 feet of known occupied sites for California red-legged, foothill and mountain yellow-legged, Cascade and northern leopard frogs and Yosemite toads unless environmental analysis documents pesticides are needed to restore or enhance habitat for these amphibian species

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
<b>Range</b>			
X	X		Locate new livestock handling and management facilities outside meadows and RCAs. Prior to re-issuing grazing permits, assess the compatibility of livestock management facilities with the Riparian Conservation Objectives of the RCA.
X		To protect and allow for recovery of mountain and foothill yellow-legged frogs, California red-legged frog, and Yosemite toad populations in previously occupied habitat, and to protect habitats for other riparian dependant species.	Within RCAs and CARs prohibit application of pesticides to livestock.
<b>Riparian Conservation Areas</b>			
X	X	To maintain the ecological integrity of aquatic, riparian, and meadow ecosystems.	Determine which CARs or areas within CARs are suitable for mineral withdrawal and propose them for withdrawn from location and entry under the U.S. mining laws, subject to valid existing rights, for a term of 20 years. In CARs, approve mining-related plans of operation if measures are implemented that contribute toward the attainment or maintenance of aquatic management strategy goals.
X	X	Designation of riparian conservation area buffer widths	Designate riparian conservation area widths as listed in standards and guidelines below. RCA widths shown below may be adjusted at the project level if a landscape analysis has been completed and a site-specific RCO analysis demonstrates a need for different widths. Use a peer review process for vegetation treatments or other activities proposed within CARs and RCAs that are likely to significantly affect aquatic resources. Conduct peer reviews for projects that propose ground-disturbing activities in more than 25 percent of the RCA or more than 15 percent of a CAR.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X		Designation of default riparian conservation area buffer widths	<p><b>STREAM TYPE WIDTH OF THE RIPARIAN CONSERVATION AREA</b>  <b>Perennial Streams:</b> 300 feet on each side of the stream, measured from the bank full edge of the stream  <b>Seasonally Flowing Streams</b> (includes ephemerals with defined stream channel or evidence of scour): 150 feet on each side of the stream, measured from the bank full edge of the stream  <b>Streams In Inner Gorge</b><sup>1</sup>: top of inner gorge  <b>Special Aquatic Features<sup>2</sup> or Perennial Streams with Riparian Conditions extending more than 150 feet from edge of streambank or Seasonally Flowing streams with riparian conditions extending more than 50 feet from edge of streambank:</b> 300 feet from edge of feature or riparian vegetation, whichever width is greater  <b>Other hydrological or topographic depressions without a defined channel.</b> RCA width and protection measures determined through project level analysis  <sup>1</sup> Inner gorge is defined by stream adjacent slopes greater than 70 percent gradient  <sup>2</sup> Special Aquatic Features include: lakes, meadows, bogs, fens, wetlands, vernal pools, and springs</p>
	X	Designation of default riparian conservation area buffer widths	<p><b>STREAM TYPE WIDTH OF THE RIPARIAN CONSERVATION AREA</b>  <b>Perennial Streams:</b> 300 feet on each side of the stream, measured from the bank full edge of the stream  <b>Seasonally Flowing Streams</b> (includes intermittents and ephemerals): 150 feet on each side of the stream, measured from the bank full edge of the stream  <b>Streams In Inner Gorge</b><sup>1</sup> : top of inner gorge  <b>Special Aquatic Features<sup>2</sup> or Perennial Streams with Riparian Conditions extending more than 150 feet from edge of streambank or Seasonally Flowing streams with riparian conditions extending more than 50 feet from edge of streambank:</b> 300 feet from edge of feature or riparian vegetation, whichever width is greater  <b>Other hydrological or topographic depressions without a defined channel:</b> RCA width and protection measures determined through project level analysis  <sup>1</sup> Inner gorge is defined by stream adjacent slopes greater than 70 percent gradient  <sup>2</sup> Special Aquatic Features include: lakes, wet meadows, bogs, fens, wetlands, vernal pools, and springs</p>
X	Covered by existing law, regulation, or direction	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Implement project appropriate Best Management Practices and monitor their effectiveness following protocols outlined in “Investigating Water Quality in the Pacific Southwest Region: Best Management Practices Evaluation Program” (USDA-FS, PSW Region 1992).

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	X	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Evaluate new proposed management activities within CARs and RCAs during environmental analysis to determine consistency with the riparian conservation objectives at the project level and the AMS goals for the landscape. Ensure that appropriate mitigation measures are enacted to (1) minimize the risk of activity-related sediment entering aquatic systems, and (2) minimize impacts to habitat for aquatic- or riparian-dependent plant and animal species.
X	X	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Identify existing uses and activities in CARs and RCAs during landscape analysis. Evaluate existing management activities to determine consistency with RCOs during project-level analysis. Develop and implement actions needed for consistency with RCOs.
X	X	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Ensure management activities do not adversely affect water temperatures necessary for local aquatic- and riparian-dependent species assemblages.
X	Covered by other standards and guidelines	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Limit pesticide applications to cases where project level analysis indicates that pesticide applications are consistent with riparian conservation objectives.
X	X	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Prohibit storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites. Prohibit refueling within RCAs and CARs unless there are no other alternatives. Ensure that spill plans are reviewed and up-to-date.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity.
X	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species. Locate water drafting sites to avoid adverse effects to in stream flows and depletion of pool habitat. Where possible, maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features.
X		Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Prior to activities that could affect streams, determine if relevant geomorphic characteristics, including bank angle, channel bank stability, bank full width-to-depth ratio, embeddedness, channel-floodplain connectivity, residual pool depth, or channel substrate are within the range of natural variability for the reference stream type as described in the Pacific Southwest Region Stream Condition Inventory protocol. If properties are outside the range of natural variability, implement restoration actions that will result in an upward trend.
	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Prior to activities that could adversely affect streams, determine if relevant stream characteristics are within the range of natural variability . If characteristics are outside the range of natural variability, implement mitigation measures and short-term restoration actions needed to prevent further declines or cause an upward trend in conditions. Evaluate required long-term restoration actions and implement them according to their status among other restoration needs.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Prevent disturbance to streambanks and natural lake and pond shorelines caused by resource activities (for example, livestock, off-highway vehicles, and dispersed recreation) from exceeding 20 percent of stream reach or 20 percent of natural lake and pond shorelines. Disturbance includes bank sloughing, chiseling, trampling, and other means of exposing bare soil or cutting plant roots. This standard does not apply to developed recreation sites and designated off-highway vehicle routes. In stream reaches occupied by the Lahonton, Little Kern Golden, and Paiute cutthroat trout, limit streambank disturbance from livestock to 10 percent of the occupied stream reach. Cooperate with State and Federal agencies to develop streambank disturbance standards for threatened, endangered, and sensitive species. Use the regional streambank assessment protocol. Implement corrective action where disturbance limits have been exceeded.
X		Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Determine if the age class, structural diversity, composition, and cover of riparian vegetation are within the range of natural variability for the vegetative community. If outside the range of natural variability, implement restoration actions that will result in an upward trend. Actions could include restoration of aspen or other riparian vegetation where conifer encroachment is identified as a problem.
	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	At either the landscape or project-scale, determine if the age class, structural diversity, composition, and cover of riparian vegetation are within the range of natural variability for the vegetative community. If conditions are outside the range of natural variability, consider implementing mitigation and/or restoration actions that will result in an upward trend. Actions could include restoration of aspen or other riparian vegetation where conifer encroachment is identified as a problem.
X		Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	For waters designated as “Water Quality Limited” (Clean Water Act Section 303(d)), implement appropriate State mandates for the water body, such as Total Maximum Daily Load (TMDL) protocols.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
	X	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	For waters designated as “Water Quality Limited” (Clean Water Act Section 303(d)), participate in the development of Total Maximum Daily Loads (TMDLs) and TMDL Implementation Plans. Execute applicable elements of completed TMDL Implementation Plans.
X		Ensure a renewable supply of large down logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the RCA.	Determine if the level of coarse large woody debris (CWD) is within the range of natural conditions in terms of frequency and distribution and is sufficient to sustain stream channel physical complexity and stability. If CWD levels are deficient, ensure proposed management activities, when appropriate, contribute to the recruitment of CWD. Burning prescriptions should be designed to retain CWD; however short-term reductions below either the soil quality standards or standards in species management plans may result from prescribed burning within strategically placed treatment areas or the urban wildland intermix zone.
	X	Ensure a renewable supply of large down logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the RCA.	Determine if the level of coarse large woody debris (CWD) is within the range of natural variability in terms of frequency and distribution and is sufficient to sustain stream channel physical complexity and stability. Ensure proposed management activities move conditions toward the range of natural variability.
X	Covered by another standard and guideline	Ensure a renewable supply of large down logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the RCA.	In plantations within RCAs or CARs, determine if the plantation will be able to provide a sufficient supply of standing trees suitable for large wood recruitment. If there is not sufficient wood for recruitment, develop a restoration program that will provide standing trees of the appropriate size in the RCA or CAR. In developing the restoration program, ensure that proposed activities are consistent with the riparian conservation objectives.
X	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	Cooperate with Federal, Tribal, State and local governments to secure in stream flows needed to maintain, recover, and restore riparian resources, channel conditions, and aquatic habitat. Maintain in stream flows to protect aquatic systems to which species are uniquely adapted. Minimize the effects of stream diversions or other flow modifications from hydroelectric projects on threatened, endangered, and sensitive species.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	Covered by existing law, regulation, or direction	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	During relicensing of Federal Energy Regulatory Commission (FERC) hydroelectric projects, evaluate modifications by the project to the natural hydrograph. Determine and recommend in stream flow requirements and habitat conditions that maintain, enhance, or restore all life stages of native aquatic species, and that maintain or restore riparian resources, channel integrity, and fish passage. Provide written and timely license conditions to FERC. Coordinate relicensing projects with the appropriate State and Federal agencies.
X	X	Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.	For exempt hydroelectric facilities on national forest lands, ensure that special use permit language provides adequate in stream flow requirements to maintain, restore, or recover favorable ecological conditions for local riparian- and aquatic-dependent species.
X		Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Within CARs, in occupied habitat or “essential habitat “ as identified in conservation assessments for threatened, endangered, or sensitive species, evaluate the appropriate role, timing, and extent of prescribed fire. Avoid direct lighting within riparian vegetation; prescribed fires may back into riparian vegetation areas. Develop mitigation measures to <u>avoid</u> impacts to these species whenever ground disturbing equipment is used.
	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Within CARs, in occupied habitat or “essential habitat “ as identified in conservation assessments for threatened, endangered, or sensitive species, evaluate the appropriate role, timing, and extent of prescribed fire. Avoid direct lighting within riparian vegetation; prescribed fires may back into riparian vegetation areas. Develop mitigation measures to <u>minimize</u> impacts to these species whenever ground disturbing equipment is used.
X	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Use screening devices for water drafting pumps. (Fire suppression activities are exempt during initial attack.) Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	Covered by existing law, regulation, or direction	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Conduct project-specific cumulative watershed effects analysis following Regional procedures or other appropriate scientific methodology to meet NEPA requirements.
X	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Design prescribed fire treatments to minimize disturbance of ground cover and riparian vegetation in RCAs. In burn plans for project areas that include, or are adjacent to RCAs, identify mitigation measures to minimize the spread of fire into riparian vegetation. In determining which mitigation measures to adopt, weigh the potential harm of mitigation measures, for example fire lines, against the risks and benefits of prescribed fire entering riparian vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could be damaging to habitat or long-term function of the riparian community.
X	Covered by other standards and guidelines	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Where catastrophic events, such as drought, fire, flooding, wind, or insect damage, result in degraded stand conditions, allow salvage harvesting and fuelwood cutting in RCAs and CARs consistent with the assessment of the RCOs for the area. Ensure that present and future woody debris needs are met.
X	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Post-wildfire management activities in RCAs and CARs should emphasize enhancing native vegetation cover, stabilizing channels by non-structural means, minimizing adverse effects from the existing road network, and carrying out activities identified by landscape analyses. Post-wildfire operations shall minimize the exposure of bare soil.
X		Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Allow mechanical ground disturbing fuels treatments, hazard tree removal, salvage harvest, or commercial fuelwood cutting within RCAs or CARs when the activity is consistent with RCOs. Projects providing for public health and safety, such as the felling of hazard trees or fuel reduction activities within the defense zone of the urban wildland intermix zones, are permitted. Utilize low ground pressure equipment, helicopters, over the snow logging, or other non-ground disturbing actions to operate off of existing roads when needed to achieve RCOs. Prior to removing trees within RCAs or CARs, determine if existing down wood is sufficient to sustain the stream channel physical complexity and stability required to maintain or enhance the aquatic- and riparian-dependent community. Ensure that existing roads, landings, and skid trails meet Best Management Practices. Minimize the construction of new skid trails or roads for access into RCAs for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Allow hazard tree removal within RCAs or CARs. Allow mechanical ground disturbing fuels treatments, salvage harvest, or commercial fuelwood cutting within RCAs or CARs when the activity is consistent with RCOs. Utilize low ground pressure equipment, helicopters, over the snow logging, or other non-ground disturbing actions to operate off of existing roads when needed to achieve RCOs. Ensure that existing roads, landings, and skid trails meet Best Management Practices. Minimize the construction of new skid trails or roads for access into RCAs for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.
X	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	During fire suppression activities, consider impacts to aquatic- and riparian-dependent resources. Where possible, locate incident bases, camps, helibases, staging areas, helispots, and other centers for incident activities outside of RCAs or CARs. During presuppression planning, determine guidelines for suppression activities, including avoidance of potential adverse effects to aquatic- and riparian-dependent species as a goal.
X		Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Assess roads, trails, OHV trails and staging areas, developed recreation sites, dispersed campgrounds, special use permits, grazing permits, and day use sites during landscape analysis. Identify conditions that degrade water quality or habitat for aquatic- and riparian-dependent species. At the project level, determine if use is consistent with other standards and guidelines or desired conditions. If inconsistent, modify the use through redesign, rehabilitation, relocation, closure, or re-directing the use to a more suitable location.
	X	Ensure management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.	Identify roads, trails, OHV trails and staging areas, developed recreation sites, dispersed campgrounds, special use permits, grazing permits, and day use sites during landscape analysis. Identify conditions that degrade water quality or habitat for aquatic and riparian-dependent species. At the project level, implement actions to ensure consistency with other standards and guidelines or desired conditions.
X	X	Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.	Assess the hydrologic function of meadow habitats and other special aquatic features during range management analysis. Ensure that characteristics of special features are, at a minimum, at Proper Functioning Condition, as defined in the appropriate Technical Reports (or their successor publications): (1) "Process for Assessing PFC" TR 1737-9 (1993), "PFC for Lotic Areas" USDI TR 1737-15 (1998) or (2) "PFC for Lentic Riparian-Wetland Areas" USDI TR 1737-11 (1994).
X		Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Implement soil quality standards for ground cover, compaction, soil displacement, and ground disturbance to minimize the risk of sediment delivery to aquatic systems from management activities. Ensure that management-related activities, including roads, skid trails, landings, trails, or other activities, do not result in detrimental soil compaction on more than 5 percent of the RCA or 10 percent of the area in CARs. Measure compaction using the procedures outlined in Appendix F of the FEIS.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	X	Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.	Recommend restoration practices for: (1) areas with compaction in excess of soil quality standards, (2) areas with lowered water tables, or (3) areas that are either actively down cutting or that have historic gullies. Identify other management practices, for example, road building, recreational use, grazing, and timber harvests, that may be contributing to the observed degradation.
X		Maintain or enhance the abundance, distribution, condition and ecological process needed to sustain species of special aquatic features such as meadows, lakes, ponds, bogs, fens, and wetlands.	Exclude livestock (including pack and saddle stock) from standing water and saturated soils in wet meadows and associated streams and springs occupied by Yosemite toads or identified as “essential habitat” in the conservation assessment for the Yosemite toad during the breeding and rearing season (as determined locally). If physical exclusion of livestock, such as fencing, is impractical, then exclude grazing from the entire meadow until the meadow has been dry for two weeks. Wet meadows are defined as relatively open meadows with moderate to low amounts of woody vegetation that have standing water on June 1st or for more than two weeks following snow melt. Determine if the meadow has standing water and saturated soils after June 1, if the meadows do not have these conditions for more than two weeks, grazing may be allowed only in those portions of the meadow where those conditions do not exist.  Within the historic range of the species, surveys of unoccupied suitable habitat to determine presence of Yosemite toads must be completed within 3 years of this Record of Decision. If surveys are not completed for any meadow, occupancy will be assumed and the above restrictions apply.
X		Maintain or enhance the abundance, distribution, condition and ecological process needed to sustain species of special aquatic features such as meadows, lakes, ponds, bogs, fens, and wetlands.	Monitor a sample of occupied Yosemite toad sites on a periodic basis to assess habitat condition and Yosemite toad occupancy and population dynamics. Based upon monitoring data, modify or suspend grazing if Yosemite toad conservation is not being accomplished. These grazing restrictions may also be modified to assess the effects of grazing intensity and frequency and habitat conditions on Yosemite toad site occupancy as a formal adaptive management study developed in cooperation with the PSW Research Station

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
	X	Maintain or enhance the abundance, distribution, condition and ecological process needed to sustain species of special aquatic features such as meadows, lakes, ponds, bogs, fens, and wetlands.	<p>Exclude livestock from standing water and saturated soils in wet meadows and associated streams and springs occupied by Yosemite toads or identified as “essential habitat” in the conservation assessment for the Yosemite toad during the breeding and rearing season (through metamorphosis). Specific dates will be determined locally. If physical exclusion of livestock is impractical, then exclude grazing from the entire meadow. Livestock does not include pack and saddle stock.</p> <p>Exclusions may be waived if an interdisciplinary team has developed a site-specific management plan to minimize impacts to the Yosemite toad and its habitat by managing the movement of stock around wet areas. Such plans are to include a requirement for systematically monitoring on an annual basis a sample of occupied Yosemite toad sites within the meadow to: (1) assess habitat conditions and (2) assess Yosemite toad occupancy and population dynamics. Every 3 years from the date of the plan, evaluate monitoring data and modify or suspend grazing if Yosemite toad conservation is not being accomplished. Plans must be approved by the authorized officer and incorporated into all allotment plans and/or special use permits governing use within the occupied habitat. Wet meadow habitat for Yosemite toads is defined as relatively open meadows with low to moderate amounts of woody vegetation that have standing water on June 1 or for more than 2 weeks following snow melt.</p> <p>Conduct surveys of unoccupied suitable habitat for the Yosemite toad within this species’ historic range to determine presence of Yosemite toads. Complete surveys of these areas within 2 years of the Record of Decision.</p>
X		Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.	Locate new facilities for gathering livestock and pack stock outside of meadows and riparian areas. During landscape analysis, evaluate and consider relocating existing livestock facilities outside of meadows and riparian areas. Prior to re-issuing grazing permits, assess the compatibility of livestock management facilities located in RCAs with riparian conservation objectives.
	X	Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.	Locate new facilities for gathering livestock and pack stock outside of meadows and riparian areas. During project-level planning, evaluate and consider relocating existing livestock facilities outside of meadows and riparian areas. Prior to re-issuing grazing permits, assess the compatibility of livestock management facilities located in RCAs with riparian conservation objectives.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X	Covered by other standards and guidelines	Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.	Reclaim abandoned mine sites that are degrading aquatic riparian and meadow ecosystems. First priority is to reclaim sites with hazardous or toxic substances located within CARs and RCAs.
X	Covered by other standards and guidelines	Ensure identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.	Identify existing and potential sources of sediment delivery to aquatic systems. Implement preventive and restoration measures, such as modifying management activities, increasing ground cover, reducing the extent of compacted surfaces, or revegetating disturbed sites to reduce or eliminate sediment delivery from these sources to aquatic systems.
<b>Roads</b>			
X	X	Watershed protection	To provide protection for watershed resources, the following standards should be met for new road construction reconstruction and relocation: (1) design new stream crossings and replacement stream crossings for at least the 100 year flood, including bedload and debris; (2) design stream crossings to minimize the diversion of streamflow out of the channel and down the road in the event of crossing failure; (3) design stream crossings to minimize disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface water; (4) avoid wetlands or minimize effects to natural flow patterns in wetlands; and (5) avoid road construction in meadows.
<b>Willow Flycatcher</b>			
X		Restore degraded meadow habitats so they are able to support willow flycatcher populations.	As part of landscape analysis, give priority to meadow restoration opportunities near or adjacent to willow flycatcher sites.
X	Covered by other standards and guidelines	Minimize Roads in willow flycatcher habitat.	To the extent possible, construct no new roads in potential willow flycatcher habitat (occupied willow flycatcher habitat, known willow flycatcher sites, emphasis habitat, and small, wet woody meadows).
X		Survey known willow flycatcher sites to determine occupancy.	Initiate a 4-year cycle for willow flycatcher surveys in <b>known willow flycatcher sites</b> . Conduct surveys to established protocols in all known sites the first year. The second year surveys will occur in those 82 known sites where willow flycatchers were not found. Surveys will not occur the third and fourth year. The survey cycle will then be repeated.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
	X	Survey known willow flycatcher sites to determine occupancy.	<p><b>For occupied and historically occupied sites:</b> Initiate a 4-year cycle for willow flycatcher surveys. Conduct surveys to established protocols in all sites the first year. The second year surveys will occur in those sites where willow flycatchers were not found. Surveys will not occur the third and fourth year. The survey cycle will then be repeated.</p> <p><b>For conditionally occupied sites:</b> Survey will occur in the first year. If willow flycatchers are found, these sites will be managed as occupied sites. If not found, these sites will be dropped from the survey cycle.</p>
X		Protect known willow flycatcher sites.	<p>If willow flycatcher(s) are detected through the above survey efforts, eliminate livestock grazing in the entire meadow (to the forested or other upland vegetation edge) beginning one calendar year after detection. Use permanent or electrical fencing or otherwise ensure livestock avoid these sites.</p> <p>If willow flycatcher(s) are not detected, then late season grazing may occur at utilization levels assessed according to habitat condition.</p> <p>Beginning in 2003, livestock will not be allowed to graze in meadows where willow flycatcher surveys have not been completed.</p>
	X	Protect occupied willow flycatcher sites.	In meadows with occupied willow flycatcher sites, only allow late-season grazing (after August 15) in the entire meadow. This requirement may be waived if an interdisciplinary team has developed a site-specific meadow management strategy. This strategy is to be developed and implemented in partnership with the affected grazing permittee. The strategy objectives must focus on protecting the nest site and associated habitat during the breeding season and the long-term sustainability of suitable habitat at breeding sites. It may use a mix of management tools, including grazing systems, structural improvements, and other exclusion by management techniques to protect willow flycatcher habitat.
	X	Restore degraded habitat in meadows with unoccupied willow flycatcher sites	For historically occupied willow flycatcher sites, assess willow flycatcher habitat suitability within the meadow. If habitat is degraded, develop restoration objectives and take appropriate actions (such as physical restoration of hydrological components, limiting or re-directing grazing activity, etc.) to move the meadow toward desired conditions.
X	X	Monitor willow flycatcher sites receiving late season grazing	In willow flycatcher sites receiving late-season grazing, monitor utilization annually using regional range analysis and planning guide. Monitor willow flycatcher habitat every 3 years using the following criteria: rooting depth cores for meadow condition, point intercepts for shrub foliar density, and strip transects for shrub recruitment and cover. Meadow condition assessments will be included in a GIS meadow coverage. If habitat conditions are not supporting the willow flycatcher or trend downward, modify or suspend grazing.
X		Protect known and occupied willow flycatcher sites receiving late season grazing	Grazing will not occur in known and occupied willow flycatcher sites during the willow flycatcher breeding season, which extends from June 1 to August 31, unless multi-year monitoring data support different dates for a particular breeding location.

## Aquatic/Riparian

S1	S2	Objective	Standard & Guideline
X		Survey potential willow flycatcher sites to determine occupancy and manage accordingly.	Within 3 years, survey emphasis habitat in active grazing allotments within five miles of the 82 known sites to determine willow flycatcher occupancy using established protocols. Emphasis habitat is defined as meadows greater than 15 acres in size with standing water on June 1 and a deciduous shrub component. (A) If willow flycatchers are detected, late season grazing will be implemented at utilization levels assessed according to habitat condition. Subsequent willow flycatcher surveys will follow the protocols for known willow flycatcher sites. Surveys will be conducted of emphasis habitat within 5 miles of these sites. (B) If no detections are made, the season-long grazing standard and guideline applies. Surveys will be repeated every three years. (C) If willow flycatcher surveys are not completed within 3 years, late season grazing will be implemented.
	X	Survey potential willow flycatcher sites to determine occupancy and manage accordingly.	As part of the project planning process, survey emphasis habitat within 5 miles of occupied willow flycatcher sites to determine willow flycatcher occupancy. Use established protocols to conduct these surveys. If these surveys determine willow flycatcher occupancy, add these to the database of occupied willow flycatcher sites and include them in the 4-year survey cycle of willow flycatcher sites described above.
X		Protect known willow flycatcher sites or survey them to determine occupancy and manage accordingly.	Evaluate site condition of known sites and emphasis habitat. Those sites that no longer contain standing water on June 1 and a deciduous shrub component may be removed from the conservation network.
	X	Protect known willow flycatcher sites or survey them to determine occupancy and manage accordingly.	Evaluate site condition of historically occupied willow flycatcher sites. Those sites that no longer contain standing water on June 1 and a deciduous shrub component and cannot be reasonably restored, may be removed from the conservation network.
X	Covered by existing law, regulation, or direction	Study grazing effects in known and occupied willow flycatcher sites and manage according to experimental protocol	The willow flycatcher grazing standards may be modified to assess the effects of grazing intensity and frequency on willow flycatcher site occupancy or demography, as a formal management study developed in cooperation with the Pacific Southwest Research Station.

## Home Range Core Area

S1	S2	Objective	Standard & Guideline
<b>California Spotted Owl</b>			
X	X	Designation of spotted owl home range core areas	Establish a home range core area surrounding each territorial spotted owl activity center detected after 1986. The core area amounts to 20% of the area described by adding one standard error to the mean breeding pair home range. The core area size is: 2400 acres on the Hat Creek and Eagle Lake Ranger Districts of the Lassen National Forest; 1000 acres on the Almanor Ranger District of the Lassen National Forest, Modoc, Inyo, Humbolt-Toiyabe, Plumas, Tahoe, Eldorado and Stanislaus National Forests; and 600 acres on the Sequoia and Sierra National Forests.
X		Designation of spotted owl home range core areas	The core area is delineated based upon aerial photography. Acreage for the entire core area must be identified on National Forest lands and be designed to encompass the best available spotted owl habitat in the closest proximity to the owl activity center (including the 300-acre PAC). The best available habitat should be selected to incorporate (where available): (1) two or more tree canopy layers; (2) trees in the dominant and codominant crown classes averaging at least 24 inches dbh, and (3) in descending order of priority, CWHR classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50% tree canopy cover (including hardwoods). Core areas should be delineated within 1.5 miles of the activity center.
	X	Designation of spotted owl home range core areas	The core area is delineated based upon aerial photography. Acreage for the entire core area must be identified on National Forest lands and be designed to encompass the best available spotted owl habitat in the closest proximity to the owl activity center (including the 300- acre PAC). Select the best available contiguous habitat blocks to incorporate (where available), in descending order of priority, CWHR classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50% tree canopy cover (including hardwoods). Core areas should be delineated within 1.5 miles of the activity center.
X	X	Designation of spotted owl home range core areas	For Forest Service activities planned adjacent to non-Forest Service lands, delineate a circular core area around activity centers identified on non-Forest Service lands. Designate any portion of the circular area occurring on National Forest System lands as a core area and identify the best available habitat as described above.
X		Fuel Treatments in Defense Zone of the Urban Wildland Intermix for Forested stands other than plantations	Design mechanical fuels treatments to remove the material necessary to achieve the following outcomes: Stands with <40% canopy cover: over 90 percent of the stand area, achieve an average height to live crown of 15 feet and an average flame length of four feet or less if the stand were to burn under 90th percentile fire weather conditions; Stands with 40 to 70% canopy cover: over 90 percent of the stand area, achieve an average height to live crown of 20 feet and an average flame length of four feet or less if the stand were to burn under 90th percentile fire weather conditions. Stands with >70% canopy cover: over 90 percent of the stand area, achieve an average height to live crown of 25 feet and an average flame length of four feet or less if the stand were to burn under 90th percentile fire weather conditions. Do not mechanically treat the remaining 10% of the stand area to enhance stand heterogeneity.

## Home Range Core Area

S1	S2	Objective	Standard & Guideline
California Spotted Owl			
X		Fuel Treatments in Defense Zone of the Urban Wildland Intermix for Forested stands other than plantations:	Achieve the above outcomes by thinning from below to remove surface and ladder fuels.
X		Fuel Treatments in PACs in the Defense Zone of the Urban Wildland Intermix	Mechanical treatments are prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. Allow prescribed burning within the 500-foot radius buffer. Prior to burning conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity. The remainder of the PAC may be mechanically treated to achieve the fuels reduction outcomes for General Forest outside Core Areas.
	X	Fuel Treatments in PACs in the Defense and Threat Zones of the Urban Wildland Intermix	Mechanical treatments are prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. Allow prescribed burning within the 500-foot radius buffer. Prior to burning conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), as needed to protect important elements of owl habitat. The remainder of the PAC may be mechanically treated using the forest-wide standards and guidelines for mechanical thinnings.

Forest Wide

S1	S2	Objective	Standard & Guideline
<b>Air Quality</b>			
X	Covered by existing law, regulation, or direction	Coordination and cooperation on air quality management.	Coordinate and cooperate on air quality management. Conduct prescribed burns when favorable smoke dispersal is forecast, especially away from sensitive or Class 1 areas. Use appropriate smoke modeling software to predict smoke dispersion. Minimize smoke emission by following Best Available Control Measures (BACMs). Avoid burning on high visitor days and notify public before burning. Comply with Title 17 and interim air quality policy, and local smoke management programs Memorandum of Understanding with CARB and Nevada Smoke Management Plan.
<b>Snags, Down Wood, Post-Fire Restoration, Salvage</b>			
X		Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity when conducting fuel treatment projects.	Within westside vegetation types, beginning with the largest down logs, sequentially retain pieces of down wood until an average of at least 10 to 20 tons per acre are retained over a treatment unit. Within eastside vegetation types retain at least 3 large down logs per acre. Do not retain pieces smaller than 12 inches in diameter at midpoint to meet this standard. Exempted in the Defense Zone of the Urban Wildland Intermix.
	X	Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity when conducting fuels and vegetation treatment projects.	Determine down woody material retention levels on an individual project basis, based on desired future condition. Emphasize retention of wood in the largest size classes and in decay classes 1,2, and 3. Consider the effects of follow-up prescribed fire in achieving desired down wood retention levels.
X	Covered by other standards and guidelines	Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity.	As special use permits for areas larger than 40 acres are issued or re-issued, consider site-specific measures to maintain coarse woody material. Permits for areas less than 40 acres are exempt from this standard and guideline.

Forest Wide

S1	S2	Objective	Standard & Guideline
X		Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity.	Following stand replacing events (wildfire, insects, and disease), conduct no salvage harvest within at least 10 percent or greater of the total area affected by the stand-replacing event. Retain stands in the unsalvaged acreage with California Wildlife Habitat Relationship size classes 6 or 5 (average dbh of overstory trees (snags) greater than 24 inches), Where 5 and 6 size class stands comprise less than 10 percent of the stand replacement area, retain additional acreage in stands that are size class 4 (average dbh of overstory trees (snags) 11 to 24 inches). This standard and guideline does not apply to the Defense Zone of the Urban Wildland Intermix.
	X	Design and undertake projects to manage long-term fuel profiles, restore habitat, and recover commercial value of some of the fire-killed timber following large wildland fires	<p>Determine the need for ecosystem restoration projects following large, catastrophic disturbance events (wildfire, drought, insect and disease infestation, windstorm, and other unforeseen events). Objectives for restoration projects may include limiting fuel loads over the long term, restoring habitat, and recovering economic value from dead and dying trees. In accomplishing restoration goals, long-term objectives are balanced with the objective of reducing hazardous fuel loads in the short-term.</p> <p>Salvage harvest of dead and dying trees may be conducted to recover the economic value of this material and to support objectives for reducing hazardous fuels, improving forest health, re-introducing fire, and/or speeding recovery of old forest conditions.</p> <p>Design projects to reduce potential soil erosion and the loss of soil productivity caused by loss of vegetation and ground cover. Examples are activities that would: (1) provide for adequate soil cover in the short term; (2) accelerate the dispersal of coarse woody debris; (3) reduce the potential impacts of the fire on water quality; and (4) carefully plan restoration/salvage activities to minimize additional short-term effects.</p> <p>Design projects to protect and maintain critical wildlife habitat. Examples are activities that would: (1) avoid areas where forest vegetation is still largely intact; (2) provide for sufficient quantities of large snags; (3) maintain existing large woody material as needed; (4) provide for additional large woody material and ground cover as needed; (5) accelerate development of mature forest habitat through reforestation and other cultural means; and (6) provide for a mix of seral stages over time.</p> <p>Design projects to manage the development of fuel profiles over time. Examples are activities that would: (1) remove sufficient standing and activity generated material to balance short-term and long-term surface fuel loading; and (2) protect remnant old forest structure (surviving large trees, snags, and large logs) from high severity re-burns or other severe disturbance events in the future.</p> <p>Design projects to recover the value of timber killed or severely injured by the disturbance. Examples are activities that would: (1) conduct timber salvage harvest in a timely manner to minimize value loss; (2) minimize harvest costs within site-specific resource constraints; and (3) remove material that local managers determine is not needed for long-term resource recovery needs.</p>

Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Design and undertake projects to manage long-term fuel profiles, restore habitat, and recover commercial value of some of the fire-killed timber following large wildland fires	In post fire restoration projects for large catastrophic fires (contiguous blocks of moderate to high fire lethality of 1,000 acres or more), generally do not conduct salvage harvest in at least 10 percent of the total area affected by fire.
	X	Remove and utilize dead and dying trees to recover value and support vegetation management objectives	Use the best available information on determining tree mortality for the purpose of salvage as developed by the Pacific Southwest Region Forest Health Protection Staff.
	X	Retain key habitat elements for old forest associated species	Outside of the defense zone of the wildland urban intermix zone, salvage harvests are prohibited in protected activity centers and known den sites unless a biological evaluation determines proposed harvest areas are rendered unsuitable for the purpose they were intended by a catastrophic stand-replacing event.
X		Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity.	Retain the following numbers of large snags after fuels treatments except where: (1) snag removal is needed to address imminent safety hazards and (2) snag levels are reduced as a result of incidental loss to prescribed fire. Retain 4 of the largest snags per acre on westside in mixed conifer and ponderosa pine, 6 per acre in red fir, and 3 per acre in eastside pine and mixed conifer, except in Defense Zone of the urban wildland intermix and within developed recreation sites. Evaluate snag density on a 40-acre basis.
X		Maintain and enhance critical wildlife habitat elements.	Where hardwood snags exist, retain 4 of the largest per acre, averaged over 10 acres. Where standing live trees lack dead branches, supplement wildlife need for dead material by retaining 6 of the largest snags per acre, where they exist.

Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Provide sufficient amounts of down woody material large clumps of snags, and legacy elements important to future old forests and biodiversity.	<p>Snag retention levels shall be determined on an individual project basis for vegetation treatments. Design projects to implement and sustain a generally continuous supply of snags and live decadent trees suitable for cavity nesting wildlife across a landscape. Retain some mid and large diameter live trees that are currently in decline, have substantial wood defect, or that have desirable characteristics (teakettle branches, large diameter broken top, large cavities in the bole) to serve as future replacement snags and to provide nesting structure. When determining snag retention levels, consider land allocation, desired condition, landscape position, and site conditions (such as riparian areas and ridge tops), avoiding uniformity across large areas.</p> <p>General guidelines for large-snag retention are as follows:</p> <ul style="list-style-type: none"> <li>▪ In westside mixed conifer and ponderosa pine types, four of the largest snags per acre should be retained.</li> <li>▪ In the red fir forest type, six of the largest snags per acre should be retained.</li> <li>▪ In eastside pine and eastside mixed conifer forest types, three of the largest snags per acre should be retained.</li> <li>▪ In westside hardwood ecosystems, four of the largest snags (hardwood or conifer) per acre should be retained.</li> <li>▪ Where standing live hardwood trees lack dead branches, six of the largest snags per acre should be retained, where they exist, to supplement wildlife needs for dead material.</li> <li>▪ Use snags larger than 15 inches dbh to meet this guideline. Snags should be clumped and distributed irregularly across the treatment units. Consider leaving fewer snags strategically located in treatment areas within the wildland urban intermix zone. While some snags will be lost due to hazard removal, or the effects of prescribed fire, consider these potential losses during project planning to achieve desired snag retention levels.</li> </ul>
Range			
X	X	Protect hardwood regeneration in grazing allotments	To protect hardwood regeneration in grazing allotments, allow livestock browse on no more than 20 percent of hardwood annual growth of seedlings and advanced regeneration. Alter utilization if hardwood ecosystem goals are not being met.
X	X	Protect hardwood regeneration in grazing allotments	In annual grasslands, grazing utilization will maintain a minimum of 60 percent cover. Where in satisfactory condition, manage for 700 pounds per acre residual dry matter (RDM) where annual precipitation is greater than 10 inches, and 400 pounds per acre where less than 10 inches. Where in unsatisfactory conditions, manage for 1000 pounds per acre RDM where precipitation is greater than 10 inches, and 700 pounds per acre where less than 10 inches. -- Lower grazing utilization if ecosystem goals are not being met. This standard and guideline only applies to grazing utilization.

Forest Wide

S1	S2	Objective	Standard & Guideline
X	X	Maintain suitable habitat for meadow-associated species by using appropriate grazing utilization standards.	Under season-long grazing, livestock utilization of grass and grass-like plants are limited to 30 percent (or minimum 6 inch stubble height) for meadows in early seral status and to a maximum of 40 percent (or minimum 4 inch stubble height) for meadows in late seral status. Ecological status on all key areas monitored for grazing utilization is to be determined prior to establishing utilization levels. Under intensive grazing systems (e.g., rest-rotation, deferred rotation) where meadows are receiving a period of rest, utilization levels can be higher if meadow is maintained in late seral status and meadow-associated sensitive species are not being impacted. Degraded meadows (e.g. early seral, with greater than 10 percent bare soil and active erosion) require total rest from grazing until they have recovered and have moved to mid or late seral status. Determination of ecological status is according to Regional ecological scorecards and range plant list. Every three to five years analyze meadow ecological status, if determined to be in a downward trend, modify or suspend grazing. Available range trend data and annual monitoring data for key areas within allotments will be included in a spatially explicit Geographic Information System (GIS) meadow coverage.
	X	Maintain suitable habitat for meadow-associated species by using appropriate grazing utilization standards.	Where professional judgment and quantifiable measurements find that current practices are maintaining range in good to excellent condition, the grazing utilization standards above may be modified to allow for the Forest Service, in partnership with selected permittees, to rigorously test and evaluate alternative standards.
X	Covered by existing law, regulation, or direction	Study grazing effects in known and occupied willow flycatcher sites and manage according to experimental protocol	Grazing standards specified above may be modified to assess the effects of grazing intensity and frequency on willow flycatcher site occupancy or demography, as a formal management study developed in cooperation with PSW.
X		Maintain and restore woody riparian vegetation in meadows and riparian areas, where they naturally occur (some meadows naturally lack woody vegetation). Ensure willow and aspen seedlings are able to be recruited into tree or shrub form	Browsing will not exceed 20 percent of the annual leader growth of mature riparian shrubs (e.g. willows and aspen) No more than 20 percent of the individual seedlings can be browsed. Remove livestock from any area of the allotment when browsing indicates a change in livestock preference from grazing herbaceous vegetation to browsing woody riparian vegetation. Herd sheep away from these plants at all times.

Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Maintain and restore woody riparian vegetation in meadows and riparian areas, where they naturally occur (some meadows naturally lack woody vegetation). Ensure willow and aspen seedlings are able to be recruited into tree or shrub form	Browsing will not exceed 20 percent of the annual leader growth of mature riparian shrubs and trees. No more than 20 percent of the individual seedlings can be browsed. Remove livestock from any area of the allotment when browsing indicates a change in livestock preference from grazing herbaceous vegetation to browsing woody riparian vegetation.
<b>Soils</b>			
X	Covered by existing law, regulation, or direction	Maintain long-term soil productivity; maintain and improve soil fertility, nutrient cycling, soil porosity, hydrologic function, and buffering capacity; minimize erosion.	Implement soil quality standards (as outlined in Appendix F). Attain standards for ground cover, compaction, and ground disturbance, so that the risk of sediment delivery to aquatic systems from management activities is minimized.
<b>Fire</b>			
X		Reduce size and severity of wildland fires.	Strategically place fuel treatments across the landscape to achieve fuel conditions that reduce the size and severity of wildfire. Maintain 30 to 40 percent of the landscape outside of the defense zone in a condition that meets fuels management objectives. Locate fuel treatments to interrupt wildfire spread and reduce fire severity, typically on the upper two-thirds of the slope, on south and west aspects, in mid- and lower-montane vegetation types. Treatments will occur in areas of high fire hazard and risk (see glossary for definition) in the following priority order (1) urban wildland intermix zone (2) old forest emphasis areas where threat from wildfire is greatest, (3) sensitive species habitats, and (4) general forest.
	X	Reduce size and severity of wildland fires.	Strategically place fuel treatments across the landscape to interrupt fire spread and achieve conditions that reduce the size and severity of wildfire. Strategically placed area treatments should be treated to meet desired surface, ladder, and crown fuel conditions. Site-specific prescriptions should be designed to reduce fire intensity, reduce rate of fire spread, reduce crown fire potential, and reduce mortality in dominant and co-dominant trees. Managers should consider such variables as the topographic location of the treatment area, slope steepness, predominant wind direction, and the amount and arrangement of surface, ladder, and crown fuels in developing fuels treatment prescriptions. The first priority for treatment prescriptions for strategically placed area treatments is reducing surface and ladder fuels.

Forest Wide

S1	S2	Objective	Standard & Guideline
X		Reduce size and severity of wildland fires.	<p>In plantations (timber strata classifications 0x, 1x, 2x, 3x), when applying the necessary silvicultural and fuels reduction treatments to accelerate development of old forest characteristics, increase stand heterogeneity, promote hardwoods, and reduce risk to loss from wildfire.</p> <p>Implement mechanical fuels treatments to remove material necessary to achieve the following outcomes from wildfire under the 90th percentile fire weather conditions: (1) wildfires burn with average flame lengths of 6 feet or less; and (2) rate of spread (ROS) is less than 50 percent of pre-treatment ROS and line production rate is doubled. Treatments should be effective for more than 5 years. Achieve these outcomes by reducing surface and ladder fuels and adjacent crown fuels.</p>
	X	Reduce size and severity of wildland fires.	<p>Where young plantations (generally Pacific Southwest Region size classes 0x, 1x, 2x) are included within area treatments, apply the necessary silvicultural and fuels reduction treatments to: (1) accelerate the development of key habitat and old forest characteristics, (2) increase stand heterogeneity, (3) promote hardwoods, and (4) reduce risk of loss to wildland fire. In size class 2x plantations, treatments should be designed to reduce fire intensity and rate of fire spread and reduce mortality to less than 50 percent of the stocking under 90<sup>th</sup> percentile conditions. Design fuel reduction projects to achieve the standards below. The standards are represented in a number of different ways to provide adequate flexibility in achieving the desired condition for treated areas.</p> <p><b>Plantations (0x-2x):</b></p> <ul style="list-style-type: none"> <li>▪ 3 inches and smaller surface fuel load: less than 5 tons per acre,</li> <li>▪ less than 0.5 foot fuel bed depth,</li> <li>▪ less than 200 trees per acre, and</li> <li>▪ less than 50 percent surface area with live fuels (brush)</li> </ul>
X	Covered by other standards and guidelines	Landscape fuel reduction strategy	<p>Incorporate fuel treatment and protection planning into reforestation plans. Ensure that tree stocking levels and silvicultural goals are consistent with fuel reduction objectives in plantations located within areas characterized by moderate to high fire risk and hazard.</p>
	X	Fuel Reduction Standards	<p>Design fuel reduction projects in conifer forest types (including 3x plantation types) to achieve the following standards within the treatment area:</p> <ul style="list-style-type: none"> <li>▪ an average of 4-foot flame length under 90<sup>th</sup> percentile fire weather conditions.</li> <li>▪ surface and ladder fuels removed as needed to meet design criteria of less than 20 percent mortality in dominant and co-dominant trees under 90<sup>th</sup> percentile weather and fire behavior conditions.</li> <li>▪ tree crowns thinned to meet design criteria of less than 20 percent probability of initiation of crown fire under 90<sup>th</sup> percentile weather conditions.</li> </ul>

Forest Wide

S1	S2	Objective	Standard & Guideline
X	Covered by other standards and guidelines	Management of uses other than fire hazard reduction	Incidental removal of vegetation and coarse woody debris for activities such as administration of special use permits, maintenance of recreation developments, roads, trails, and rights of way, approved resort expansion plans, and removal of trees that represent imminent safety hazards may deviate from these vegetation management standards.
X		Management of uses other than fire hazard reduction	Exceptions from the vegetation management standards and guidelines may also include restoration activities, such as aspen regeneration, sugar pine management, Sequoia regeneration.
	X	Management of uses other than fire hazard reduction	Standards and guidelines for crown closure and tree diameter apply only to thinning and regeneration harvest. Exceptions to the vegetation management standards and guidelines include responding to pest infestation outbreaks and restoration activities, such as aspen regeneration, hardwood regeneration, sugar pine management, Sequoia regeneration.
<b>Fisher</b>			
X	X	Minimize old forest habitat fragmentation.	Assess potential impacts of fragmentation on old forest species (particularly fisher and marten) in biological evaluations. Evaluate locations of new landings, staging areas, recreational developments, including trails and other disturbances.
X	X	Ensure old forest habitat is present in sufficient locations and connectivity to sustain viable populations of forest carnivores.	Project level and landscape analysis includes consideration of forested linkages that are interconnected via riparian areas and ridgetop saddles with canopy closure greater than 40 percent.
X	X	Provide opportunities for the expansion of the fisher population beyond the Southern Sierra Fisher Conservation Area	If fishers are detected outside of the Southern Sierra Fisher Conservation Area, evaluate the habitat conditions and take appropriate mitigation measures to retain suitable habitat within the estimated home range and institute project level surveys over the appropriate landscape area.
<b>Sierra Nevada Red Fox, Wolverine</b>			
X		Limit potential impacts to wolverines or Sierra Nevada red foxes	Upon a detection (photograph, track plate, or siting verified by a wildlife biologist), perform an analysis to determine if activities within 5 miles of the detection have a potential to impact wolverines or Sierra Nevada red fox. For a period of two years following the detection, restrict activities from January 1 to June 30 that are determined in the analysis to have an adverse impact.

Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Limit potential impacts to wolverines or Sierra Nevada red foxes	Detection of a wolverine or Sierra Nevada red fox will be validated by a forest carnivore specialist. When verified sightings occur, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. Implement a limited operating period from January 1 to June 30 to avoid adverse impacts to potential breeding. Evaluate activities for a 2-year period for detections not associated with a den site.
<b>Mining</b>			
X	X	To return specially managed land allocations disturbed by mining-related activities to near pre-mining conditions.	Ensure that plan of operations, reclamation plans, and reclamation bonds address the costs of removing facilities, equipment, and materials; isolating and neutralizing or removing toxic or potentially toxic materials; salvage and replacement of topsoil; seedbed preparation and revegetation to meet the objectives of the land allocation in which the operation is located.
X	X	To maintain and restore the ecological integrity of specially managed land allocations.	Ensure that mine owner and operators limit the construction of new roads, decommission unnecessary roads, and maintain needed roads consistent with Forest Service roads policy and the objectives of the designated area.
X	X	Return specially managed land allocations (riparian areas, critical aquatic refuges, aquatic diversity areas, emphasis watersheds, protected activity centers, and old forest emphasis areas) disturbed by mining-related activities to near pre-mining conditions.	Require reclamation to be conducted in a timely manner.
X	X	To maintain and restore the ecological integrity of specially managed land allocations.	Require inspection and monitoring of mining-related activities on a regular basis to ensure compliance with laws, regulations, and operating plans. The frequency of inspections and monitoring should be based on the potential severity of mining activity impacts.

Forest Wide

S1	S2	Objective	Standard & Guideline
X	X	Maintain the ecological integrity of specially managed land allocations (riparian areas, critical aquatic refuges, aquatic diversity areas, emphasis watersheds, protected activity centers, and old forest emphasis areas).	During mining related activities, limit the clearing of trees and other vegetation to the minimum necessary. Clearing of vegetation should be pertinent to the approved phase of mineral exploration and development.
X	X	To protect the ecological integrity of aquatic, riparian, and meadow ecosystems from unstable solid mine waste facilities and potentially toxic releases.	Require solid waste facilities (e.g. waste rock and tailings dumps) to be located outside of Riparian Areas. Where no reasonable alternative to locating these mine waste facilities in Riparian Areas exists, locate and design them with the goal of ensuring stability and preventing potentially toxic releases. - (1) Mine waste material should be analyzed using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics. (2) Mine waste facilities should be located and designed using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. (3) Reclamation and reclamation bonds should be sufficient to ensure long-term chemical and physical stability of mine waste facilities. (4) Waste and waste facilities should be monitored after operations have ceased to ensure that chemical and physical conditions are consistent with Aquatic Conservation Strategy goals.
X	X	To maintain the ecological integrity of aquatic, riparian, and meadow ecosystems.	Allow salable mineral activities such as sand and gravel mining and extraction within riparian areas only if measures that protect the integrity of aquatic, riparian, and meadow ecosystems are implemented.
<b>Oaks/Hardwoods</b>			
X	X	Maintain and enhance hardwood ecosystems	Manage hardwood ecosystems for a diversity of hardwood tree size classes within a stand, such that seedlings, saplings and pole size trees are in sufficient abundance to replace large trees that die.
X	X	Maintain and enhance critical wildlife habitat elements.	Retain the mix of mast producing species where they exist within a stand
X	X	Maintain or enhance distribution of hardwood ecosystems.	Retain all blue oak and valley oak trees except where National Forests have developed stand restoration strategies calling for tree removal, or where lost due to fire, or as needed for public health and safety.
X	X	Ensure and enhance oak regeneration.	Create openings where possible around existing California black and canyon live oaks where necessary to stimulate natural regeneration.

## Forest Wide

S1	S2	Objective	Standard & Guideline
X	X	Maintain and enhance biodiversity in lower westside ecosystems.	Consider risk of noxious weed spread, and minimize impacts to hardwood ecosystem structure and biodiversity in prescribed fire planning documents and in application of mechanical fuel treatments.
X	X	Maintain and enhance critical wildlife habitat elements.	During mechanical vegetation treatments, prescribed fire and salvage operations retain all large hardwood trees on the west side except where trees pose an immediate threat to human life or property, or where losses are incurred due to prescribed or wild fire. Large montane hardwoods are defined as having a dbh 12 inches or greater, blue oak woodland species are defined as having a dbh 8 inches or greater. Removal of larger hardwood trees (up to 20" dbh) would be permitted if research supports that it is necessary for maintenance and enhancement of the hardwood stand.
X	X	Maintain or enhance distribution of hardwood ecosystems.	Where commercial and noncommercial hardwood fuelwood and sawlog cutting in hardwood ecosystems are permitted, pre-mark or pre-cut hardwood trees to ensure stand goals are met. Retain a diverse distribution of stand cover classes.
X	X	Improve information base for hardwood species	During or prior to landscape analysis, spatially determine distributions of existing and potential natural hardwood ecosystems (FSH 2090.11). Assume pre-1850 disturbance levels for potential natural community distribution. Work with Province Ecologists or other qualified personnel to map and, or model hardwood ecosystems at the landscape scale (30,000-50,000 acres). Include the following items in the analysis; 1) compare distributions of potential natural and existing hardwood ecosystems, 2) Identify locations where existing is outside the natural range of variability for potential natural community, 3) identify hardwood restoration and enhancement projects.
X	X	Retain role of hardwoods in nutrient cycling and soil building	Include hardwoods in stand exams. Encourage hardwoods in plantations. Promote hardwoods after stand replacing events. Buffer around existing hardwood trees by not planting conifer trees within 20 feet from edge of hardwood crown canopy.
<b>Old Forest Ecosystems and Associated Species</b>			
X		Promote habitat connectivity in areas of mixed ownership	During landscape analysis, identify and prioritize areas for acquisition, exchange or conservation easements to enhance connectivity of habitat for old forest associated species.
	X	Promote habitat connectivity in areas of mixed ownership	During landscape analysis, identify areas for acquisition, exchange or conservation easements to enhance connectivity of habitat for old forest associated species.
X	X	Remove hazard trees to provide for public and employee safety.	Along maintenance level roads 3, 4, and 5 and within or immediately adjacent to (tree falling distance) administrative sites, hazard trees may be felled and removed. Along maintenance level 1 and 2 roads hazard trees will be reviewed by an appropriate resource specialist before felling. Trees that are needed to meet CWD will be left.

Forest Wide

S1	S2	Objective	Standard & Guideline
X	X	Retain and restore habitat connectivity to facilitate movement of fishers and other old forest associated species.	Assess the potential impact of projects on the connectivity of habitat for old-forest associated species.
<b>California Spotted Owl</b>			
X		Consistent methodology for determining canopy cover	Aerial photography interpretation serves as the basis for determining canopy cover associated with stand retention guidelines for vegetation treatments and serves as the basis against which other methods must be calibrated. Since canopy cover is difficult to estimate with precision, monitoring the implementation of canopy cover standards using stand measurements must anticipate a degree of variation from the standard. Variation is acceptable provided that treatments have been planned and implemented using reasonable methods for estimating pre-treatment and projecting post-treatment canopy cover. Pre- and post- treatment canopy cover estimates from the ground should attempt to exclude trees less than 6 inches dbh since these trees contribute little to useable canopy cover for spotted owls but may substantially contribute to ladder fuels. Canopy cover estimates may be averaged over a treatment area up to 20-40 acres in size unless treated stands are smaller.
X		To limit the extent of stand structural changes from mechanical treatments	The structural change to treatment acres by mechanical methods is limited to one per decade. Treatments should be designed to be effective for at least 10 years. When subsequent entries within 10 years are needed to reduce surface fuels, prescribed fire is the preferred method. When burning opportunities are limited, mechanical treatments such as mastication and piling, are allowed.
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	Retain snags 15 inches dbh or greater except (A) for imminent hazards to human safety, (B) following stand replacing events removal of dead trees may occur to the extent that project analysis recommends removal to benefit landscape conditions for old forest structure and function. Analysis should determine varying snag retention levels considering landscape position and site conditions (riparian areas, ridgetops, etc), avoiding uniformity across large areas.
	X	Fuel and Vegetation Treatments in Old Forest Emphasis Areas	Consider ecological benefits of retaining small patches of mortality in old forest emphasis areas.
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix).	Identify stands greater than 1 acre in size classified as CWHR 5M, 5D, and 6.

Forest Wide

S1	S2	Objective	Standard & Guideline
<b>TEPS Plants</b>			
X	Covered by existing law, regulation, or direction	Maintain long-term viability of threatened, endangered, proposed and sensitive (TEPS) plant species and ensure management activities do not contribute to population declines.	Conduct field surveys for TEPS plant species early enough in the project planning process that the project can be designed to conserve or enhance TEPS plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.11). If additional field surveys are to be conducted as part of project implementation, survey results must be documented in the project file.
X	Covered by existing law, regulation, or direction	Maintain long-term viability of threatened, endangered, proposed and sensitive (TEPS) plant species and ensure management activities do not contribute to population declines.	Minimize or eliminate direct and indirect impacts from management activities to TEPS plants unless project is designed to maintain or improve populations. (FSM 2670)
X	Covered by existing law, regulation, or direction	To conserve the native biological diversity and adaptive capacity of plant communities, species, and populations, and to avoid displacing native plant species.	All projects involving revegetation (planting or seeding) will adhere to the Regional Native Plant Policy.
X	X	To ensure the persistence of bogs and fens, especially those containing Sphagnum moss, and the rare plants and bryophytes that are associated with these habitats.	Prohibit or mitigate ground-disturbing activities that negatively affect hydrologic processes that maintain water flow, water quality, or temperature critical to sustaining bog and fen ecosystems and the plant species dependent on them. During project analysis, survey, map and protect bogs and fens from activities such as trampling by livestock, pack stock, humans, and from wheeled vehicles. Criteria for defining bogs and fens include, but are not limited to: presence of sphagnum moss ( <i>Sphagnum</i> spp.), presence of mosses in the genus <i>Meesia</i> , presence of sundew ( <i>Drosera</i> spp.). Complete initial inventories of fens and bogs within active grazing allotments prior to re-issuing permits.
<b>Roads</b>			
X		Minimize resource impacts from wheeled off-highway vehicle use.	Wheeled vehicle travel is allowed on designated routes, trails, and OHV areas. Unless otherwise restricted by current forest plans or other specific area standards and guidelines, cross-country travel by over-snow vehicles would continue. Each National Forest may designate where OHV use will occur.

Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Minimize resource impacts from wheeled off-highway vehicle use.	Prohibit wheeled vehicle travel off of designated routes, trails, and limited OHV use areas. Unless otherwise restricted by current forest plans or other specific area standards and guidelines, cross-country travel by over-snow vehicles would continue.
X	Covered by existing law, regulation, or direction		Landscape analysis will include an integrated interdisciplinary transportation analysis. The analysis process will follow the National Roads Analysis procedures. Unclassified road inventories will be completed by each National Forest within ten years.
<b>Vegetation Management</b>			
X		Retain legacy elements important to future old forests, and biodiversity.	When implementing vegetation and fuels treatments, retain all live conifer trees with a dbh of 30 inches or greater in westside forest types and 24 inches or greater in the eastside pine forest type. Retain montane hardwoods 12 inches dbh or greater within westside forest types. Occasional mortality of larger trees will occur, however prescribed burn prescriptions and techniques are designed to minimize the loss of large trees and down material.
	X	Maintain and develop old forest habitat conditions by leaving the largest trees on site	When implementing mechanical thinning treatments, design projects to retain all live conifers 30 inches dbh or larger. Retain montane hardwoods 12 inches dbh or greater within westside forest types. Exceptions are allowed for operability. These trees count as part of basal area retention.
	X	Maintain and develop old forest habitat conditions by leaving the largest trees on site.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Design projects to retain at least 40 percent of the existing basal area. The retained basal area should generally be comprised of the largest trees. This standard and guideline does not apply to the eastside pine type.
	X	Allow project designers to address and balance the need to provide and develop understory structure as an important old forest habitat component with the need to reduce ladder and crown fuels.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Where available, design projects to retain 5 percent or more of the total treatment area in lower layers composed of trees 6 to 24 inches dbh within the treatment unit. This standard and guideline does not apply to the eastside pine type.

## Forest Wide

S1	S2	Objective	Standard & Guideline
	X	Maintain high levels of canopy cover whenever it is possible to do so and still meet project objectives.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Where vegetative conditions permit, the goal is to design projects to retain 50 percent canopy cover after treatment within the treatment unit, except where site-specific project objectives cannot be met (for example, to achieve adequate height to live crown, provide sufficient spacing for equipment operation, minimize re-entry, or design cost efficient treatments). Where 50 percent canopy cover retention cannot be met, as described above, design projects to retain a minimum of 40 percent canopy cover within the treatment unit. This standard and guideline does not apply to the eastside pine type.
	X	Where canopy cover is at or near 40 percent, maintain canopy closure conditions suitable for dispersal and foraging for California spotted owls while also allowing for effective fuels treatments.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Where pre-treatment canopy cover is at or near 40 percent, remove only surface and ladder fuels to achieve project fuels objectives. This standard and guideline does not apply to the eastside pine type.
	X	Avoid large changes in canopy density.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Design projects to avoid reducing pre-existing canopy cover by more than 30 percent within the treatment unit. Percent is measured in absolute terms (for example, do not reduce 80 percent canopy closure to less than 50 percent.) This standard and guideline does not apply to the eastside pine type
	X	Maintain and develop old forest habitat conditions by leaving the largest trees on site.	For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones in the eastside pine type: Design projects to retain 30 percent of the existing basal area. The retained basal area to be generally comprised of the largest trees. Projects in the eastside pine type have no canopy cover retention standards and guidelines.
X		Reduce size and severity of wildland fires.	Mechanical fuel treatments in brush and shrub patches are designed to remove material necessary to achieve the following outcomes from wildfire under 90th percentile fire weather conditions: (1) wildfires burn with an average flame length of 8 feet or less; and (2) rate of spread (ROS) is less than 50 percent of pre-treatment ROS and line production rate is doubled. Treatments are effective for more than 5 years.
	X	Reduce size and severity of wildland fires.	Design mechanical treatments in brush and shrub patches to remove the material necessary to achieve the following outcomes from wildland fire under 90th percentile fire weather conditions: (1) wildland fires would burn with an average flame length of 4 feet or less and (2) fire line production rates would be doubled. Treatments should be effective for more than 5-10 years.
X	X	Maintain shade intolerant species component in westside forest types	Promote shade intolerant pines (sugar and Ponderosa) and hardwoods in westside forest types.

Forest Wide

S1	S2	Objective	Standard & Guideline
<b>Noxious Weeds</b>			
X	Covered by existing law, regulation, or direction	Emphasize Integrated Weed Management as a guiding process for weed control.	When planning weed control projects, follow Forest Manual direction on Integrated Weed Management (FSM 2080)
X	X	Work with partners to educate people so that individuals voluntarily take measures to avoid spreading weeds	Inform forest users, local agencies, special use permittees, groups, and organizations in communities near national forests about noxious weed prevention and management.
X	X	Increase cooperation and coordination in order to more effectively prevent and control infestations.	Work cooperatively with the State of California, State of Nevada and individual counties (e.g. Cooperative Weed Management Areas), to prevent the introduction and establishment of noxious weed infestations and to control existing infestations.
X	X	Consider weed risk, prevention, and treatment in all NEPA documents.	Conduct a noxious weed risk assessment to determine low, moderate, or high risk for weed spread for various types of management activities. Refer to Weed Prevention Practices in Regional Noxious Weed Management Strategy to develop mitigation measures for high and moderate risk activities.
X	X	Maintain close contact with tribes and knowledgeable Native American individuals during all stages of implementation of integrated weed management.	Consult with Native Americans to determine priority areas for prevention and control where traditional gathering areas are threatened by weed infestations.
X	X	Minimize the introduction and establishment of noxious weed infestations as a result of heavy equipment.	As prescribed in the project weed risk assessment, require off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free. Refer to Weed Prevention Practices in Regional Noxious Weed Management Strategy.

## Forest Wide

S1	S2	Objective	Standard & Guideline
X	X	Prevent or minimize the introduction and establishment of weeds as a result of pack or saddle stock and erosion control projects	Encourage use of certified weed free hay and straw. Cooperate in development of a certification program for weed free hay and straw. The program will be phased in as certified weed free hay and straw become available. This would apply to pack and saddle stock used by public, livestock permittees, outfitter guide permittees, and local, State, or Federal agencies.
X	X	Prevent the introduction and establishment of weeds as a result of ongoing management activities (e.g. road and campground maintenance, facility maintenance)	Minimize weed spread by incorporating prevention and control measures into any ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds. Refer to Weed Prevention Practices in Regional Noxious Weed Strategy.
X	X	Prevent the introduction and establishment of weeds as a result of Forest Service-issued permits.	Include weed prevention measures, as necessary, when amending and/or reissuing permits (including but not limited to livestock grazing, special uses, pack stock operators).
X	X	Prevent the introduction and establishment of weeds as a result of mining-related activities	Include weed prevention and treatment in plans of operation and reclamation. (Refer to Weed Prevention Practices in Regional Noxious Weed Strategy). As appropriate, monitor for weeds for 2 years after project implementation before assuming no introductions have occurred.
X	X	Ensure fire suppression and burned area emergency rehabilitation (BAER) activities do not contribute to weed spread.	Burned area emergency rehabilitation team conducts a risk analysis for weed spread as a result of BAER treatments. Monitor and treat weed infestations for 3 years after fire.
X	X	Ensure adequate data are available on the distribution and rate of spread of noxious weed species.	Complete noxious weed inventories based upon a regional protocol within 3 years of the signing of this record of decision. Review and update on an annual basis.
X	X	Contain and control established infestations.	As outlined in the Regional Noxious Weed Strategy, when new, small infestations are detected, emphasize eradication while providing for the safety of field personnel.

Forest Wide

S1	S2	Objective	Standard & Guideline
X	Covered by existing law, regulation, or direction	Restore ecological function where noxious weeds have resulted in degraded ecosystems	During landscape analysis or project level planning, consider restoration and revegetation of damaged ecosystems to minimize reinfestation. -- Adhere to the Regional Native Plant Policy for revegetation.
X	X	Ensure sufficient data is available to evaluate management actions, to assess progress towards management objectives and desired conditions.	Routinely monitor noxious weed control projects to determine success and evaluate need for follow-up treatments or different control methods. Monitor known infestations as appropriate to determine changes in density and rate of spread. Conduct follow-up inspections of ground disturbing activities to ensure compliance with the Regional noxious weed management strategy.
<b>Willow Flycatcher</b>			
X	X	Reduce the likelihood of willow flycatcher brood parasitism by brown-headed cowbirds.	Evaluate proposals for new concentrated stock areas (e.g. livestock handling and management facilities, pack stations, equestrian stations, and corrals) within five miles of occupied willow flycatcher habitat. Utilize a biological evaluation containing a broad landscape level analysis to determine if such action will increase brood parasitism pressure by brown-headed cowbird.

## Forest Carnivore Den Sites

S1	S2	Objective	Standard & Guideline
Fisher			
X	X	Protect all known fisher natal (birthing) and maternal (kit rearing) den sites, and any located in the future	Protect verified fisher birthing and kit rearing dens from March 1 - June 30 with 700-acre buffers consisting of the highest quality habitat (CWHR size 4 or greater and canopy closure greater than 60%) in a compact arrangement surrounding the den site in the largest, most contiguous blocks available.
X		Protect all known fisher natal (birthing) and maternal (kit rearing) den sites, and any located in the future	Protect verified den sites with a limited operating period (LOP) for all new projects as long as habitat remains suitable, or until another regionally approved management strategy is implemented.
	X	Protect all known fisher natal (birthing) and maternal (kit rearing) den sites, and any located in the future	Protect verified den sites with a limited operating period (LOP) for vegetation treatments as long as habitat remains suitable, or until another regionally approved management strategy is implemented.
X	X	Protect all known fisher natal (birthing) and maternal (kit rearing) den sites, and any located in the future	The LOP may be waived for new individual projects of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.
X	Covered by existing law, regulation, or direction	Protect all known fisher natal (birthing) and maternal (kit rearing) den sites, and any located in the future	Evaluate the appropriateness of LOPs for existing uses in fisher den site buffers during environmental analysis.
X	X	Protect habitat quality in fisher den site buffers	Where den site buffers occur in the urban wildland intermix, avoid fuel treatments to the extent possible. If areas within den site buffers must be treated to achieve fuels objectives, limit treatments to mechanical clearing of fuels. Treat ladder and surface fuels over 85% of the treatment unit to achieve fuels objectives. Use piling or mastication to treat surface fuels during initial treatment. Burning of piled debris is allowed. Prescribed fire may be used as a fuel treatment activity if no other reasonable alternative exists.
X		Protect den sites from disturbance due to roads, trails, off highway vehicle routes, recreational developments, and other developments	Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb den sites. Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance)

## Forest Carnivore Den Sites

S1	S2	Objective	Standard & Guideline
	X	Protect den sites from disturbance due to roads, trails, off highway vehicle routes, recreational developments, and other developments	Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance). Evaluate proposals for roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb den sites.
<b>Marten</b>			
X	X	Designate marten den sites	Marten den sites are 100-acre buffers consisting of the highest quality habitat in a compact arrangement surrounding the den site. CWHR types 6, 5D, 5M, 4D, and 4M in descending order of priority, based on availability, provide highest quality habitat for the marten.
X		Protect known marten natal (birthing) and maternal (kit rearing) den sites, and any located in the future through research or monitoring.	Protect marten den site buffers from disturbance with a limited operating period (LOP) from May 1 through July 31 for all new projects as long as habitat remains suitable or until another regionally-approved management strategy is implemented.
	X	Protect known marten natal (birthing) and maternal (kit rearing) den sites, and any located in the future through research or monitoring.	Protect marten den site buffers from disturbance from vegetation treatments with a limited operating period (LOP) from May 1 through July 31 as long as habitat remains suitable or until another regionally-approved management strategy is implemented.  The LOP may be waived for new individual projects of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.
X		Protect den sites from disturbance due to roads, trails, off highway vehicle routes, recreational developments, and other developments	Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb den sites. Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance).
	X	Protect den sites from disturbance due to roads, trails, off highway vehicle routes, recreational developments, and other developments	Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance). Evaluate proposals for roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb den sites.

## General Forest

S1	S2	Objective	Standard & Guideline
<b>California Spotted Owl</b>			
X		Fuel Treatments in General Forest (outside spotted owl PACs and home range core areas) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Design mechanical fuels treatments to remove the material necessary to achieve the following outcomes: Stands with <40% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 15 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions; Stands with 40 to 70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 20 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions Stands with >70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 25 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions. Do not mechanically treat the remaining 25% of the stand area to contribute to stand heterogeneity.
X		Fuel Treatments in General Forest (outside spotted owl PACs and home range core areas) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Design prescribed fire treatments to achieve or approach the above fuels outcomes following up to two burns per decade and four burns over 20 years.
X		Fuel Treatments in General Forest (outside spotted owl PACs and home range core areas) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Design mechanical treatments to achieve the above fuels outcomes through understory thinning to remove surface and ladder fuels up to 20 inches in dbh. Apply treatments to increase stand heterogeneity. Canopy cover reductions may be needed to meet fuels objectives, but will not exceed a 20 percent reduction (i.e. 70% to 50%). Treatments will focus on removal of suppressed and intermediate conifer trees. When conducting treatments in dense stands with uniform tree size and spacing, introduce heterogeneity into the stand by creating small, irregularly spaced openings (typically less than one acre).
X		Fuel Treatments in General Forest (outside spotted owl PACs and home range core areas) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Within westside vegetation types where pre-treatment canopy cover is between 50-59%, design fuel treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 and 50 percent canopy cover during fuels treatments except where this occurs from removal of primarily shade tolerant trees less than six inches in dbh. In the westside vegetation types, retain a minimum 50% canopy cover. In the eastside pine vegetation type, retain a minimum of 30 percent canopy cover.

Urban Wildland Intermix Threat Zone

S1	S2	Objective	Standard & Guideline
<b>California Spotted Owl</b>			
X		Fuel Treatments in Threat Zone of the Urban Wildland Intermix (outside spotted owl PACs) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Design mechanical fuels treatments to remove material necessary to achieve the following outcomes: Stands with <40% canopy cover: over 85 percent of the stand area, achieve an average height to live crown of 15 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions; Stands with 40 to 70% canopy cover: over 85 percent of the stand area, achieve an average height to live crown of 20 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions Stands with >70% canopy cover: over 85 percent of the stand area, achieve an average height to live crown of 25 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions. Do not mechanically treat the remaining 15% of the stand area to contribute to stand heterogeneity.
X		Fuel Treatments in Threat Zone of the Urban Wildland Intermix (outside spotted owl PACs) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Design prescribed fire treatments to achieve the above fuels outcomes following up to two burns per decade and four burns over 20 years.
X		Fuel Treatments in Threat Zone of the Urban Wildland Intermix (outside spotted owl PACs) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Achieve the above outcomes by understory thinning to remove surface and ladder fuels up to 20 inches in dbh. Canopy cover reductions may be needed to meet fuels objectives, but will not exceed a 20 percent reduction (i.e. 70% - 50%). Treatments will focus on removal of suppressed and intermediate trees. Increase stand heterogeneity through use of non-uniform treatments. When conducting fuels treatments in dense stands with uniform tree size and spacing, introduce heterogeneity into the stand by creating small, irregularly spaced openings (typically less than one acre in size).
X		Fuel Treatments in Threat Zone of the Urban Wildland Intermix (outside spotted owl PACs) for Forested stands other than plantations and CWHR 5M, 5D and 6:	In westside forest types, where pre-treatment canopy cover is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 and 50 percent canopy cover except where this occurs from removal of primarily shade tolerant trees less than six inches in dbh. In the eastside pine vegetation type, retain a minimum of 30 percent canopy cover.
X		Fuel Treatments in Threat Zone of the Urban Wildland Intermix (outside spotted owl PACs) for Forested stands other than plantations and CWHR 5M, 5D and 6:	Conduct an analysis of suitable owl habitat around activity centers before applying the mechanical treatments described above. If sufficient suitable owl habitat exists within 1½ miles of the activity center to satisfy the home range core area delineation standards and guidelines, the area outside the PAC may be treated as described above. The mechanical treatments described above may not be applied within 1½ miles of the nest site or activity center where the requirements of a home range core area cannot be met; however, these areas may be treated according to the mechanical fuel treatment standards and guidelines for old forest emphasis areas. Document this site-specific analysis in the environmental analysis.

## Old Forest Emphasis and Owl Home Range Core Areas

S1	S2	Objective	Standard & Guideline
<b>California Spotted Owl</b>			
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	<p>Design mechanical fuels treatments to remove material necessary to achieve the following outcomes:</p> <ul style="list-style-type: none"> <li>▪ Stands with &lt;40% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 15 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> <li>▪ Stands with 40 to 70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 20 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> <li>▪ Stands with &gt;70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 25 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> </ul> <p>To enhance stand heterogeneity and maintain intact biological processes, particularly soil biota that may be effected by mechanical treatments, do not mechanically treat the remaining 25% of the stand area.</p>
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	<p>Where mechanical treatments are necessary, design treatments to achieve or approach the fuels outcomes described above through the reduction of surface and ladder fuels less than 12 inches in dbh. Apply treatments to increase stand heterogeneity. Incidental felling of trees 12 to 20" dbh is permitted where required for operability. Retain felled trees on the ground where needed to achieve down material standards of 20 tons per acre in logs greater than 12 inches dbh.</p>
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	<p>Give priority to restoration of historic fire return intervals where possible. Emphasize restoration of fire to pine and mixed-conifer forests. In mixed-conifer forests, fire return intervals vary by aspect and topographic position, with most frequent burning on south and west facing aspects.</p>
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix)	<p>Design prescribed fire treatments to achieve the following fuels outcomes in RX21C following up to two burns per decade and four burns over 20 years.</p>
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	<p>Emphasize treatments in low elevation high hazard mixed conifer, eastside pine and mixed-conifer, and pine types on the upper two-thirds of south and west facing slopes near roads. Mechanical fuels treatments will be utilized where excessive smoke is a concern, the risk of escape of prescribed fire is substantial or in stands with excessive surface and ladder fuels in high fuel hazard and risk areas that preclude the use of prescribed fire alone without risk to loss of canopy structure.</p>

## Old Forest Emphasis and Owl Home Range Core Areas

S1	S2	Objective	Standard & Guideline
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	Do not reduce canopy cover in dominant and co-dominant trees by more than 10 percent across the patch or stand following mechanical vegetation treatments (e.g. 80% to 70%, or 65% to 55%).
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	Within westside vegetation types where pre-treatment canopy cover is between 50-59%, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 and 50 percent canopy cover except where this occurs from removal of primarily shade tolerant trees less than six inches in dbh. In the eastside pine vegetation type, retain a minimum of 30 percent canopy cover.
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	Strategically placed area fuel treatments may be needed in old forest emphasis areas to minimize risks to human life and property, sensitive resources, or the old forest emphasis area from loss to wildfire. When treatments are necessary, prescribed fire is the first priority for achieving the fuels objectives. When prescribed fire will not achieve fuels objectives, use mechanical thinning as described in the preceding paragraphs to achieve the fuels objectives. When this treatment will not achieve the fuels objectives due to existing stand conditions, mechanical thinning of trees up to 20 inches dbh and canopy reductions of up to 20 percent (refer to mechanical treatment standards and guidelines for the threat zone) may be conducted in CWHR 4M and 4D stands to meet fuels reduction objectives.
X		Fuel Treatments in Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas	Conduct an analysis of suitable owl habitat before applying mechanical treatments that remove trees up to 20 inches dbh and reduce canopy cover up to 20 percent in old forest emphasis areas. This type of treatment may only be used when sufficient suitable owl habitat exists within 1½ miles of a California spotted owl nest site or activity center to satisfy the requirements of a home range core area, as described in the standards and guidelines for delineating California spotted owl home range core areas. This type of treatment may not be applied within 1½ miles of the nest site or activity center if the requirements for delineating a home range core area cannot be met. Document this site-specific analysis in the environmental analysis.

## Old Forest Patches or Stands

S1	S2	Objective	Standard & Guideline
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix)	<p>Design mechanical fuels treatments to remove the material necessary to achieve the following outcomes:</p> <ul style="list-style-type: none"> <li>▪ Stands with &lt;40% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 15 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> <li>▪ Stands with 40 to 70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 20 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> <li>▪ Stands with &gt;70% canopy cover: over 75 percent of the stand area, achieve an average height to live crown of 25 feet and an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions.</li> </ul> <p>Do not mechanically treat the remaining 25% of the stand to enhance stand heterogeneity and maintain intact biological processes, particularly soil biota that may be effected by mechanical treatments.</p>
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix)	Design mechanical treatments to achieve or approach the above fuels outcomes through the removal of surface and ladder fuels less than 12 inches in dbh. Incidental felling of trees 12 to 20 inches dbh is permitted only where required for operability. Retain felled trees on the ground where needed to achieve down material standards of 10-20 tons per acre in logs greater than 12 inches diameter at the midpoint.
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix)	Do not reduce canopy cover by more than 10 percent in the dominant or co-dominant trees across the patch or stand following vegetation treatments (e.g. 80% to 70%, or 65% to 55%).
X		Fuel Treatments in Forested patches or stands (greater than one acre in size) identified as CWHR 5M, 5D and 6 (outside the Defense Zone of the Urban Intermix)	In westside forest types, where pre-treatment canopy cover is between 50-59%, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 and 50 percent canopy cover except where this occurs from removal of trees less than six inches in dbh. In the eastside pine vegetation type, retain a minimum of 30 percent canopy cover.

## PACs, Den Sites

S1	S2	Objective	Standard & Guideline
<b>Owls, Goshawk</b>			
X		Prevent disturbance of PAC's	Evaluate proposals for new roads, trails, OHV routes, recreation and other developments for their potential to disturb nesting or denning sites. Mitigate impacts where there is evidence of disturbance to the nest or den site from existing recreation, OHV routes, trail, and road uses (including road maintenance).
	X	Prevent disturbance of PAC's	Mitigate impacts where there is documented evidence of disturbance to the nest site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance). Evaluate proposals for roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb nest sites.
<b>Goshawk</b>			
X	X	Designation of Northern Goshawk Protected Activity Centers (PACs)	Delineate northern goshawk protected activity centers (PACs) surrounding all known and newly discovered breeding territories detected on National Forest System lands. Northern goshawk PACs are designated based upon the latest documented nest site and the location(s) of alternate nests, or the location of territorial adult birds or recently fledged juvenile goshawks during the fledgling dependency period if the actual nest site is not located.
X	X	Designation of Northern Goshawk Protected Activity Centers (PACs)	PACs are delineated to include the known and suspected nest stands, and encompass the best available 200-acres of forested habitat in the largest contiguous patches that are possible based on aerial photography. When suitable nesting habitat occurs in small patches, PACs can be defined as multiple blocks in the largest patches available within 0.5 miles of one another. The best available forested stands for PACs should be selected to incorporate where available: (1) trees in the dominant and co-dominant crown classes averaging at least 24 inches dbh, and (2) at least 70% tree canopy cover in westside conifer and eastside mixed conifer forests, and at least 60% tree canopy cover in eastside pine forests. Non-forest vegetation (e.g., brush, meadows, etc.) should not be counted as part of the 200 acres.
X	X	Designation of Northern Goshawk Protected Activity Centers (PACs)	When activities are planned within or adjacent to a PAC, conduct surveys to establish or confirm the location of the nest or activity center, if uncertain.
X	X	Designation of Northern Goshawk Protected Activity Centers (PACs)	When activities are planned adjacent to non-Forest Service lands, check available databases for the presence of nearby goshawk activity centers. Delineate a 200-acre circular area centered around the activity center. Designate and manage any region of the circular 200-acre area occurring on National Forest lands as a goshawk PAC.
X		Designation of Northern Goshawk Protected Activity Centers (PACs)	Review boundaries of PACs and make adjustments as necessary to better meet these criteria as additional nest location and habitat data become available. PACs are maintained regardless of goshawk occupancy status unless habitat is rendered unsuitable by a catastrophic stand-replacing event and protocol surveys confirm non-occupancy.
	X	Designation of Northern Goshawk Protected Activity Centers (PACs)	Review boundaries of PACs and make adjustments as necessary to better meet these criteria as additional nest location and habitat data become available. PACs are maintained regardless of goshawk occupancy status unless surveys conducted to protocol in remaining suitable habitat following stand-replacing events confirm non-occupancy.

## PACs, Den Sites

S1	S2	Objective	Standard & Guideline
X		Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	Within Protected Activity Centers outside of the Defense Zone of the Urban Wildland Intermix, limit stand-altering activities in northern goshawk PACs to reduction of surface and ladder fuels through prescribed fire treatments. In forested stands with overstory trees 11 inches in dbh and greater, design prescribed fire treatments that have an average flame length of 4 feet. Conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh) as necessary within a one to two acre area surrounding known nest trees prior to burning to protect the nest tree and the trees in its immediate vicinity.
	X	Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	In PACs located outside the defense zone of the wildland urban intermix zone use prescribed fire treatments to address fuels and forest health issues with the following exception for threat zones only: Mechanical treatments are allowed where prescribed fire is not feasible, and where avoiding PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Design mechanical treatments to maintain habitat structure and function of the PAC.
	X	Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	In PACs located in WUI defense and threat zones: Mechanical treatments are prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. Allow prescribed burning within the 500-foot radius buffer. Prior to burning conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), as needed to protect important elements of owl habitat. The remainder of the PAC may be mechanically treated using the forest-wide standards and guidelines for mechanical thinnings.
X		Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	Within Protected Activity Centers inside of the Defense Zone of the Urban Wildland Intermix, mechanical treatments are prohibited within a 500-foot radius buffer around northern goshawk nest trees within PACs. Allow prescribed burning within the 500-foot radius buffer. Conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh) as necessary within a one to two acre area surrounding known nest trees prior to burning to protect the nest tree and the trees in its immediate vicinity. The remainder of the PAC may be mechanically treated to achieve the fuels reduction outcomes for General Forest.
X		Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	Conduct mechanical treatments in no more 5 percent per year and no more than 10 percent per decade of the northern goshawk PACs until a formal monitoring and adaptive management approach is developed in coordination with PSW research station. Breeding season limited operating period restrictions may be waived, where necessary, to allow for use of early season prescribed fire in up to five percent of PACs per year on a forest.
	X	Maintain habitat within Northern Goshawk Protected Activity Centers (PACs)	Conduct mechanical treatments in no more than 5 percent per year and 10 percent per decade of the acres in northern goshawk PACs until a formal monitoring and adaptive management approach is developed in coordination with PSW research station. Breeding season limited operating period restrictions may be waived, where necessary, to allow for use of early season prescribed fire in up to five percent of PACs per year on a forest.

PACs, Den Sites

S1	S2	Objective	Standard & Guideline
X		Avoid northern goshawk breeding disturbance	<p>Maintain a limited operating period (LOP), prohibiting activities within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting. If the nest stand within a protected activity center (PAC) is unknown, either apply the LOP to a ¼-mile area surrounding the PAC, or survey to determine the nest stand location. The LOP does not apply to existing road and trail use and maintenance, or continuing recreation use, except where analysis of proposed projects or activities determines that such activities are likely to result in nest disturbance.</p> <p>The LOP may be waived for individual projects or activities of limited scope and duration or when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing and specific location. Where a biological evaluation concludes that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the LOP buffer distance may be reduced.</p>
	X	Avoid northern goshawk breeding disturbance	<p>Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting. If the nest stand within a protected activity center (PAC) is unknown, either apply the LOP to a ¼-mile area surrounding the PAC, or survey to determine the nest stand location.</p> <p>The LOP may be waived for vegetation treatments of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing and specific location. Where a biological evaluation concludes that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the LOP buffer distance may be reduced.</p>
X		Northern Goshawk Survey Requirements	<p>Conduct surveys in compliance with the Pacific Southwest Region’s survey protocols prior to undertaking management activities likely to reduce habitat quality but proposed within suitable northern goshawk nesting habitat (defined as stands with an average tree size of at least 11 inches dbh and canopy cover of at least 20% in eastside pine forests, and an average of at least 11 inches dbh and canopy cover of at least 40% in the other forest types) that is not within an existing owl or goshawk PAC.</p>
	X	Northern Goshawk Survey Requirements	<p>Conduct surveys in compliance with the Pacific Southwest Region’s survey protocols during the planning process when management activities are likely to reduce habitat quality but are proposed within suitable northern goshawk nesting habitat that is not within an existing California spotted owl or northern goshawk PAC. Suitable habitat is defined based on the survey protocol.</p>
<b>Great Gray Owl</b>			
X	X	Maintain existing nesting and roosting habitats in a condition suitable for continued use by great gray owls for those purposes.	<p>Establish and maintain a protected activity center that includes the forested area and adjacent meadow around all known great gray owl nest stands. Delineate at least 50 acres of the highest quality nesting habitat available in the forested area surrounding the nest. Also include the meadow or meadow complex that supports the prey base for nesting owls. Reliable sightings of great gray owls should be followed up with additional surveys to established protocols.</p>

PACs, Den Sites

S1	S2	Objective	Standard & Guideline
X		Prevent loss of reproductive success from activity-caused disturbance to great gray owls.	Apply a limited operating period to management activities within 0.25 miles of an active great gray owl nest stand during the nesting period (typically March 1 to August 15). Engage in no stand or ground altering activities, road construction during this period. Prohibit management activities within 0.25 miles of the nest site during the breeding season unless surveys confirm that great gray owls are not nesting. The LOP does not apply to existing road traffic and maintenance, trail and other recreational uses and activities, except where a biological evaluation determines the activities will result in nest disturbance. The limited operating period may also be waived for projects of limited scope and duration.
	X	Prevent loss of reproductive success from activity-caused disturbance to great gray owls.	Apply a limited operating period, prohibiting vegetation treatments and road construction within 0.25 miles of an active great gray owl nest stand, during the nesting period (typically March 1 to August 15). The LOP may be waived for vegetation treatments of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing and specific location. Where a biological evaluation concludes that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the LOP buffer distance may be reduced.
X		Surrounding active great gray owl nests, provide suitable habitat for the prey species of great gray owls, such as pocket gophers and voles.	Maintain herbaceous meadow vegetation at least 12 inches in height and covering at least 90 percent of the meadow, within great gray owl protected activity centers.
	X	Surrounding active great gray owl nests, provide suitable habitat for the prey species of great gray owls, such as pocket gophers and voles.	In meadow areas of great gray owl PACs, maintain herbaceous vegetation at a height commensurate with site capability and habitat needs of prey species. Follow regional guidance to determine potential prey species and associated habitat requirements at the project level.
<b>California Spotted Owl</b>			
X	X	Designation of Spotted Owl Protected Activity Centers (PACs)	Delineate California spotted owl protected activity centers (PACs) surrounding each territorial owl activity center detected on National Forest System lands since 1986 using aerial photo interpretation with field verification where needed. Owl activity centers are designated based upon the latest documented nest site, the latest known roost site when a nest location remains unknown, and as a central point based upon repeated daytime detections when neither nest nor roost locations are known for all territorial owls.

## PACs, Den Sites

S1	S2	Objective	Standard & Guideline
X		Designation of Spotted Owl Protected Activity Centers (PACs)	PACs are delineated, using aerial photography, to include the known and suspected nest stands, and encompass the best available 300-acres of habitat in as compact a unit as possible. The best available habitat for PAC's should be selected to incorporate where available): (1) two or more tree canopy layers; (2) trees in the dominant and co-dominant crown classes averaging at least 24 inches dbh, and (3) at least 70% tree canopy cover (including hardwoods); and (4) in descending order of priority, CWHR classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50% canopy cover (including hardwoods).
	X	Designation of Spotted Owl Protected Activity Centers (PACs)	PACs are delineated, using aerial photography, to include the known and suspected nest stands, and encompass the best available 300-acres of habitat in as compact a unit as possible. The best available habitat for PAC's should be selected to incorporate where available), in descending order of priority, CWHR classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50% canopy cover (including hardwoods).
X	X	Designation of Spotted Owl Protected Activity Centers (PACs)	Review boundaries of PACs and make adjustments as necessary to better meet these criteria as additional location and habitat data become available.
X	X	Designation of Spotted Owl Protected Activity Centers (PACs)	When activities are planned within or adjacent to a PAC, conduct surveys to establish or confirm the location of the nest or activity center, if uncertain. When Forest Service activities are planned adjacent to non-Forest Service lands, check available databases for the presence of nearby owl activity centers. Delineate a 300 acre circular area centered around the activity center. Designate and manage any region of the circular 300-acre area occurring on National Forest lands as an owl PAC.
X		Designation of Spotted Owl Protected Activity Centers (PACs)	PACs are maintained regardless of owl occupancy status unless habitat is rendered unsuitable by a catastrophic stand-replacing event and protocol surveys confirm non-occupancy.
	X	Designation of Spotted Owl Protected Activity Centers (PACs)	PACs are maintained regardless of California spotted owl occupancy status unless surveys conducted to protocol in remaining suitable habitat following stand-replacing events confirm non-occupancy.
X		Fuel Treatments in Protected Activity Centers	Conduct vegetation treatments in no more than 5 percent per year and 10 percent per decade of the California spotted owl PACs in the 11 Sierra Nevada national forests until a formal monitoring and adaptive management approach is developed in coordination with the Pacific Southwest Research Station. Monitor the number of PACs treated at a bioregional scale. Update the total number of PACs to account for losses of PACs due to catastrophic events.
	X	Fuel Treatments in Protected Activity Centers	Conduct vegetative treatments in no more than 5 percent per year and 10 percent per decade of the acres in California spotted owl PACs in the 11 Sierra Nevada national forests until a formal monitoring and adaptive management approach is developed in coordination with the Pacific Southwest Research Station. Monitor the number of PACs treated at a bioregional scale. Update the total number of PACs to account for losses of PACs due to catastrophic events.

## PACs, Den Sites

S1	S2	Objective	Standard & Guideline
X		Avoidance of Breeding Disturbance	Maintain a limited operating period (LOP), prohibiting activities within approximately ¼ mile of the activity center during the breeding season (March 1 through August 31) unless surveys confirm that California spotted owls are not nesting. The LOP does not apply to existing road and trail use and maintenance, or continuing recreation use, except where analysis of proposed projects or activities determines that such activities are likely to result in nest disturbance. The LOP may be waived for individual projects or activities of limited scope and duration or when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing and specific location. Where a biological evaluation determines that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the LOP buffer distance may be reduced.
	X	Avoidance of Breeding Disturbance	Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the activity center during the breeding season (March 1 through August 31), unless surveys confirm that California spotted owls are not nesting. The LOP may be waived for projects of limited scope and duration or when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing and specific location. Where a biological evaluation determines that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the LOP buffer distance may be reduced.
X		Avoidance of Breeding Disturbance	When activities are planned within or adjacent to a PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest or activity center
	X	Avoidance of Breeding Disturbance	When vegetation treatments are planned within or adjacent to a PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest or activity center.
X		Spotted Owl Survey Requirements	Conduct surveys in compliance with the Pacific Southwest Region's survey protocols prior to undertaking vegetation treatments in spotted owl habitat with unknown occupancy and designate PACs where appropriate according to survey results.
	X	Spotted Owl Survey Requirements	Conduct surveys in compliance with the Pacific Southwest Region's survey protocols during the planning process when vegetation treatments likely to reduce habitat quality are proposed in suitable California spotted owl habitat with unknown occupancy. Designate California spotted owl protected activity centers (PACs) where appropriate based on survey results.
X		Fuel Treatments in Protected Activity Centers outside of the Defense Zone of the Urban Intermix Zone	Limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments. In forested stands with overstory trees 11 inches dbh and greater, design prescribed fire treatments that have an average flame length of 4 feet or less. Prior to burning, conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity.

PACs, Den Sites

S1	S2	Objective	Standard & Guideline
	X	Fuel Treatments in Protected Activity Centers outside of Defense and Threat Zones of the Wildland Urban Intermix Zone	Limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments. In forested stands with overstory trees 11 inches dbh and greater, design prescribed fire treatments that have an average flame length of 4 feet or less. Hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), may be conducted prior to burning as needed to protect important elements of owl habitat.
	X	Fuel Treatments in Protected Activity Centers in Threat Zones of the Urban Intermix Zone.	<p>Limit stand altering treatments as above with the following exception: Mechanical treatments are allowed where avoiding all PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Within the assessment area or watershed, locate fuels treatments to minimize impacts to PACs. When treatment areas must intersect PACs and choices can be made about which PACs to enter, use the following criteria to preferentially avoid PACs that have the highest likely contribution to owl productivity.</p> <ol style="list-style-type: none"> <li>(1) Lowest contribution to productivity: PACs presently unoccupied and historically occupied by territorial singles only.</li> <li>(2) PACs presently unoccupied and historically occupied by pairs,</li> <li>(3) PACs presently occupied by territorial singles,</li> <li>(4) PACs presently occupied by pairs,</li> <li>(5) Highest contribution to productivity: PACs currently or historically reproductive.</li> </ol> <p>Historical occupancy is considered occupancy since 1990. Current occupancy is based upon surveys consistent with survey protocol (March 1992) in the last 2-3 years prior to project planning. These dates were chosen to encompass the majority of survey efforts and to included the breeding pulses in the early 1990s when many sites were found to be productive. When designing treatment unit intersections with PACs, limit treatment acres to those necessary to achieve strategic placement objectives and avoid treatments adjacent to nest stands whenever possible.</p>

## Southern Sierra Fisher Conservation Area

S1	S2	Objective	Standard & Guideline
X		Avoid degrading fisher habitat	Prior to vegetation treatments, identify important wildlife structures such as large diameter snags and coarse woody debris within the treatment unit. Use firing patterns, lining of snags and large logs, and other techniques to minimize effects to snags and large logs. Evaluate the effectiveness of these mitigation measures after treatment.
	X	Avoid degrading fisher habitat	Prior to vegetation treatments, design measures to protect important habitat structures as identified by the wildlife biologist, such as large diameter snags and oaks, patches of dense large trees typically ¼ to 2 acres, large trees with cavities for nesting, clumps of small understory trees, and coarse woody material. For example, use firing patterns, place fire lines around snags and large logs, and implement other prescribed burning techniques to minimize effects to these attributes. Use mechanical treatments when appropriate to minimize effects on preferred fisher habitat elements.
X		Maintain suitable habitat for fishers throughout the Southern Sierra Fisher Conservation Area	In areas within the SSFCA that are outside of the urban interface, manage each planning watershed to support fisher habitat requirements. Retain 60% of each 5,000-10,000 acre watershed in CWHR 4 (11-24" dbh) or greater and canopy closure greater than or equal to 50%
X			Manage the portions of the southern Sierra fisher conservation area that overlap with old forest emphasis areas (as mapped for Modified Alternative 8 of the FEIS: the map layer is available upon request) according to the standards and guidelines for old forest emphasis areas. Manage portions of the southern Sierra fisher conservation area that do not overlap with old forest emphasis areas according to the standards and guidelines for the general forest allocation. Because the effects of prescribed fire on key components of fisher habitat are uncertain, give preference to mechanical treatments over prescribed fire. However, prescribed fire may be applied to achieve restoration and regeneration objectives for fire-adapted giant sequoia.

## Herger-Feinstein Quincy Library Group Pilot Project Area

S1	S2	HFQLG Land Allocation	Management Direction (applies until the HFQLG Pilot Project is completed)
	X	Offbase and deferred areas	The following HFQLG resource management activities are prohibited: DFPZ construction, group selection, individual tree selection, all road building, all timber harvesting activities, and any riparian management that involves road construction or timber harvesting.
	X	Late successional old growth (LSOG) rank 4 and 5	Group selection and individual tree selection are not allowed in LSOG 4 and 5 stands. DFPZ construction is allowed in LSOG 4 and 5 stands. Design DFPZs to avoid old forest stands (CWHR classes 5M, 5D, 6) within this allocation.
	X	California spotted owl PACs	The following resource management activities--DFPZs, group selection, individual tree selection, and riparian restoration projects and other timber harvesting--are not allowed within spotted owl PACs.
	X	California spotted owl habitat areas (SOHAs)	The following resource management activities--DFPZs, group selection, individual tree selection, and riparian restoration projects and other timber harvesting--are not allowed within spotted owl SOHAs.
	X	National forest lands outside of the above allocations and available for vegetation and fuels management activities specified in the HFQLG Act	<b>DFPZs</b>
			<u>Eastside pine types and all other CWHR 4M and 4D classes:</u> <ul style="list-style-type: none"> <li>▪ Design projects to retain at least 30% of existing basal area, generally comprised of the largest trees.</li> <li>▪ Design projects to retain all live trees ≥30 inches dbh; exceptions allowed for operability. Minimize impacts to ≥30-inch trees as much as practicable.</li> <li>▪ For CHWR 4M and 4D classes that are not eastside pine types, retain, where available, 5% of total post-treatment canopy cover in lower layers composed of trees 6--24-inches dbh.</li> </ul> No other canopy cover requirements apply.
			<u>CWHR 5M, 5D, and 6 classes except those referenced above:</u> <ul style="list-style-type: none"> <li>▪ Design projects to retain a minimum of 40% canopy cover.</li> <li>▪ Design projects to avoid reducing pre-treatment canopy cover by more than 30%.</li> <li>▪ Design projects to retain at least 40% of existing basal area, generally comprised of the largest trees.</li> <li>▪ Design projects to retain, where available, 5% of total post-treatment canopy cover in lower layers composed of trees 6-24 inches dbh.</li> </ul> Design projects to retain all live trees ≥30 inches dbh; exceptions allowed for operability. Minimize impacts to ≥30-inch trees as much as practicable.
			<u>All other CWHR class stands:</u> Retain all live trees ≥30 inches dbh, except to allow for operations. Minimize operations impacts to ≥30-inch trees as much as practicable.

## Herger-Feinstein Quincy Library Group Pilot Project Area

S1	S2	HFQLG Land Allocation	Management Direction (applies until the HFQLG Pilot Project is completed)
	X	National forest lands outside of the above allocations and available for vegetation and fuels management activities specified in the HFQLG Act	<p><b>Group selection</b></p> <p>Design projects to retain all live trees <math>\geq 30</math> inches dbh, except allowed for operability. Minimize impacts to <math>\geq 30</math>-inch trees as much as practicable.</p> <p><b>Area thinning (individual tree selection)</b></p> <p><u>All eastside pine types:</u></p> <ul style="list-style-type: none"> <li>▪ Design projects to retain at least 30% of existing basal area, generally comprised of the largest trees</li> <li>▪ Design projects to retain all live trees <math>\geq 30</math> inches dbh; exceptions allowed for operability. Minimize impacts to <math>\geq 30</math>-inch trees as much as practicable.</li> <li>▪ Canopy cover change is not restricted.</li> </ul> <p><u>CWHR classes 4D, 4M, 5D, 5M and 6 (except eastside pine type):</u></p> <ul style="list-style-type: none"> <li>▪ Where vegetative conditions permit, design projects to retain <math>\geq 50\%</math> canopy cover after treatment averaged within the treatment unit, except where site-specific project objectives cannot be met. Where 50 percent canopy cover retention cannot be met as described above, design projects to retain a minimum of 40% canopy cover averaged within the treatment unit.</li> <li>▪ Design projects to avoid reducing canopy cover by more than 30% from pre-treatment levels.</li> <li>▪ Design projects to retain at least 40% of the existing basal area, generally comprised of the largest trees.</li> <li>▪ Design projects to retain, where available, 5% of total post-treatment canopy cover in lower layers composed of trees 6-24 inches dbh.</li> <li>▪ Design projects to retain all live trees <math>\geq 30</math> inches dbh; exceptions allowed for operability. Minimize impacts to <math>\geq 30</math>-inch trees as much as practicable.</li> </ul>

## Herger-Feinstein Quincy Library Group Pilot Project Area

S1	S2	HFQLG Land Allocation	Management Direction (applies until the HFQLG Pilot Project is completed)
			<p><b>Down wood and snags</b></p> <ul style="list-style-type: none"> <li>▪ Determine retention levels of down woody material on an individual project basis. Within westside vegetation types, generally retain an average over the treatment unit of 10-15 tons of large down wood per acre. Within eastside vegetation types, generally retain an average of three large down logs per acre. Emphasize retention of wood that is in the earliest stages of decay. Consider the effects of follow-up prescribed fire in achieving desired retention levels of down wood.</li> <li>▪ Determine snag retention levels on an individual project basis. Design projects to sustain across a landscape a generally continuous supply of snags and live decadent trees suitable for cavity nesting wildlife. Retain some mid and large diameter live trees that are currently in decline, have substantial wood defect, or have desirable characteristics (teakettle branches, large diameter broken top, large cavities in the bole) to serve as future replacement snags and to provide nesting structure. When determining snag retention levels, consider land allocation, desired condition, landscape position, and site conditions (such as riparian areas and ridge tops), avoiding uniform distribution across large areas. During project-level planning, consider the following guidelines for large-snag retention: <ul style="list-style-type: none"> <li>▪ In westside mixed conifer and ponderosa pine types, four of the largest snags per acre.</li> <li>▪ In the red fir forest type, six of the largest snags per acre.</li> <li>▪ In eastside pine and eastside mixed conifer forest types, three of the largest snags per acre.</li> <li>▪ In westside hardwood ecosystems, four of the largest snags per acre (hardwood or conifer).</li> <li>▪ Where standing live hardwood trees lack dead branches, six of the largest snags per acre to supplement wildlife needs for dead material.</li> </ul> </li> <li>▪ Use snags larger than 15 inches dbh to meet this guideline. Snags should be clumped and distributed irregularly across the treatment units. Consider leaving fewer snags strategically located in treatment areas within the WUI and DFPZs. While some snags will be lost due to hazard removal or use of prescribed fire, consider these potential losses during project planning to achieve desired snag retention levels.</li> </ul>
			<p><b>Spotted owl surveys</b></p> <p>Prior to undertaking vegetation treatments in spotted owl habitat having unknown occupancy, conduct surveys in compliance with the Pacific Southwest Region survey direction and protocols, and designate PACs where appropriate according to survey results.</p>

