C01, C02, C03, E00, E03, E05, E06, E07, L02, L04, L08, L12, L14, P11, P12, P13	Manage to achieve representation of all vegetational stages sere by plant community, with cut unit sizes 100 acres or less with at least one age class (30 years) difference between adjacent cutting units.
C01, C02 C12	Prohibit the introduction of exotic or non-indigenous wildlife species onto the onto the Forest unless appropriate studies and experience indicate minimal impacts on indigeneous and native species.
C01, C02 C03, E00 E03, E05 E06, E07 L02, L04 L08, L12 L14, P11 P12, P13	Provide protection of squirrel caches and raptor nests during nesting periods with the following buffers consistent with integrated stand management concepts. /2 squirrel caches 1/10 acre (37.3 ft. radius) raptor nests 7.9 acres (5 chain buffer)
C03, D03, E00, E03, E06, E07, P11, P12 P13, P14, P34.	Retain two trees with obvious wildlife cavities, live culls, or lightning scars per 5 acres, consistent with integrated **resource** management concepts.
C03, E00 E03, E05 E07, J01 P11, P12 P13, P14	**Retain all snags 18" or greater within the spruce-fir, mixed-conifer, or ponderosa pine habitat types unless removal is necessary for safety.**
C03, D03 E00, E05 P11, P12 P13	Retain a minimum of one large (12" diameter) tree per 3 acres in woodland areas. In areas with alligator juniper, retain 2 alligator junipers per acre.
C03, E00 E03, E05 E07, J01 P11, P12 P13, P14	Protect and enhance riparian habitat consistent with riparian area management policy set forth in the Regional guidelines.

/2 Buffer zones are areas in which activities are modified to provide a transition from the wildlife situation to adjoining prescribed activities or provide protection for specific species.

3. Allotments where an increase in numbers appears to be justified.

4. Allotments where range condition, trend, capacity and management is satisfactory, but resource information and data need to be updated.

c. The following guidelines apply to establishment of priorities for range examination:

1. Allotments or areas where unauthorized grazing is known or suspected.

2. Problem allotments where management and proper stocking is lacking and priority for range allotment analysis and production/utilization surveys are high.

3. Allotments where agreed-upon management is in effect, management levels B, C and D (See Appendix D).

D01, D02	Update six allotment management plans per year.
D02	Check permit compliance on a minimum of 30 percent of the allotments annually.
D02	Protect and maintain 14 range study plots to insure their continued information value for range management.
D02	Maintain all Forest Service horse pastures in fair or better range condition.
D02	Actively pursue opportunities to combine allotments into more efficient units. The need to do this is greatest on Smokey Bear and Mayhill Districts.
D02	**Deleted**

GRAZING MANAGEMENT:

Standards: Forage use by grazing ungulates will be maintaine at or above a condition which assures recovery and continued existence of threatened and endangered species.

Guidelines: Identify key ungulate forage monitoring areas. These key areas will normally be 1/4 to 1 mile from water, located on productive soils on level to intermediate slopes, and be readily accessible for grazing. Size of the key forage monitoring areas could be 20 to 500 acres. In some situations such as high mountain meadows with perennial streams, key areas may be closer than 1/4 mile from water and less than 20 acres. Within key forage monitoring areas, select appropriate key species to monitor average allowable use.

In consultation with US Fish and Wildlife Service, develop site-specific forage use levels. In the event that site-specific information is not available, average key species forage utilization in key forage monitoring areas by domestic livestock and wildlife should not exceed levels in the following table during the forage growing season.

ALLOWABLE USE GUIDE (percent) BY RANGE CONDITION AND MANAGEMENT STRATEGY *

Range Condition **	Continuous Season-long Use	Defer 1 Year in 2	Defer 1 Year in 3	Defer 2 Years in 2	Rest 1 Year in 2	Rest 1 Year in 3	Rest 2 Years in 3	Rest over 2 Years in 3
Very Poor	0	10	5	15	15	10	20	25
Poor	**10**	**20**	**15**	**20**	**20**	**15**	**30**	**35**
Fair	20	25	20	30	30	25	40	45
Good	30	35	35	35	35	35	45	50
Excellent	30	35	35	35	35	35	45	50

*** Site-specific data may show that the numbers in this table are substantially high or low. These numbers are purposefully conservative to assure protection in the event that site-specific data is not available.**

**** Range Condition as evaluated and ranked by the Forest Service is a subjective expression of the status or health of the vegetation and soil relative to their combined potential to produce a sound and stable biotic community. Soundness and stability are evaluated relative to a standard that encompasses the composition, density, and vigor of the vegetation and physical characteristics of the soil.**

The above table is based on composition and climatic conditions typical of sites below the Mogollon Rim. On sites with higher precipitation and vegetation similar to sites above the Mogollon Rim, allowable use for ranges in poor to excellent condition under deferment or rest strategies may be increased by 5%. The guidelines established in the above table are applicable only during the growing season for the identified key species within key areas. Allowable use for key forage species during the dormant season is not covered in the above table. These guidelines are to be applied in the absence of more specific guidelines currently established through site specific NEPA analysis for individual allotments.

Guidelines for allowable use for specific allotment(s) management or for grazing strategies not covered in the above table will vary on a site-specific basis when determined through the Integrated Resource Management (IRM) process.

Allowable use guidelines may be adjusted through the land management planning revision or amendment process. Guidelines established through this process to meet specific ecosystem objectives, will also employ the key species and key area concept and will be monitored in this manner.

In cooperation with New Mexico Livestock Board provide for removal of feral animals.

D02 C12	Allow predator control measures where livestock losses are documented. **Control measures include preventative and corrective measures for all classes of livestock. Documented losses are predator-caused livestock losses which have been investigated and confirmed in writing by USDA Animal Plant Health Inspection Service.**
D03, D05	Meet T&E species requirements in all range or grazingactivities.
D03 D05	Prohibit forage improvement activities which disturb the integrity of prairie dog burrows and towns.
D02	Develop a plan to monitor acreage change by management levels. This will be accomplished as allotment management plans are developed or modified.

E04 Research and trial plantations using germinants or other means of artificial regeneration will be encouraged and continued on dry rocky sites that will not reforest using conventional methods.

E04 Plant in spring with bare root stock in areas where winter moisture is adequate, and with container stock where soil or site conditions are not conducive to survival of bare root stock.

E05 Use the following guidelines for thinning spruce-fir, mixed conifer and ponderosa pine:

a. In the mixed conifer and ponderosa pine types, thin to 200-300 well-spaced acceptable trees per acre using one pre-commercial entry. In the spruce-fir type, thin to 500-600 trees per acre.

b. Non-commercial species will be retained if needed for wildlife or other resource purposes, and if not in conflict with timber management objectives; otherwise, non-commercial species over 4" dbh will be cut during pre-commercial thinning.

c. When timber growth and production is a primary concern, the following ranges of growing stock levels (GSL) will be used.

PP Type	Mixed Conifer	Spruce-fir
50-90	60-120	70-150

The higher GSL's will be used on areas with higher site productivity. GSL's outside of the above ranges, but not to exceed 150 in mixed conifer and 200 in spruce-fir, may be used when other resource considerations have priority.

E05 P34 Plan for slash treatment on an area basis. Slash disposal objectives will not be met on every acre as long as they are met on the area as a whole. Objectives will be determined by the needs for fire protection, wildlife visual and soil and water resources, utilization for fuelwood, and insect and disease control.

Evaluate the cost of slash disposal against the risk of loss to determine project feasibility.

E06 **Deleted**

E06 **Use Uneven-aged silvicultural methods as the primary timber harvest system.**

E06, E07 P34	Salvage harvesting operations will be prescribed as needed to meet conditions imposed by wildfire, insect or disease epidemics, blow down, or other catastrophies. Salvage prescriptions will consider timber salvage values, harvesting costs, and environmental impacts of the harvesting.
E06 E07	Forest products such as Christmas trees, posts, poles, and vigas, will be available if removal does not conflict with other resource objectives.
E07	Close all local roads not essential for management needs upon completion of sale. Roads will be reopened for any post-sale activity, then closed following completion of that activity.
E06 F03	Limit wheeled or tracked logging equipment to slopes less than 40 percent.
E06, K03	Use cable logging systems for slopes generally over 40 percent.

OLD GROWTH:

***Standards*: Until the forest plan is revised, allocate no less than 20 percent of each forested ecosystem management area to old growth as depicted in the table below.**

In the long term, manage old growth in patterns that provide for a flow of functions and interactions at multiple scales across the landscape through time.

Allocations will consist of landscape percentages meeting old growth conditions and not specific acres.

***Guidelines:* All analyses should be at multiple scales - one scale above and one scale below the ecosystem management areas. The amount of old growth can be provided and maintained will be evaluated at the ecosystem management area level and be based on forest type, site capability, and disturbance regimes.**

Strive to create or sustain as much old growth compositional, scales. Seek to develop or retain old growth function on at least 20 percent of the naturally forested area by forest type in any landscape.

Use information about pre-European settlement conditions at the appropriate scales when considering the importance of various factors.

Consider the effects of spatial arrangement on old growth function, from groups to landscapes, including de facto allocations to old growth such as goshawk nest sites, Mexican spotted owl protected activity centers, sites protected for species behavior associated with old growth, wilderness, research natural areas, and other forest structures managed for old growth function.

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In allocating old growth and making decisions about old growth management, use appropriate information about the relative risks to sustaining old growth function at the appropriate scales, due to natural and human-caused events.

Use quantitative models at the appropriate scales when considering the importance of various factors. These models may include, but are not limited to, Forest Vegetation Simulator, BEHAVE, and FARSITE.

Forested sites should meet or exceed the structural attributes to be considered old growth in the five primary forest cover types in the southwest as depicted in the following table:

Forest Cover Type-Name	Piñon-Juniper		Interior Ponderosa Pine		Aspen	Mixed-Conifer Group		Engleman Spruce Sub-alpine Fir	
Forest Cover type, SAF Code	239		237		217	210,211,216,219		206, 209	
Site Capability Potential Break between Low and High Sites						50 Douglas-Fir Edminster & Jump		50 Engleman Spruce Alexander	
Site	Low	High	Low	High	All	Low	High	Low	High
1. Live trees in main canopy:									
Trees/acre	12	30	20	20	20	12	16	20	30
DBH/DRC	9"	12"	14"	18"	14"	18"	20"	10"	14"
Age (Years)	150	200	180	180	100	150	150	140*/170**	140*/170**
2. Variation in Tree Diameter (Yes or No)	ND	ND	ND	ND	No	ND	ND	ND	ND
3. Dead Trees:									
Standing									
Trees/acre	0.5	1	1	1	ND	2.5	2.5	3	4
Size, DBH/DRC	9"	10"	14"	14"	10"	14"	16"	12"	16"
Height (feet)	8'	10'	15'	25'	ND	20'	25'	20'	30'
4. Tree decadence									
Trees/acre	ND	ND	ND	ND	ND	ND	ND	ND	ND
5. Number of tree canopies	ss/ms	ss/ms	ss/ms	ss/ms	ss	ss/ms	ss/ms	ss/ms	ss/ms
6. Total Basal Area, SqFt/acre	6	24	70	90	ND	80	100	120	140
7. Total Canopy Cover, Percent	20	35	40	50	50	50	60	60	70

Piñon-Pine: * dead limbs help make up dead material deficit **Unless removed for fire burning activity
Spruce fir: * in mixed corkbark fir and Engleman spruce stands where englemean spruce is less than 50 percent composition in the stand.
**in mixed corkbard and Engleman spruce stands where Engleman spruce is 50 percent or more composition in stand.
ND: is not determined; ss is single-stories; ms is multi-storied.

Old Growth

Standards:
Until the forest plan is revised, allocate no less that 20 percent of each forested ecosystem management area to old growth as depicted in the table above.

In the long-term, manage old growth in patterns that provide for a flow of function and interactions at multiple scales across the landscape through time.

Allocation will consist of landscape percentages meeting old growth conditions and not specific acres.

Guidelines:
All analyses should be at multiple scales-one scale above and one scale below the ecosystem management areas. The amount of old growth that can be provided and maintained will be evaluated at the ecosystem management area level and be based on forest type, site capability, and disturbance regime.

Strive to create or sustain as much old growth compositional, structural, and functional flow as possible over time at multiple area scales. Seek to develop or retain old growth function on at least 20 percent of the naturally forested area by forest type in any landscape.

Use information about pre-European settlement conditions at the appropriate scales when considering the importance of various factors.

Consider the effect of spatial arrangement on old growth function, from groups to landscape, including de facto allocations to old growth such as goshawk nest sites, Mexican spotted owl protected activity centers, sites protected for species behavior associated with old growth, wilderness, research natural areas, and other forest structures managed for old growth function.

In allocating old growth and making decisions about old growth management, use appropriate information about the relative risk to sustaining old growth function at the appropriate scale, due to natural and human-caused events.

Use quantitative models at the appropriate scale when considering the importance of various factors. These models may include, but are not limited to, Forest Vegetation Simulator, BEHAVE, and FARSITE.

Forested sites should meet to exceed the structural attributes to be considered old growth in the five primary forest cover type in the southwest as depicted in the table above.

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¶

-Patch cutting followed by site preparation, broadcast burning, and planting a mixture of ponderosa pine and Douglas-fir.

-Regeneration cuts which retain a uniformly spaced overstory, composed principally of dominant and co-dominant Douglas-fir. Advance regeneration is destroyed by tractor scarification or underburning. Regneration is accomplished by planting ponderosa pine and Douglas-fir. The overstory is removed as soon as the regeneration becomes established.

-Regeneration cuts which retain a mixture of species in the overstory. Dominant and co-dominant, mistletoe-free or lightly infested trees are used for seed trees; advance reproduction will be protected during site preparation, and will be supplemented by natural seed fall.

-Removal of all trees larger than sapling size. Advance regeneration to be protected during logging activities. Supplemental planting of ponderosa pine and Douglas-fir on all disturbed, understocked areas.

P34, P39 **The principles of integrated pest management (IPM) will be utilized to treat areas that are, or become, infested by insects or diseases, and to reduce susceptibility of host-types to future infestations. The IPM process will be used to evaluate the trade-offs between treatment versus TES habitat manipulation. TES habitat considerations are a higher priority than insect and disease considerations.**

P35 Use pesticides only when they are the most economical, biologically sound and environmentally acceptable means of preventing or suppressing pest outbreaks which threaten the attainment of objectives.

When pesticides are used for pest control, project plans will contain appropriate and necessary monitoring procedures and mitigation measures.

P34
P39
E03 Conduct annual surveys to detect important insects and diseases. Supplement surveys by training field-going personnel to recognize insect and disease, and stress inportance of early detection. When conditions warrant, conduct evaluation designed to develop alternatives to prevent or reduce damage to acceptable levels.

T02 Staffing to process minimum business management needs and provide support to line officers for decision-making. Add support staff as needed to efficiently handle an intensive level of resource management.

A02, A03
C01, D02 Monitor implementation of management prescriptions as defined in Monitoring Plan, Chapter 5.

C. FOREST-WIDE STANDARDS AND GUIDELINES FOR FEDERAL AND STATE THREATENED AND ENDANGERED SPECIES

Habitat management for Federally-listed species will take precenence over unlisted species. Habitat mangement for endangered species will take precedence over threatened species. Habitat management for sensitive species will take precedence over all other species.

ALL SPECIES

1/ Protect and manage essential and critical habitats of threatened, endangered, and sensitive species through ensuring that legal and biological requirements of designated plant and animal species are met; further, identify data needs for threatened, endangered, and sensitive species.

1/ Identify, protect and enhance existing and potential habitat of all T&E and sensitive species.

1/ Activities likely to cause disturbance, including public use, will be prohibited in the vicinity of any essential habitat for T&E species.

CO1, CO2 C11, C12	Evaluate the need for consultation with the U.S. Fish and Wildlife Service when management practices are proposed which are likely to cause disturbance to T&E species and/or their habitat.
C01, C02 C03, E00 E03, E05 E07, J01, P11 P12, P13	Provide for bald eagle winter roost requirements in known. eagle habitat by retaining or recruiting snags in those. areas.
C01, C02 C12, EO5 E07, E00, P11 P12, P14	Discourage fuelwood gathering activities within salamander habitat.
C0l, C08 C11, C12	Manage T&E species habitats in a manner consistent with all Management, Recovery Plans and Action Plans.
C02, C12	Consult and cooperate with New Mexico Department of Game and Fish to achieve management objectives for State listed T&E species.
C02, C05 C08, C11 C12, E05 E07	Manage T&E species to attain total recovery levels overtime. Existing and proposed T&E species that have been found on the forest are noted by Management Area in Table 14. Evaluations will be made to ascertain desirability or re-introduction of endangered native species to suitable habitat not presently occupied.

C. FOREST-WIDE STANDARDS AND GUIDELINES FOR FEDERAL AND STATE THREATENED AND ENDANGERED SPECIES

Habitat management for Federally-listed species will take precenence over unlisted species. Habitat mangement for endangered species will take precedence over threatened species. Habitat management for sensitive species will take precedence over all other species.

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1/ Identify, protect and enhance existing and potential habitat of all T&E and sensitive species.

1/ Activities likely to cause disturbance, including public use, will be prohibited in the vicinity of any essential habitat for T&E species.

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C01, C02 C03, E00 E03, E05 E07, J01, P11 P12, P13	Provide for bald eagle winter roost requirements in known. eagle habitat by retaining or recruiting snags in those. areas.
C01, C02 C12, EO5 E07, E00, P11 P12, P14	Discourage fuelwood gathering activities within salamander habitat.
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C02, C12	Consult and cooperate with New Mexico Department of Game and Fish to achieve management objectives for State listed T&E species.
C02, C05 C08, C11 C12, E05 E07	Manage T&E species to attain total recovery levels overtime. Existing and proposed T&E species that have been found on the forest are noted by Management Area in Table 14. Evaluations will be made to ascertain desirability or re-introduction of endangered native species to suitable habitat not presently occupied.

C02, CO8 C11, C12 E00, E07 P11, P12 P14	In cooperation with other agencies, determine habitat requirements For Sacramento Mountain salamander affected by timber harvest, including canopy cover and density of down logs and small residual material. Until specific requirements are determined and appropriate standards established, the following interim guidelines will apply:

Unmerchantable downed conifer logs > 4" dbh should be left having maximum contact with the soil. Preferred log density should provide a spacing of one meter. Measures for log recruitment should be taken. Slash cleanup after harvest should be restricted to material < 4" in diameter. If adequate log densities are not available on the site, then material > 4" should remain as cover. Prescribed burning will be avoided until known fire effects are documented. Timber harvest activities will occur during periods when the salamanders are underground, and methods will be used which minimize ground disturbances.

C02, C07 C10, C11 F04. F05	Protect and improve riparian and wetland areas to provide a suitable aquatic environment for threatened and endangered species using measures such as log dams, rock fence structures, tree, shrub and hydrophyte plantings, etc.
C06, C07, C10 F03, F04, F05 F06	Determine sources of water quality degradation when water quality may effect threatened and endangered species habitat. Remedy the situation where needed.
C11, C12 P35, P36	Prohibit use of pesticides, herbicides or other contaminants harmful to any T&E species present on the project area or areas affecting prey base.

In the event new species or new population of known species are identified to occur in the planning area, the Forest Plan will be modified to accommodate protection or enhancement of such species and/or their habitat.

Appendix C. Mexican Spotted Owl Standards and Guidelines in Selected Alternative (G)

Standards and guidelines to be added to each forest plan for Mexican spotted owl habitat, northern goshawk habitat, grazing utilization, and old growth designation follow. Standards and guidelines are the bounds or constraints within which all management activities are to be carried out in achieving forest plan objectives. The following standards and guidelines are packaged in parallel format. Parallel format means that a set of standards is described first which gives the primary constraint. Following the standards are guidelines that provide additional details on how each standard will be implemented. For example, one of the Mexican spotted owl standards is to "Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989."

The corresponding guidelines read, "Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided."

"The Protected Activity Center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center."

"The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat."

"Protected Activity Center boundaries should not overlap."

"Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys."

As the foregoing example shows, the guidelines are the detailed Information about implementation of the standards. While standards and guidelines both specify the management bounds and constraints, the standards contain no discretionary elements and the guidelines may occasionally contain discretionary elements. For example, one of the Mexican spotted owl guidelines is "The Protected Activity Center should enclose the best possible owl habitat...." The terms "should" and "best" imply some discretion on the part of the person implementing the guideline,

MEXICAN SPOTTED OWL

Standards: Provide three levels of habitat management -protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape.

Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40% where timber harvest has not occurred in the last 120 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas.

Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas.

Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas.

Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area.

Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989.

Allow no timber harvest except for fuel wood and fire risk abatement in established protected activity centers. For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with US Fish and Wildlife Service.

Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40% where timber harvest has not occurred in the last 20 years.

Limit human activity in protected activity centers during the breeding season.

In protected and restricted habitat areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements, consult with the U.S. Fish and Wildlife Service to resolve the conflict.

Monitor changes in owl populations and habitat needed for de-listing.

Guidelines:

A. GENERAL

Conduct surveys following Region 3 survey protocol.
Breeding season is March 1 to August 31.

B. PROTECTED AREAS

Protected Activity Center**:** Delineate an area not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided.

The Protected Activity Center boundary should enclose the best possible owl habitat configured In as compact a unit as possible, with the nest or activity center located near the center.

The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat.

Protected Activity Center boundaries should not overlap.

Submit protected activity center maps and descriptions to the recovery unit-working group for comment as soon as possible after completion of surveys.

Road or trail building in protected activity centers should be avoided but may be permitted on a case-by-case basis for pressing management reasons.

Generally allow continuation of the level of recreation activities that was occurring prior to listing.

Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a sub-permit under the U.S Fish and Wildlife Service Master endangered species permit. The permit should stipulate the sites, dates, number of visits, and maximum group size.

Harvest fuel wood when it can be done in a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl.

Retain key forest species such as oak.

Retain key habitat components such as snags and large downed logs.

Harvest conifers less than 9” in diameter only within those protected activity centers treated to abate fire risk as described below.

Treat fuel accumulations to abate fire risk.

- In Mexican spotted owl protected activity centers (PAC), vegetation treatments will only be considered after all appropriate NEPA analysis and consultation with the U.S. Fish and Wildlife Service has been completed. When vegetation treatment within a PAC is deemed necessary, the PAC will be monitored for effects of treatment.

  Amendment 10: For the Rio Peñasco, La Luz Watersheds, 38 total protected activity centers will have vegetative treatments and will be monitored for effects of treatment.

  Amendment 12: A total of 19 protected activity centers in the Elk Canyon Watershed will have vegetation treatments and will be monitored for effects of treatment.

- Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the "no treatment" area should be as similar as possible in structure and composition as that found in the activity center.

- Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area.

  Amendment 10: The nine-inch diameter limit is exempted in the Rio Peñasco/La Luz Watershed study where scientific studies are designed to test the best fuels management prescriptions in MSO protected activity centers.

- Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 in. in diameter at the root collar.

- Use light prescribed burns in non-selected protected activity centers on a case-by-case basis. Burning should avoid a 100-acre "no treatment" area around the activity center. Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.

- Pre and post treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement. (See monitoring guidelines)

Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40% that have not been logged within the past 20 years): No seasonal restrictions apply.

Treat fuel accumulations to abate fire risk.

- Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.
- Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood tress larger than 10 inches in diameter at the root collar.
- Pre- and post-treatment monitoring should occur within all steep slopes treated for fire risk abatement. (See monitoring guidelines)

Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas): Allow prescribed fire where appropriate.

C. RESTRICTED AREAS (Mixed conifer, pine-oak, and riparian forests)

Mixed Conifer and Pine-oak Forests (See glossary definition): Manage to ensure a sustained level of owl nest/roost habitat well distributed across the landscape. Create replacement owl nest/roost habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area that should be managed to have nest/roost characteristics. The minimum mixed conifer restricted area includes 10% at 170 basal area and an additional amount of area at 150 basal area. The additional area of 150 basal area is + 10% in BR-E and + 15% in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a district-wide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values. Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the district-wide or larger landscape analysis shows there is a surplus.

Variable	MC All RU	MC BR-E RU	MC Other RU	Pine-Oak
Restricted area %	+10%	+10%	+15%	+10%
Stand Averages for:				
Basal Area	170	150	150	150
18" +trees/acre	20	20	20	20
Oak Basal Area	N/A	N/A	N/A	20
Percent total existing stand density index by size class:				
12"-18"	10	10	10	15
18"-24"	10	10	10	15
24"- +	10	10	10	15

Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions.

Maintain all species of native trees in the landscape including early seral species.

Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.

Emphasize uneven-aged management systems. However, both even-aged and uneven- aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate.

Extend rotation ages for even-aged stands to greater than 200 years. Silvicultural prescriptions should explicitly state when vegetative manipulation would cease until rotation age is reached.

Save all trees greater than 24 inches dbh.

In pine-oak forests, retain existing large oaks and promote growth of additional large oaks.

Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire.

Retain substantive amounts of key habitat components:

Snags 18 inches in diameter and larger
Down logs over 12 inches midpoint diameter
Hardwoods for retention, recruitment, and replacement of large hardwoods

Riparian Areas: Emphasize maintenance and restoration of healthy riparian ecosystems through conformance with forest plan riparian standards and guidelines. Management strategies should move degraded riparian vegetation toward good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.

Domestic Livestock Grazing: Implement forest plan forage utilization standards and guidelines to maintain owl prey availability, maintain potential for beneficial fire while inhibiting potential destructive fire, maintain and restore riparian ecosystems, and promote development of owl habitat. Strive to attain good to excellent range conditions.

Old Growth: Except where other wise noted, implement forest plan old growth standards and guidelines to maintain and promote development of owl habitat.

D. OTHER FOREST AND WOODLAND TYPES

Apply ecosystem approaches to manage for landscape diversity mimicking natural disturbance patterns, incorporating natural variation in stand conditions and retaining special features such as snags and large trees, utilizing appropriate fires, and retention of existing old growth in accordance with forest plan old growth standards and guidelines.

E. GUIDELINES FOR SPECIFIC RECOVERY UNITS

Basin and Range-East: Emphasize restoration of lowland riparian habitats

Management activities necessary to implement the Sacramento Mountain thistle recovery plan, which may conflict with standards and guidelines for Mexican spotted owl, will take precedence and will be exempt from the conflicting Mexican spotted owl standards and guidelines.

F. MONITORING GUIDELINES

Population and habitat monitoring and evaluation, collaboratively planned and coordinated with Involvement from each national forest, USFWS Ecological Services Field Office, USFWS Regional Office, USFS Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups, should be implemented on the Lincoln National Forest.

Prepare an annual monitoring and evaluation report covering all levels of monitoring done in previous years. The annual report should be forwarded to the Regional Forester with copies to the recovery unit working group, USFWS Ecological Services field office, and the USFWS Regional Office.

PEREGRINE FALCON

The American Peregrine Falcon Recovery Plan (see references) contains habitat requirements for the peregrine falcon which will be incorporated into the guidelines on the Forest. Additional standards and guidelines for the Forest are as follows:

1/ Monitor management practices within occupied and potential peregrine falcon habitat and ensure that there are no adverse impacts.

1/ Prohibit land-use practices and development that significantly alter or eliminate the character of essential peregrine falcon hunting habitat or prey base (generally within four miles of nest sites) will be prohibited. All activities proposed within four miles of potential or existing nesting habitat will be carefully evaluated for potential effects.

1/ Prohibit activities likely to cause disturbance, including public use in the vicinity of essential peregrine falcon nesting habitat between March 1st and May 20th. This may mean having a seasonal closure between those dates unless other mitigating measures are determined. Should peregrines remain strongly attached to nest sites after May 20th this period will be extended; alternately, should peregrines disperse earlier than May 20th this period may be shortened. Seasonal restrictions will be applied to all essential habitat unless the Forest Biologist determines that a site is not occupied. Activities likely to cause a disturbance include, but are not limited to, human presence within ¾ mile, light motorized vehicle or equipment within 1 mile and heavy motorized equipment within 2 miles. If peregrine falcons are found occupying habitat in other known areas, similar restrictions on activities will be imposed.

C01, C02	Continue to identify existing and potential habitat for peregrine falcons as outlined in the Species Recovery Plan.
C01, A05	Locate and develop recreation facilities at least 1-1/4 miles from essential peregrine falcon nesting habitat.
E05, E07	Discourage fuel wood gathering activities at least ¾ miles of essential peregrine falcon habitat.
E05, E07	Manage areas within 200 feet of canyon rims in essential peregrine falcon hunting habitat under a modified silvicultural prescription jointly determined by the Forest Biologist and District TMO.
P02, P03 P07, P08 P09	Make all reasonable efforts during fire detection and suppression or other emergency activities, such as search and rescue operations, from March 1 through August 15th to protect peregrine falcon nesting sites, consistent with jeopardy to human life and property and confidentiality of nest sites. Other activities will be limited in critical nesting habitat as appropriate during nesting season.

The following documents provide information on the status and management direction for the peregrine falcon:

Bednarz, James C. 1981. Peregrine Falcon habitat evaluation and proposed management plan for the Guadalupe Mountains, New Mexico and Texas. Unpub. report prepared for U.S. Forest Service and National Park Service. On file at the Lincoln National Forest Office.

Fiala, Frank. 1981. Final Report: Status of Peregrine Falcons, Aqua Dulce Eryie, Lincoln National Forest, New Mexico. Unpub. report on file at the Lincoln National Forest Office.

Rocky Mountain/Southwestern Peregrine Falcon Recovery Team. 1977, American Peregrine Falcon Rocky Mountain and Southwest Population Recovery Plan. Report prepared for U.S. Fish and Wildlife Service.

USDA Forest Service. 1985. Peregrine Falcon Management, Master Interagency Agreement between USDA Forest Service - Region 3, the New Mexico Dept. of Game & Fish and USDI Fish and Wildlife Service - Region 2, No.16-R3-85-0019, March 5, 1985.

Table 14. Existing and Proposed Federal Threatened, Endangered or Sensitive Species and/or Official State Listed Species by Management Area.

Common Name	Scientific Name	Management Area
Fauna		
Aplomado Falcon	Falco femoralis septentriondis	---
Peregrine Falcon	Falco peregrinus	3A
Bald Eagle	Haliaeetus leucocephalus	1A,1E,1G,2B,2D,4J,4M,4O,4Q,4U
Black-footed Ferret	Mustela nigripes	---
Desert Bighorn Sheep	Ovis canadensis	3B
Black-striped Least Chipmunk	Eutamias minimus atristriatus	2D,2E,4I,4J
Meadow Jumping Mouse	Zapus hudsonius luteus	2D,2E,4I,4J
Gray Vireo	Vireo vicinior	1A,1B,1D.1I,1J,2A-2C,3A,3C 3D,3F,4I,4L,4N,4Q,4U
Baird's Sparrow	Ammordramus bairdii	3D
McCown's Longspur	Calcarius mccownii	3D
Varied Bunting	Passerina versicolor	3A
New Mexico Ramshorn Snail	Pecosorbis kansasensis	3E
Spotted Owl	Strix occidentalis	1A,1B,1E,1F,2D-2H,4I,4J
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	3A-3C
Trans-Pecos Rat Snake	Elaphe subocularis	3A-3C
Plain-bellied Water Snake	Nerodia erythrogaster	3A-3F
Western Ribbon Snake	Thamnophis proximus diabolicus	3A
Headwater catfish	Icatalurus lupus	3E
Sacramento Mountain Salamander	Aneides hardyi	2A,2H,4J
Spotted Owl	**Strix occidentalis**	**1A,1B,1E,1F, 2D-2H, 4I,4J**
Northern goshawk	**Accipiter gentilis atricapillas**	**1A,1B,1E,1F, 2D-2H, 4I,4J**

Ecosystem Management in Northern Goshawk Habitat (Alternative G)

Applicability

The northern goshawk standards and guidelines apply to the forest and woodland communities described below that are outside of Mexican spotted owl protected and restricted areas. Within Mexican spotted owl protected and restricted areas, the spotted owl standards and guidelines take precedence over northern goshawk standards and guidelines. One or the other set of standards and guidelines apply to all forest and woodland communities but the Mexican spotted owl standards always take precedence in areas of overlap.

Standards

Survey the management analysis area prior to habitat modifying activities including a 1/2 mile beyond the boundary.

Establish, and delineate on a map, a post-fledgling family area that includes 6 nesting areas per pair of nesting goshawks for known nest sites, old nest sites, areas where historical data indicates goshawks have nested there in the past, and where goshawks have been repeatedly been sighted over the past two year or greater period of time but no nest sites have been located. Manage for un-even-age stand condition for live trees and retain live reserve trees, snags, downed logs, and woody debris levels throughout woodlands. ponderosa pine, mixed-conifer, and spruce-fir cover types. Manage for old age trees such that as much old forest structure as possible is sustained over time across the landscape. Sustain a mosaic of vegetation densities (overstory and understory), age class, and species composition across the landscape. Provide foods and cover for goshawk prey.

Limit human activity in nesting areas during the breeding season.

Manage the ground surface layer to maintain satisfactory soil condition i.e., minimize soils compaction; and to maintain hydrologic and nutrient cycles.

When activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements, consult with the U.S. Fish and Wildlife Service to resolve the conflict.

Within the range of the Kaibab pincushion cactus, *pediocactus paradinei*, and the Arizona leatherflower, *clematis hirsutissima arizonica*, management activities needed for the conservation of

these two species that may conflict with northern goshawk standards and guidelines will be exempt from the conflicting northern goshawk standards and guidelines until conservation strategies or recovery plans 9if listed) are developed for the two species.

Guidelines

General
Emphasize maintenance and restoration of the healthy riparian ecosystems through the conformance with forest plan riparian standards and guidelines. Management strategies should restore degraded riparian areas to good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.

Refer to USDA Forest Service General Technical Report RM-217 entitled "Management Recommendations for the Northern Goshawk in the Southwest United States" for scientific information on goshawk ecology and management which provide the basis for the management guidelines. Supplemental information on goshawk ecology and management may be found in "The Northern Goshawk: Ecology and Management" published by the Cooper Ornithological Society as Studies in Avian Biology No. 16. In woodland forest cover types, use empirical data to determine desired habitat conditions.

Inventory

Use the R3 survey protocol to get complete coverage of the management analysis area (Kennedy and Stahlecker, 1993, as modified by Joy, Reynolds, and Leslie, 1994) Management analysis areas should be entire ecosystem management areas if possible.

Complete at least 1 year of survey, but 2 years of surveys should be done to verify questionable sightings, unconfirmed nest sites, etc. If nesting goshawks are found during the first year, a second year of inventory is not needed in that territory.

For areas where complete inventories cannot be done, use aerial photographs to locate vegetative structural stages (VSS) 4-6 within the project area and inventory just those sites for goshawk nest areas using R3 inventory protocol. All uninventoried areas (VSS 1-3) will be managed to post-fledgling family areas (PFA) specifications while in that stage. If while using this inventory option evidence suggests goshawks are present (such as finding plucking perches or molted goshawk feathers), conduct a complete inventory as outlines above.

If forests have goshawks commonly nesting in stands classified as VSS 1-3, use the complete inventory method for those areas. There may be situations where an area is classified as a VSS 3, based on predominant VSS class, but in actuality a combination of VSS 4 & 5 predominate the area. For those situations, use complete inventory methods.

Home Range Establishment

Post-fledgling family areas (PFA) will be approximately 600 acres in size. Post-fledgling family areas will include the nest sites and consist of the habitat most likely to be used by the fledgling during their early development.

Establish a minimum of 3 nest areas and 3 replacement nest areas per post-fledgling family area. The nest areas and replacement nest areas should be approximately 30 acres in size. A minimum total of 180 acres of nest area should be identified within each post-fledgling family area.

Nest site selection will be based first on using active nest sites followed by the most recently used historical nest areas. When possible, all historical nest areas should be maintained.

Manage for the nest replacement sites to attain sufficient quality and size to replace the three suitable nest sites.

Management Scale

Distribution of habitat structure (tree size and age classes, tree groups of different densities, snags, dead and down woody material, etc.) should be evaluated at the ecosystem management area level, at the mid-scale such as drainage, and at the small scale of site.

Vegetation Management

Landscape Outside Goshawk Post-fledgling Family Areas

General: The distribution of vegetation structural stages for ponderosa pine, mixed-conifer, and spruce-fir is 10% grass/forbes/shrub (VSS 1), 10% seedling-sapling (VSS 2), 20% young forest (VSS 3), 20% mid-aged forest (VSS 4), 20% mature forest (VSS 5), 20% old forest (VSS 6). NOTE: The specified percentages are a guide and actual percentages are expected to vary + or - up to 3%.

The distribution of VSS, tree density, and tree age are a product of site quality in the ecosystem management area. Use site quality to guide in the distribution of VSS, tree density and tree age. Use site quality to identify and manage dispersal PFA and nest habitat a 2 to 2.5 miles spacing across the landscape.

Snags are 18" or larger dbh and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inched or larger on the forest floor, canopy cover is measured with vertical crown projecting on the average across the landscape.

The order of preferred treatment for woody debris is: 1) prescribed burning, 2) lopping and scattering, 3) hand-piling or machine grapple, and 4) dozer piling.

Canopy Cover: Canopy cover guidelines apply only to mid-aged forest structural stages (VSS 4, VSS 5, and VSS 6) and not to grass/forbs/shrub to young forest structural stages (VSS 1, VSS 2, and VSS 3).

Spruce-fir: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60% and 2/3 40%, mature forest (VSS 5) should average 60+%, and old forest (VSS 6) should average 60+%. Maximum opening size is 1 acre with a maximum width of 125 feet. Provide two groups of reserve trees per acre with 6 trees per group when opening size exceeds 0.5. Leave at least 3 snags, 5 downed logs, and 10-15 tons of woody debris per acre.

Mixed-conifer: Canopy cover for mid-aged forests (VSS 4) should average 1/3 60+% and 2/3 40+%, mature forest (VSS 5) should average 50+%, and old forest (VSS 6) should average 60+%. Maximum opening size is up to 4 acres with a maximum width of up to 200 feet. Retain one group of reserve trees per acre of 3-5 trees per group for openings greater than 1 acre, and 10-15 tons of woody debris per acre.

Ponderosa Pine: Canopy cover for mid-aged forest (VSS 4) should average 40+%, mature forest (VSS 5) should average 40+%, and old forest (VSS 6) should average 40+%. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, 3-5 trees per group, will be left if the opening is greater than an acre in size. Leave at least 2 snags per acre, 3 downed logs per acre, and 5-7 tons of woody debris per acre.

Woodland: manage for uneven age conditions to sustain a mosaic of vegetation density (overstory and understory), age classes, and species composition well distributed across the landscape. Provide for reserve trees, snags, and down woody debris.

Within Post-fledgling Family Areas

General: Provide for a healthy sustainable forest environment for the post-fledgling family needs of goshawks. The principle difference between "within the post-fledgling family area" and "outside the post-fledgling family are" is the higher canopy cover within the post-fledgling family area and smaller opening size within the post-fledgling family area within the post-fledgling family area. Vegetative structural stage distribution and structural conditions are the same within and outside the post-fledgling family area.

Spruce-fir: Canopy cover for mid-aged (VSS 3) should average 60+% and for old forest (VSS 6) should average 60+%.

Mixed-conifer: Canopy Cover for mid-aged (VSS 4) to old forest (VSS 6) should be 60+%.

Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average /13 60+% and 2/3 50+%. Mature (VSS 5) and old forest (VSS 6) should average 50+%.

Woodlands: Maintain existing canopy cover levels.

Within Nesting Areas

General: Provide unique nesting habitat conditions for goshawks. Important features include trees of mature to old-age with high canopy cover.

The structure of the vegetation within nest areas is associated with the forest type, and tree age, and density, and the developmental history of the stand. Table 5 of RM-217 presents attributes required for goshawk on locations with "low" and "high" site productivity.

Preferred treatments to maintain the desired structure are to thin from below with non-uniform spacing and use of hand tools and fire to reduce fuel loads. Lopping and scattering of the thinning debris is preferred if prescribed fire cannot be used. Piling of debris should be limited. When necessary, hand-piling should be used to minimize compaction within piles and to minimize displacement and destruction of the forest floor herbaceous layer. Do not grapple or Dozer pile debris. Manage road densities at the lowest level possible to minimize disturbance in the nest area. Use small, permanent skid trails in lieu of roads for timber harvesting.

Spruce-fir, mixed-conifer, ponderosa pine cover types: The nesting area contains only mature to old forest (VSS 5 & 6) having a canopy cover (measured vertically) between 50-70% with mid-aged VSS 6 trees 200-300 years old. Non-uniform spacing of trees and clumpiness is desirable.

Woodlands: Maintain existing canopy cover levels.

Human Disturbance:

Limit human disturbance in or near nest sites and post-fledgling family areas during the breeding season so that goshawk reproductive success in not affected by human activity.

The breeding season extends from March 1 through September 30.

Low intensity ground fires are allowed at any time in all forest cover types, but high intensity crown fires are not acceptable in the Post-fledgling family area or nest areas. Avoid burning the entire home range of a goshawk pair in a single year. For fires plans in the occupied nest are, a fire management plan should minimize the risk of goshawk abandonment while low intensity fire burns in the nest area. Prescribed fire within the nesting are should be plans to move with prevailing winds away from the nest tree to minimize smoke and crown fire developing and driving the adults off or consuming the nest tree.

Ground Surface Layer:

(All forested cover types)

Manage road densities at the lowest possible. Where timber harvesting has been prescribed to achieve desired forest condition, use small skid trails in lieu of roads.

Piling of debris should be limited. When necessary, hand or grapple piling should be used to minimize soil compaction within piles and to minimize forest floor herbaceous layer displacement and destruction. Limit dozer use for piling or scattering of logging debris so that the forest floor and herbaceous layer is not displaced or destroyed.

Table 14. Existing and Proposed Federal Threatened, Endangered or SensitiveSpecies and/or Official State Listed Species by Management Area.

Common Name	*Scientific Name*	*Management Area*
Fauna		
Aplomado Falcon	Falco femoralis septentriondis	----
Peregrine Falcon	Falco peregrinus	3A
Bald Eagle	Haliaeetus leucocephalus	1A-lE,lG,2B,2D,4J,4M,40,4Q, 4U
Black-footed Ferret	Mustela nigripes	---
Desert Bighorn Sheep	Ovis canadensis	3B
Black-striped Least Chipmunk	Eutamias minimus atristriatus	2D,2E,4I,4J
Meadow Jumping Mouse	Zapus hudsonius luteus	2D,2E,4I,4J
Gray Vireo	Vireo vicinior	1A,1B,1D,1I,1J,2A-2C,3A,3C 3D-3F,4I,4L-4N.4Q,4U
Baird's Sparrow	Ammordramus bairdii	3D
McCown's Longspur	Calcarius mccownii	3D
Varied Bunting	Passerina versicolor	3A
New Mexico Ramshorn Snail	Pecosorbis kansasensis	3E
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	3A-3C
Trans-Pecos Rat Snake	Elaphe subocularis	3A-3C
Plain-bellied Water Snake	Nerodia erythrogaster	3A-3F
Western Ribbon Snake	Thamnophis proximus diabolicus	3A
Headwater catfish	Icatalurus lupus	3E
Sacramento Mountain Salamander	Aneides hardyi	2A,2H,4J
Spotted Owl	**Strix occidentalis**	**1A,1B,1E,1F,2D-2H,4I,4J**
Northern goshawk	**Accipiter gentilis atricapillas**	**1A,1B,1E,1F,2D-2H,4I,4J**

Flora		
Common Name	***Scientific Name***	***Management Area***
Sneed's Pincushion Cactus	Coryphantha sneedii var. sneedii	3A,3C
Kuenzler's Hedgehog Cactus	Echinocereus fendieri var. kuenzleri	40
McKittrick Pennyroyal	Hedeoma apiculatum	3A
Chaplin's Columbine	Aguilegia chaplinei	2B,3E
Sacramento Prickly Poppy	Argemone pleiacantha ssp. pinnatisecta	2B,2C
Hershey's Cliff Daisy	Chaeotopappa hersheyi	3A,3C
Texas Rabbit Brush	Chrysothamnus nauseosus ssp. texensis	3A,3C
Purple Thistle	Cirsium vinaceum	2D-2F,4J
Sacramento Penstemon	Penstemon almosensis	2B
Sierra Blanca Cinquefoil	Potentilla sierra-blancae	1F,1H,1I
Guadalupe Sophora	Sophora gypsophila var. guadalupensis	3A,3C,3E
Twist Flower	Streptanthus carinatus	3A-3C,3E
Guadalupe Aster	Aster laevis var. guadalupensis	3E
Tall Milkvetch	Astragalus altus	2E,2H,4I
Sierra Blanca Cliff Daisy	Chaetopappa elegans	1H,1I
Golden Blatterpod	Lesquerella aurea	2D-2F
Guadalupe Milkwort	Polygala rimulicola	3A-3C,3E
Supreme Sage	Salvia suma	3A-3C,3E
Gray Sibara	Sibara grisea	2B,3A-3C,3E
Curl-leaf Needlegrass	Stipa curvifolia	1I,3E
Few-leaved Streptanthus	Streptanthus sparsiflorus	3A-3C
Lee's Pinsuchion Cactus	Coryphantha sneedii var. leei	3A-3C
Texas Valerina	Valeriana texana	3A-3C

C02, C08 C11, C12 E02, E07 P11, P12 P14	In cooperation with other agencies, determine habitat requirements for Sacramento Mountain Salamander affected by timber harvest, including canopy cover and density of down logs and small residual material. Until specific requirements are determined and appropriate standards established, areas occupied by Salamander will be evaluated on a site-specific basis and addressed through the integrated resource management process
C06, C07 C10, C11 F05, F06	Protect and improve riparian and wetland areas to provide suitable aquatic environment for threatened and endangered species using measures such as log dams, rock fence structures, trees, shrub, and hydrophyte plantings, etc.
C06, C07 C10, F03 F04, F05 F06	Determine sources of water quality degradation when water quality may affect threatened and endangered species habitat. Remedy the situation where needed.
C11, C12 P35, P36	Prohibit use of pesticides, herbicides, or other contaminants harmful to any T&E species present on the project area or areas affecting prey base.

In the event new species or new populations of known species are identified to occur in the planning area, the Forest Plan will be modified to accommoda1e protection or enhancement of such species and/or their habitats.

Mexican Spotted Owl Standards and Guidelines in Selected Alternative (G)

Standards and guidelines to be added to each forest plan for Mexican spotted owl habitat, northern goshawk habitat, grazing utilization, and old growth designation follow. Standards and guidelines are the bounds or constraints within which all management activities are to be carried out in achieving forest plan objectives. The following standards and guidelines are packaged in parallel format. Parallel format means that a set of standards is described first which gives the primary constraint. Following the standards are guidelines that provide additional details on how each standard will be implemented. For example, one of the Mexican spotted owl standards is to "Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989."

The corresponding guidelines read, "Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided."

"The Protected Activity Center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center."

"The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat."

"Protected Activity Center boundaries should not overlap."

"Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys."

As the foregoing example shows, the guidelines are the detailed Information about implementation of the standards. While standards and guidelines both specify the management bounds and constraints, the standards contain no discretionary elements and the guidelines may occasionally contain discretionary elements. For example, one of the Mexican spotted owl guidelines is "The Protected Activity Center should enclose the best possible owl habitat...." The terms "should" and "best" imply some discretion on the part of the person implementing the guideline,

MEXICAN SPOTTED OWL

Standards: Provide three levels of habitat management -protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape.

Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40% where timber harvest has not occurred in the last 120 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas.

Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas.

Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas.

Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area.

Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989.

Allow no timber harvest except for fuelwood and fire risk abatement in established protected activity centers. For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with US Fish and Wildlife Service.

Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40% where timber harvest has not occurred in the last 20 years.

Limit human activity in protected activity centers during the breeding season.

In protected and restricted habitat areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements, consult with the U.S. Fish and Wildlife Service to resolve the conflict.

Monitor changes in owl populations and habitat needed for de-listing.

Guidelines:

A. GENERAL

Conduct surveys following Region 3 survey protocol.
Breeding season is March 1 to August 31.

B. PROTECTED AREAS

Protected Activity Center: **Delineate an area not less that 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided.**

The Protected Activity Center boundary should enclose the best possible owl habitat configured In as compact a unit as possible, with the nest or activity center located near the center.

The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat.

Protected Activity Center boundaries should not overlap.

Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys.

Road or trail building in protected activity centers should be avoided but may be permitted on a case-by-case basis for pressing management reasons.

Generally allow continuation of the level of recreation activities that was occurring prior to listing.

Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a sub-permit under the U.S Fish and Wildlife Service Master endangered species permit. The permit should stipulate the sites, dates, number of visits, and maximum group size.

Harvest fuelwood when it can be done in a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl.

- **Retain key forest species such as oak.**

- **Retain key habitat components such as snags and large downed logs.**

- **Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below.**

Treat fuel accumulations to abate fire risk.

- **Select for treatment 10% of the protected activity centers where nest sites are known in each recovery unit having high fire risk conditions. Also, select another 10% of the protected activity centers where nest sites are known as a paired sample to serve as control areas.**

- **Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the "no treatment" area should be as similar as possible in structure and composition as that found in the activity center.**

- **Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area.**

- **Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.**

- **Select and treat additional protected activity centers in 10% increments if monitoring of the initial sample shows there were no negative impacts or there were negative impacts that can be mitigated by modifying treatment methods.**

- **Use light prescribed burns in non-selected protected activity centers on a case-by-case basis. Burning should avoid a 100-acre "no treatment" area around the activity center. Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.**

- **Pre and post treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement. (See monitoring guidelines)**

Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40% that have not been logged within the past 20 years): No seasonal restrictions apply.

Treat fuel accumulations to abate fire risk.

- **Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.**

- **Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood tress larger than 10 inches in diameter at the root collar.**

- **Pre and post treatment monitoring should occur within all steep slopes treated for fire risk abatement. (See monitoring guidelines)**

Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas): Allow prescribed fire where appropriate.

C. RESTRICTED AREAS

(Mixed conifer, pine-oak, and riparian forests)

Mixed Conifer and Pine-oak Forests (See glossary definition): **Manage to ensure a sustained level of owl nest/roost habitat well distributed across the landscape. Create replacement owl nest/roost habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area that should be managed to have nest/roost characteristics. The minimum mixed conifer restricted area includes 10% at 170 basal area and an additional amount of area at 150 basal area. The additional area of 150 basal area is + 10% in BR-E and + 15% in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a district-wide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values. Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the district-wide or larger landscape analysis shows there is a surplus.**

Variable	MC All RU	MC BR-E RU	MC Other RU	Pine-Oak
Restricted area %	+10%	+10%	+15%	+10%
Stand Averages for:				
Basal Area	170	150	150	150
18" +trees/acre	20	20	20	20
Oak Basal Area	N/A	N/A	N/A	20
Percent total existing stand density index by size class:				
12"-18"	10	10	10	15
18"-24"	10	10	10	15
24"- +	10	10	10	15

Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions.

Maintain all species of native trees in the landscape including early seral species.

Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.

Emphasize uneven-aged management systems. However, both even-aged and uneven- aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate.

Extend rotation ages for even-aged stands to greater than 200 years. Silvicultural prescriptions should explicitly stated when vegetative manipulation will cease until rotation age is reached.

Save all trees greater than 24 inches dbh.

In pine-oak forests, retain existing large oaks and promote growth of additional large oaks.

Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire.

Retain substantive amounts of key habitat components:

Snags 18 inches in diameter and larger
Down logs over 12 inches midpoint diameter
Hardwoods for retention, recruitment, and replacement of large hardwoods

Riparian Areas: **Emphasize maintenance and restoration of healthy riparian ecosystems through conformance with forest plan riparian standards and guidelines. Management strategies should move degraded riparian vegetation toward good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.**

Domestic Livestock Grazing: **Implement forest plan forage utilization standards and guidelines to maintain owl prey availability, maintain potential for beneficial fire while inhibiting potential destructive fire, maintain and restore riparian ecosystems, and promote development of owl habitat. Strive to attain good to excellent range conditions.**

Old Growth: **Except where other wise noted, implement forest plan old growth standards and guidelines to maintain and promote development of owl habitat.**

D. OTHER FOREST AND WOODLAND TYPES

Apply ecosystem approaches to manage for landscape diversity mimicking natural disturbance patterns, incorporating natural variation in stand conditions and retaining special features such as snags and large trees, utilizing appropriate fires, and retention of existing old growth in accordance with forest plan old growth standards and guidelines.

E. GUIDELINES FOR SPECIFIC RECOVERY UNITS

Basin and Range-East: **Emphasize restoration of lowland riparian habitats**

Management activities necessary to implement the Sacramento Mountain thistle recovery plan, which may conflict with standards and guidelines for Mexican spotted owl, will take precedence and will be exempt from the conflicting Mexican spotted owl standards and guidelines.

F. MONITORING GUIDELINES

Population and habitat monitoring and evaluation, collaboratively planned and coordinated with Involvement from each national forest, USFWS Ecological Services Field Office, USFWS Regional Office, USFS Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups, should be implemented on the Lincoln National Forest.

Prepare an annual monitoring and evaluation report covering all levels of monitoring done in previous years. The annual report should be forwarded to the Regional Forester with copies to the recovery unit working group, USFWS Ecological Services field office, and the USFWS Regional Office.

PEREGRINE FALCON

The American Peregrine Falcon Recovery Plan (see references), contains habitat requirements for the peregrine falcon which will be incorporated into the guidelines on the Forest. Additional standards and guidelines for the Forest are as follows:

1/ Monitor management practices within occupied and potential peregrine falcon habitat and ensure that there are no adverse impacts.

1/ Prohibit land-use practices and development that significantly alter or eliminate the character of essential peregrine falcon hunting habitat or prey base (generally within four miles of nest sites) will be prohibited. All activities proposed within four miles of potential or existing nesting habitat will be carefully evaluated for potential effects.

The following documents provide information on the status and management direction for the peregrine falcon:

Bednarz, James C. 1981. Peregrine Falcon habitat evaluation and proposed management plan for the Guadalupe Mountains, New Mexico and Texas. Unpub. report prepared for U.S. Forest Service and National Park Service. On file at the Lincoln National Forest Office.

Fiala, Frank. 1981. Final Report: Status of Peregrine Falcons, Aqua Dulce Eryie, Lincoln National Forest, New Mexico. Unpub. report on file at the Lincoln National Forest Office.

Rocky Mountain/Southwestern Peregrine Falcon Recovery Team. 1977, American Peregrine Falcon Rocky Mountain and Southwest Population Recovery Plan. Report prepared for U.S. Fish and Wildlife Service.

USDA Forest Service. 1985. Peregrine Falcon Management, Master Interagency Agreement between USDA Forest Service - Region 3, the New Mexico Dept. of Game & Fish and USDI Fish and Wildlife Service - Region 2, No.16-R3-85-0019, March 5, 1985.

Table 14. Existing and Proposed Federal Threatened, Endangered or Sensitive Species and/or Official State Listed Species by Management Area.

Common Name	Scientific Name	Management Area
Fauna		
Aplomado Falcon	Falco femoralis septentriondis	---
Peregrine Falcon	Falco peregrinus	3A
Bald Eagle	Haliaeetus leucocephalus	1A,1E,1G,2B,2D,4J,4M, 4O,4Q,4U
Black-footed Ferret	Mustela nigripes	---
Desert Bighorn Sheep	Ovis canadensis	3B
Black-striped Least Chipmunk	Eutamias minimus atristriatus	2D,2E,4I,4J
Meadow Jumping Mouse	Zapus hudsonius luteus	2D,2E,4I,4J
Gray Vireo	Vireo vicinior	**1A,1B,1D.1I,1J,2A-2C,3A,3C 3D,3F,4I,4L,4N,4Q,4U**
Baird's Sparrow	Ammordramus bairdii	3D
McCown's Longspur	Calcarius mccownii	3D
Varied Bunting	Passerina versicolor	3A
New Mexico Ramshorn Snail	Pecosorbis kansasensis	3E
Spotted Owl	Strix occidentalis	1A,1B,1E,1F,2D-2H,4I,4J
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	3A-3C
Trans-Pecos Rat Snake	Elaphe subocularis	3A-3C
Plain-bellied Water Snake	Nerodia erythrogaster	3A-3F
Western Ribbon Snake	Thamnophis proximus diabolicus	3A
Headwater catfish	Icatalurus lupus	3E
Sacramento Mountain Salamander	Aneides hardyi	2A,2H,4J
Spotted Owl	**Strix occidentalis**	**1A,1B,1E,1F, 2D-2H, 4I,4J**
Northern goshawk	**Accipiter gentilis atricapillas**	**1A,1B,1E,1F, 2D-2H, 4I,4J**

Table 14. (Continued)

Flora

Common Name	***Scientific Name***	***Management Area***
Sneed's Pincushion Cactus	Coryphantha sneedii var. sneedii	3A,3C
Kuenzler's Hedgehog Cactus	Echinocereus fendieri var. kuenzleri	40
McKittrick Pennyroyal	Hedeoma apiculatum	3A
Chaplin's Columbine	Aguilegia chaplinei	2B,3E
Sacramento Prickly Poppy	Argemone pleiacantha ssp. pinnatisecta	2B,2C
Hershey's Cliff Daisy	Chaeotopappa hersheyi	3A,3C
Texas Rabbit Brush	Chrysothamnus nauseosus ssp. texensis	3A,3C
Purple Thistle	Cirsium vinaceum	2D-2F,4J
Sacramento Penstemon	Penstemon almosensis	2B
Sierra Blanca Cinquefoil	Potentilla sierra-blancae	1F,1H,1I
Guadalupe Sophora	Sophora gypsophila var. guadalupensis	3A,3C,3E
Twist Flower	Streptanthus carinatus	3A-3C,3E
Guadalupe Aster	Aster laevis var. guadalupensis	3E
Tall Milkvetch	Astragalus altus	2E,2H,4I
Sierra Blanca Cliff Daisy	Chaetopappa elegans	1H,1I
Golden Blatterpod	Lesquerella aurea	2D-2F
Guadalupe Milkwort	Polygala rimulicola	3A-3C,3E
Supreme Sage	Salvia suma	3A-3C,3E
Gray Sibara	Sibara grisea	2B,3A-3C,3E
Curl-leaf Needlegrass	Stipa curvifolia	1I,3E
Few-leaved Streptanthus	Streptanthus sparsiflorus	3A-3C
Lee's Pinsuchion Cactus	Coryphantha sneedii var. leei	3A-3C
Texas Valerina	Valeriana texana	3A-3C

Ecosystem Management in Northern Goshawk Habitat (Alternative G)

Applicability
The northern goshawk standards and guidelines apply to the forest and woodland communities described below that are outside of Mexican spotted owl protected and restricted areas. Within Mexican spotted owl protected and restricted areas, the spotted owl standards and guidelines take precedence over northern goshawk standards and guidelines. One or the other set of standards and guidelines apply to all forest and woodland
communities but the Mexican spotted owl standards always take precedence in areas of overlap.

Standards
Survey the management analysis area prior to habitat modifying activities including a 1/2 mile beyond the boundary.

Establish, and delineate on a map, a post-fledgling family area that includes 6 nesting areas per pair of nesting goshawks for known nest sites, old nest sites, areas where historical data indicates goshawks have nested there in the past, and where goshawks have been repeatedly been sighted over the past two year or greater period of time but no nest sites have been located. Manage for un-even-age stand condition for live trees and retain live reserve trees, snags, downed logs, and woody debris levels throughout woodlands. ponderosa pine, mixed-conifer, and spruce-fir cover types. Manage for old age trees such that as much old forest structure as possible is sustained over time across the landscape. Sustain a mosaic of vegetation densities (overstory and understory), age class, and species composition across the landscape. Provide foods and cover for goshawk prey.

Limit human activity in nesting areas during the breeding season.

Manage the ground surface layer to maintain satisfactory soil condition i.e., minimize soils compaction; and to maintain hydrologic and nutrient cycles.

When activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements, consult with the U.S. Fish and Wildlife Service to resolve the conflict.

Within the range of the Kaibab pincushion cactus, *pediocactus paradinei*, and the Arizona leatherflower, *clematis hirsutissima arizonica*, management activities needed for the

conservation of these two species that may conflict with northern goshawk standards and guidelines will be exempt from the conflicting northern goshawk standards and guidelines until conservation strategies or recovery plans (if listed) are developed for the two species.

Guidelines

General
Emphasize maintenance and restoration of the healthy riparian ecosystems through the conformance with forest plan riparian standards and guidelines. Management strategies should restore degraded riparian areas to good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.

Refer to USDA Forest Service General Technical Report RM-217 entitled "Management Recommendations for the Northern Goshawk in the Southwest United States" for scientific information on goshawk ecology and management which provide the basis for the management guidelines. Supplemental information on goshawk ecology and management may be found in "The Northern Goshawk: Ecology and Management" published by the Cooper Ornithological Society as Studies in Avian Biology No. 16. In woodland forest cover types, use empirical data to determine desired habitat conditions.

Inventory

Use the R3 survey protocol to get complete coverage of the management analysis area (Kennedy and Stahlecker, 1993, as modified by Joy, Reynolds, and Leslie, 1994) Management analysis areas should be entire ecosystem management areas if possible.

Complete at least 1 year of survey, but 2 years of surveys should be done to verify questionable sightings, unconfirmed nest sites, etc. If nesting goshawks are found during the first year, a second year of inventory is not needed in that territory.

For areas where complete inventories cannot be done, use aerial photographs to locate vegetative structural stages (VSS) 4-6 within the project area and inventory just those sites for goshawk nest areas using R3 inventory protocol. All uninventoried areas (VSS 1-3) will be managed to post-fledgling family areas (PFA) specifications while in that stage. If while using this inventory option evidence suggests goshawks are present (such as finding plucking perches or molted goshawk feathers), conduct a complete inventory as outlines above.

If forests have goshawks commonly nesting in stands classified as VSS 1-3, use the complete inventory method for those areas. There may be situations where an area is classified as a VSS 3, based on predominant VSS class, but in actuality a combination of VSS 4 & 5 predominate the area. For those situations, use complete inventory methods.

Home Range Establishment

Post-fledgling family areas (PFA) will be approximately 600 acres in size. Post-fledgling family areas will include the nest sites and consist of the habitat most likely to be used by the fledgling during their early development.

Establish a minimum of 3 nest areas and 3 replacement nest areas per post-fledgling family area. The nest areas and replacement nest areas should be approximately 30 acres in size. A minimum total of 180 acres of nest area should be identified within each post-fledgling family area.

Nest site selection will be based first on using active nest sites followed by the most recently used historical nest areas. When possible, all historical nest areas should be maintained.

Manage for the nest replacement sites to attain sufficient quality and size to replace the three suitable nest sites.

Management Scale

Distribution of habitat structure (tree size and age classes, tree groups of different densities, snags, dead and down woody material, etc.) should be evaluated at the ecosystem management area level, at the mid-scale such as drainage, and at the small scale of site.

Vegetation Management

Landscape Outside Goshawk Post-fledgling Family Areas

General: The distribution of vegetation structural stages for ponderosa pine, mixed-conifer, and spruce-fir is 10% grass/forbes/shrub (VSS 1), 10% seedling-sapling (VSS 2), 20% young forest (VSS 3), 20% mid-aged forest (VSS 4), 20% mature forest (VSS 5), 20% old forest (VSS 6). NOTE: The specified percentages are a guide and actual percentages are expected to vary + or - up to 3%.

The distribution of VSS, tree density, and tree age are a product of site quality in the ecosystem management area. Use site quality to guide in the distribution of VSS, tree density and tree age. Use site quality to identify and manage dispersal PFA and nest habitat a 2 to 2.5 miles spacing across the landscape.

Snags are 18" or larger dbh and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inched or larger on the forest floor, canopy cover is measured with vertical crown projecting on the average across the landscape.

Amendment 9, June 5, 1996

The order of preferred treatment for woody debris is: 1) prescribed burning, 2) lopping and scattering, 3) hand-piling or machine grapple, and 4) dozer piling.

Canopy Cover: Canopy cover guidelines apply only to mid-aged forest structural stages (VSS 4, VSS 5, and VSS 6) and not to grass/forbs/shrub to young forest structural stages (VSS 1, VSS 2, and VSS 3).

Spruce-fir: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60% and 2/3 40%, mature forest (VSS 5) should average 60+%, and old forest (VSS 6) should average 60+%. Maximum opening size is 1 acre with a maximum width of 125 feet. Provide two groups of reserve trees per acre with 6 trees per group when opening size exceeds 0.5. Leave at least 3 snags, 5 downed logs, and 10-15 tons of woody debris per acre.

Mixed-conifer: Canopy cover for mid-aged forests (VSS 4) should average 1/3 60+% and 2/3 40+%, mature forest (VSS 5) should average 50+%, and old forest (VSS 6) should average 60+%. Maximum opening size is up to 4 acres with a maximum width of up to 200 feet. Retain one group of reserve trees per acre of 3-5 trees per group for openings greater than 1 acre, and 10-15 tons of woody debris per acre.

Ponderosa Pine: Canopy cover for mid-aged forest (VSS 4) should average 40+%, mature forest (VSS 5) should average 40+%, and old forest (VSS 6) should average 40+%. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, 3-5 trees per group, will be left if the opening is greater than an acre in size. Leave at least 2 snags per acre, 3 downed logs per acre, and 5-7 tons of woody debris per acre.

Within Post-fledgling Family Areas

General: Provide for a healthy sustainable forest environment for the post-fledgling family needs of goshawks. The principle difference between "within the post-fledgling family area" and "outside the post-fledgling family are" is the higher canopy cover within the post-fledgling family area and smaller opening size within the post-fledgling family area within the post-fledgling family area. Vegetative structural stage distribution and structural conditions are the same within and outside the post-fledgling family area.

Spruce-fir: Canopy cover for mid-aged (VSS 3) should average 60+% and for old forest (VSS 6) should average 60+%.

Mixed-conifer: Canopy Cover for mid-aged (VSS 4) to old forest (VSS 6) should be 60+%.

Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average /13 60+% and 2/3 50+%. Mature (VSS 5) and old forest (VSS 6) should average 50+%.

Woodlands: Maintain existing canopy cover levels.

Within Nesting Areas

General: Provide unique nesting habitat conditions for goshawks. Important features include trees of mature to old-age with high canopy cover.

Amendment 9, June 5, 1996

The structure of the vegetation within nest areas is associated with the forest type, and tree age, and density, and the developmental history of the stand. Table 5 of RM-217 presents attributes required for goshawk on locations with "low" and "high" site productivity.

Preferred treatments to maintain the desired structure are to thin from below with non-uniform spacing and use of hand tools and fire to reduce fuel loads. Lopping and scattering of the thinning debris is preferred if prescribed fire cannot be used. Piling of debris should be limited. When necessary, hand-piling should be used to minimize compaction within piles and to minimize displacement and destruction of the forest floor herbaceous layer. Do not grapple or Dozer pile debris. Manage road densities at the lowest level possible to minimize disturbance in the nest area. Use small, permanent skid trails in lieu of roads for timber harvesting.

Spruce-fir, mixed-conifer, ponderosa pine cover types: The nesting area contains only mature to old forest (VSS 5 & 6) having a canopy cover (measured vertically) between 50-70% with mid-aged VSS 6 trees 200-300 years old. Non-uniform spacing of trees and clumpiness is desirable.

Woodlands: Maintain existing canopy cover levels.

Human Disturbance:

Limit human disturbance in or near nest sites and post-fledgling family areas during the breeding season so that goshawk reproductive success in not affected by human activity.

The breeding season extends from March 1 through September 30.

Low intensity ground fires are allowed at any time in all forest cover types, but high intensity crown fires are not acceptable in the Post-fledgling family area or nest areas. Avoid burning the entire home range of a goshawk pair in a single year. For fires plans in the occupied nest are, a fire management plan should minimize the risk of goshawk abandonment while low intensity fire burns in the nest area. Prescribed fire within the nesting are should be plans to move with prevailing winds away from the nest tree to minimize smoke and crown fire developing and driving the adults off or consuming the nest tree.

Ground Surface Layer:

(All forested cover types)

Manage road densities at the lowest possible. Where timber harvesting has been prescribed to achieve desired forest condition, use small skid trails in lieu of roads.

Piling of debris should be limited. When necessary, hand or grapple piling should be used to minimize soil compaction within piles and to minimize forest floor herbaceous layer displacement and destruction. Limit dozer use for piling or scattering of logging debris so that the forest floor and herbaceous layer is not displaced or destroyed.

Mexican Spotted Owl (Alternative G)

Standards

Provide three levels of habitat management-protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape.

Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40% where timber harvest has not occurred in the last 20 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas.

Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas.

Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas.

Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area.

Monitor changes in owl populations and habitat needed for delisting.

Guidelines

A. General
Conduct surveys following Region 3 survey protocol

Breeding season is March 1 to August 31.

B. Protected Areas
Protected Activity Centers: Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided.

The Protected Activity Center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center.

The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat.

Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989.

Monitor changes in owl populations and habitat needed for delisting.

Guidelines

A. General
Conduct surveys following Region 3 survey protocol.

Breeding season is March 1 to August 31.

B. Protected Areas
Protected Activity Centers: Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided.

The Protected Activity Center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center.

The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat.

Protected Activity Center boundaries should not overlap.

Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys.

Road or trail building in protected activity centers should be avoided but may be permitted on a case-by-case basis for pressing management reasons.

Generally allow continuation of the level of recreation activities that was occurring prior to listing.

Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a subpermit under the U.S. Fish and Wildlife Service Master endangered species permit. The permit should stipulate the sites, dates, number of visits and maximum group size permissible.

Harvest fuelwood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl:

- **-Retain key forest species such as oak.**
- **-Retain key habitat components such as snags and large downed logs.**
- **-Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fife risk as described below.**

Treat fuel accumulations to abate fire risk:

- **-Select for treatment 10% of the protected activity centers where nest sites are known in each recovery unit having high fire risk conditions. Also select another 10% of the protected activity centers where nest sites are known as a paired sample to serve as control areas.**

-Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.

-Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100- acre "no treatment" area.

-Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.

-Select and treat additional protected activity centers in 10% increments if monitoring of the initial sample shows there were no negative impacts or there were negative impacts which can be mitigated by modifying treatment methods.

-Use light prescribed burns in nonselected protected activity centers on a case-by-case basis. Burning should avoid a 100-acre "no treatment" area around the activity center. Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.

-Pre- and post-treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement (See monitoring guidelines).

Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40% that have not been logged within the past 20 years): **No seasonal restrictions apply.**

Treat fuel accumulations to abate fire risk:

-.Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.
-Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar .
-Pre- and post-treatment monitoring should occur within all steep slopes treated for fire risk abatement (See monitoring guidelines).

Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas): **Allow prescribed fire where appropriate.**

C. Restricted Areas
(Mixed conifer, pine-oak, and riparian forests)

Mixed Conifer and Pine-oak Forests (See glossary definition) **: Manage to ensure a sustained level of owl nest/roost habitat well distributed across the landscape. Create replacement owl nest/roost habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species.**

The following table displays the minimum percentage of restricted area which should be managed to have nest/roost characteristics. The minimum mixed conifer restricted area includes 10% at 170 basal area and an additional amount of area at 150 basal area. The additional area of 150 basal area is +10% in ER-E and +15% in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a district-wide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values.

Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the district-wide or larger landscape analysis shows there is a surplus.

	MC ALL RU	**MC BR-E RU**	**MC OTHER RU**	**PINE-OAK**
Restricted Area Percent	10%	+10%	+15%	10%
Stand Averages for: Basal Area 18 inch + trees/ac Oak basal area	 170 20 NA	 150 20 **NA**	 150 20 NA	 150 20 20
Percent total existing stand density index by size class: 12-18" 18-24" 24+"	 10 10 10	 10 10 10	 10 10 10	 15 15 15

Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions. Maintain all species of native trees in the landscape including early seral species.

Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.

Emphasize uneven-aged management systems. However, both even-aged and uneven-aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate.

Save all trees greater than 24 inches dbh.

In pine-oak forests. retain existing large oaks and promote growth of additional large oaks.

Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire.

Retain substantive amounts of key habitat components:

.Snags 18 inches in diameter and larger.

.Down logs over 12 inches midpoint diameter .Hardwoods for retention, recruitment, and replacement of large hardwoods.

Riparian Areas: **Emphasize maintenance and restoration of healthy riparian ecosystems through conformance with forest plan riparian standards and guidelines. Management strategies should move degraded riparian vegetation toward good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.**
Domestic Livestock Grazing: **Implement forest plan forage utilization standards and guidelines to maintain owl prey availability, maintain potential for beneficial fire while inhibiting potential destructive fire, maintain and restore riparian ecosystems, and promote development of owl habitat. Strive to attain good to excellent range conditions.**

Old Growth: **Except where otherwise noted, implement forest plan old growth standards and guidelines to maintain and promote development of owl habitat.**

D. Other Forest and Woodland Types
Apply ecosystem approaches to manage for landscape diversity mimicking natural disturbance patterns, incorporating natural variation in stand conditions and retaining special features such as snags and large trees, utilizing appropriate rues, and retention of existing old growth in accordance with forest plan old growth standards and guidelines.

E. Guidelines For Specific Recovery Units

Colorado Plateau: **No special additional guidelines apply.**
Southern Rocky Mountain -New Mexico: **No special additional guidelines apply.**
Upper Gila Mountains: **No special additional guidelines apply.**

Basin and Range. West: **Emphasize restoration of lowland riparian habitats.**

Management activities necessary to implement the Mt. Graham red squirrel recovery plan, **which may conflict with standards and guidelines for Mexican spotted owl, will take precedence and will be exempt from the conflicting Mexican spotted owl standards and guidelines.**
Basin and Range -East: **Emphasize restoration of . lowland riparian habitats.**

Management activities necessary to implement the Sacramento Mountain thistle recovery plan, **which may conflict with standards and guidelines for Mexican spotted owl, will take precedence and will be exempt from the conflicting Mexican spotted owl standards and guidelines.**

F. Monitoring Guidelines
Monitoring and evaluation should be collaboratively planned and coordinated with involvement from each national forest, USFWS Ecological Services Field Office, USFWS Regional Office, USDA Forest Service Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups.

Population monitoring should be a collaborative effort with participation of all appropriate resource agencies.

Habitat monitoring of gross habitat changes should be a collaborative effort of all appropriate resource agencies.

Habitat monitoring of treatment effects (pre- and post- treatment) should be done by the agency conducting the treatment.

Prepare an annual monitoring and evaluation report covering all levels of monitoring done in the previous year. The annual report should be forwarded to the Regional Forester with copies provided to the recovery unit working groups, USFWS Ecological Services field offices, and the USFWS Regional Office.

Rangewide: **Track gross changes in acres of owl habitat resulting from natural and human caused disturbances. Acreage changes in vegetation composition, structure, and density should be tracked, evaluated, and reported. Remote sensing techniques should provide an adequate level of accuracy.**

In protected and restricted areas where silvicultural or fire abatement treatments are planned, monitor treated stands pre- and post-treatment to determine changes and trajectories in fuel levels; snag basal areas; live tree basal areas; volume of down logs over 12 inches in diameter; and basal area of hardwood trees over 10 inches in diameter at the 'root crown.

Upper Gila Mountain, Basin and Range East, and Basin and Range West Recovery Units: Assist the recovery team and recovery unit working groups to establish sampling units consisting of 19 to 39 square mile quadrats randomly allocated to habitat strata. Quadrats should be defined based on ecological boundaries such as ridge lines and watersheds. Quadrant boundaries should not traverse owl territories. Twenty percent of the quadrats will be replaced each year at random.

Using the sample quadrats, monitor the number of territorial individuals and pairs per quadrat; reproduction; apparent survival; recruitment; and age structure. Track population density both per quadrant and habitat stratum.