

# **Chapter 6**

## **Matrix**



# Chapter 6

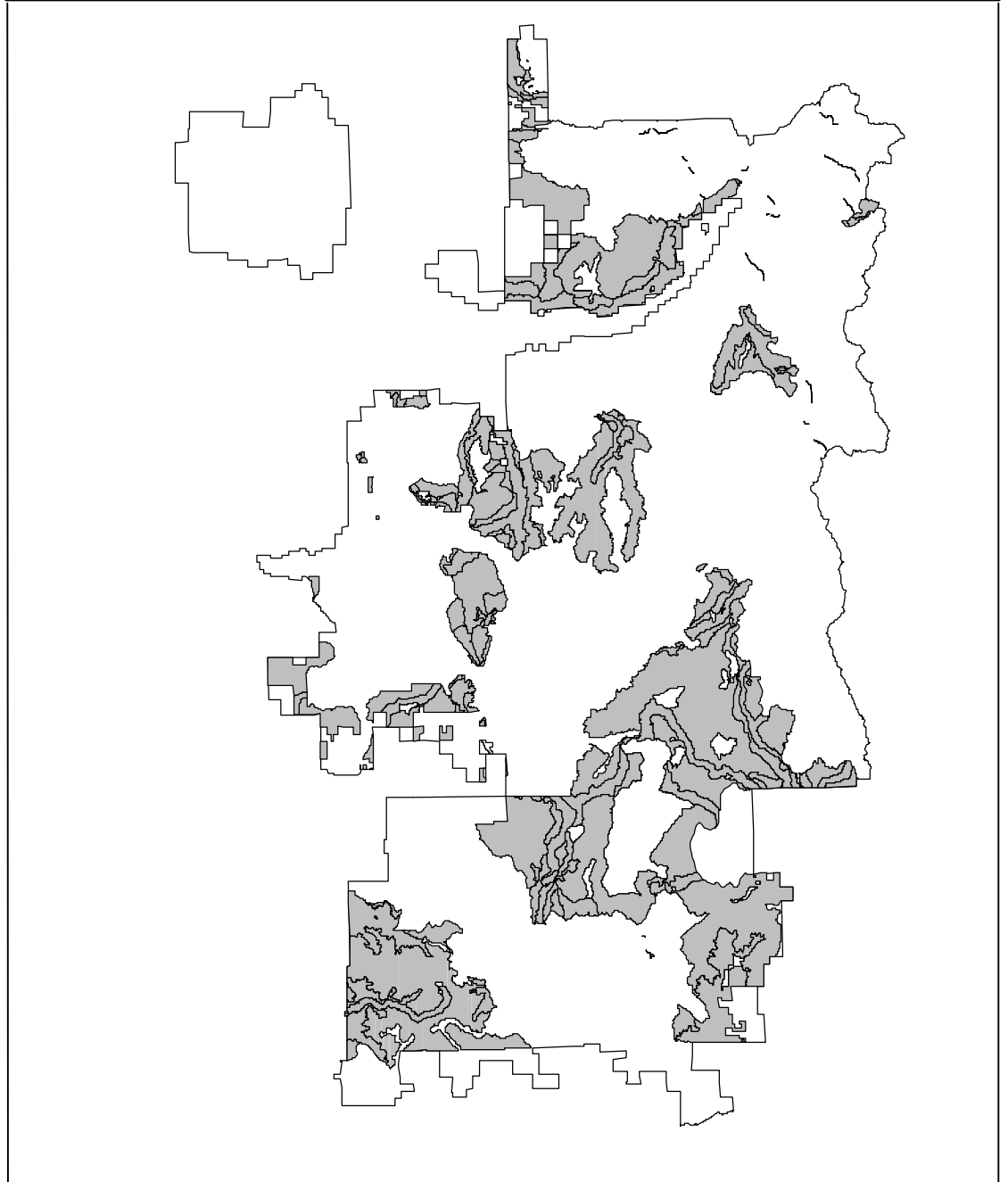
## Matrix

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***Matrix Map***  
*Within the Gifford Pinchot National Forest*



# Chapter 6

## Matrix [ROD C-39>

Key and non-Key Watersheds are specified for all areas and, therefore, overlay all other land allocations. The standards and guidelines for Key Watersheds, as well as the standards and guidelines for Matrix, listed below, apply.

See “Hierarchy of Standards and Guidelines” in Chapter 1, and “Key Watersheds” in Chapter 2.

### Description

The Matrix consists of those federal lands outside the six categories of designated areas (Congressionally Reserved Areas, Late-Successional Reserves, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, and Riparian Reserves). Most scheduled timber harvest not taking place in Adaptive Management Areas will occur in the Matrix. The Matrix includes nonforested areas and forested areas that are technically unsuitable for timber production.

Standards and guidelines for unmapped Late-Successional Reserves and Managed Late-Successional Areas prohibit or limit activities that otherwise appear to be within the Matrix. Unmapped Late-Successional Reserves are identified around occupied marbled murrelet sites, and for 100 acres around known spotted owl activity centers. Unmapped Late-Successional Reserves and Managed Late-Successional Areas are identified for certain protection buffers. See the Late-Successional Reserve and Managed Late-Successional Area descriptions in Chapter 5 for specific information.

### Standards and Guidelines

See also Chapter 2, “Forest Wide Management Direction.”

#### ***Provide specified amounts of coarse woody debris in Matrix management.***

A renewable supply of large down logs is critical for maintaining populations of fungi, arthropods, bryophytes and various other organisms that use this habitat structure. Provision of coarse woody debris is also a key standard and guideline for American marten, fisher, two amphibians, and two species of vascular plants. The objective is to provide coarse woody debris well distributed across the landscape in a manner which meets the needs of species and provides for ecological functions. Standards and guidelines should provide for appropriate coarse woody debris quantity, quality (such as species, decay stage and size) and distribution. Models for computing expected numbers and sizes of logs should be developed for groups of plant associations and stand types which can be used as a base line for managers to develop prescriptions for landscape management. An important factor is to provide the coarse woody debris within a forest patch so that the

appropriate microclimate for various organisms that use this substrate is available. Coarse woody debris that is already on the ground needs to be retained and protected from disturbance to the greatest extent possible during logging and other land management activities that might destroy the integrity of the substrate. Scattered green trees will provide a future supply of down woody material as the stand regenerates and are important in providing for the distribution of this substrate throughout the managed landscape.

Specific measures for coarse woody debris follow. These measures are intended to be applied in Matrix forests. The intent of the measures must also be met in Adaptive Management Areas, but specific standards and guidelines are not prescribed for those areas.

1. Manage to provide a renewable supply of large down logs well distributed across the Matrix landscape in a manner that meets the needs of species and provides for ecological functions. Develop models for groups of plant associations and stand types that can be used as a base line for developing prescriptions.
2. Until standards are developed as described above, the following guidelines apply in areas of regeneration harvests for western Washington. Leave an average of 240 linear feet of logs per acre generally evenly distributed and greater than or equal to 20 inches in diameter on the large end to a 6 inch top. Logs less than 20 feet in length cannot be credited toward this total. The area to be considered for downed log requirements does not include riparian reserves or reserve tree patches associated with the harvest unit. In Washington, east of the Cascades, a minimum of 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long should be retained. Needs for exceeding the 240 or 120 feet requirement may be established through an interdisciplinary analysis. Only decay class 1 and 2 logs can be counted towards these totals. Down logs should reflect the species mix of the original stand. In areas of partial harvest, the same basic guidelines should be applied, but they should be modified to reflect the timing of stand development cycles where partial harvesting is practiced.
3. Coarse woody debris contributing to the 240 or 120 feet requirement and already on the ground should be retained and protected to the greatest extent possible from disturbance during treatment (e.g., slash burning and yarding) which might otherwise destroy the integrity of the substrate.
4. Down logs should be left within forest patches that are retained under green-tree retention guidelines in order to provide the microclimate that is appropriate for various organisms that use this substrate.
5. As with all standards and guidelines, these guidelines are meant to provide initial guidance, but further refinement will be required for specific geographic areas. This can be accomplished through planning based on watershed analysis and the adaptive management process.

***Emphasize green-tree and snag retention in Matrix management.***

For many species, benefits will be greatest if trees are retained in patches rather than singly. Because very small patches do not provide suitable microclimates for many of these organisms, patches should generally be larger than 2.5 acres.

Although many species would benefit from retention of patches, others may be favored by retention of single trees. Within the minimum constraints described in item 2 below, the relative proportion of patches vs. single trees retained must reflect local knowledge of individual species needs.

Retained patches should be protected for multiple rotations to provide support for those organisms that require very old forests.

Specific measures for green-tree and snag retention follow. These measures are intended to be applied throughout the Matrix forests. Their intent should be met in Adaptive Management Areas, but standards and guidelines are not prescribed for those areas.

1. Retain at least 15 percent of the area associated with each cutting unit (stand). Only Matrix lands count toward the 15 percent.

This limitation does not apply to intermediate harvests (thinnings) in even-age young stands because leaving untreated portions of young stands would retard stand development and be detrimental to the objective of creating late-successional patches.

2. As a general guide, 70 percent of the total area to be retained should be aggregates of moderate to larger size (.5 to 2.5 acres ) with the remainder as dispersed structures (individual trees, and possible including smaller clumps less than .5 acres) Larger aggregates may be particularly important where adjacent areas have little late-successional habitat. To the extent possible, patches and dispersed retention should include the largest, oldest live trees, decadent or leaning trees, and hard snags occurring in the unit. Patches should be retained indefinitely.
3. As a minimum, snags are to be retained within the harvest unit at levels sufficient to support species of cavity-nesting birds at 40 percent of potential population levels based on published guidelines and models. The objective is to meet the 40 percent minimum standard throughout the Matrix, with per-acre requirements met on average areas no larger than 40 acres. To the extent possible, snag management within harvest units should occur within the areas of green-tree retention. The needs of bats should also be considered in these standards and guidelines as those needs become better known. Snag recruitment trees left to meet an identified, near-term (less than three decades) snag deficit do not count toward green-tree retention requirements. <ROD C-42]



**Cavity Excavators**<sub>[FP IV-51></sub>

1. Dead and defective tree habitat will be maintained for primary cavity excavators after timber harvesting or other vegetative manipulation. Such habitat includes snags, standing defective trees, and down trees or logs.
2. The cavity excavators for which habitat will be maintained include the following species:

Species	Habitat Capability
Red-breasted sapsucker	40%
Williamson's sapsucker	40%
Downy woodpecker	40%
Hairy woodpecker	40%
Northern flicker	40%
Red-breasted nuthatch.	40%
Pileated woodpecker	40%
Black-backed woodpecker	100
Three-toed woodpecker	100%
White-headed woodpecker	100%

3. Snags, including defective trees, will be at least 17 inches DBH, and should be at least 40 feet in height. Snags/wildlife trees should be plainly marked or bounded to permit adequate protection during logging and slash disposal. Considering the potential for windthrow and other factors, at least some of the snags should be scattered over the harvest area to provide representation of varying elevations and aspects.

See snag requirements under Protection Buffers, page 6-7.

4. Because of safety considerations during logging and the fact that snags will require replacement as they fall down over the rotation period, some or all of the "snags" to be retained will be in the form of sound, green wildlife trees. After timber removal and throughout the rotation, these trees will be converted to snags as needed to maintain the required level of dead/defective tree habitat. Wildlife trees to be retained should usually be 17 inches DBH or larger.
5. Management of wildlife trees should emphasize retaining the needed number of trees, rather than simply leaving extra trees or larger trees. For example, tops may be blown out of scattered green trees to make them less susceptible to windthrow, assuring that they remain on site for a longer period of time. Table 6-1 shows the minimum number of wildlife trees per acre to be maintained after regeneration harvest.

6. The minimum level of snags, wildlife trees, and down logs will be maintained and protected from harvest and fuel treatment operations, firewood cutting, and future salvage activities.
7. The amount of dead/defective tree habitat, including wildlife trees, to be maintained will be determined for each regeneration timber harvest area and the subsequent stand. All determinations will be done on a case-by-case, interdisciplinary basis.
8. The following silvicultural factors should be considered in the selection and management of wildlife trees. Green wildlife trees are retained under the standards and guidelines as a source of future snags in and adjacent to timber harvest areas:
  - a) Wildlife trees with green crowns (which are not blown out) have an opportunity to disseminate seeds which land in mineral soil exposed by harvest/site prep activities. These seeds have a high probability of successfully germinating and growing on the site prior to planting operation. They would likely be a component of the future stand occupying the site.
  - b) From a tree improvement standpoint, green trees selected as wildlife trees should have straight boles (no crook or sinuosity) and should not be forked (particularly should not exhibit multiple forking). Bole straightness and forking are traits which have a high probability of being inherited by seedlings from the parent trees. Attention to the characteristics of the parental generation will enhance the wood quality of succeeding generations. Lack of attention to inherited traits will decrease long-term productivity of future timber management.
  - c) Tree resistance to diseases that are associated with old age, such as heart rot, stem rot, etc., is probably not hereditary. Root rots tend to be site-endemic, and insect attack is usually secondary to disease or overstocking, so "old culls" are not necessarily dysgenic. Since root rot, however, spreads longer and farther from infected live trees than from stumps, trees with root rot should not be left as wildlife trees. Leaving windfirm cull trees *without* root rot is acceptable if the stems are straight and unforked. Due to the ability of overstory dwarf mistletoe to severely infect understory seedlings and saplings, no mistletoe-infected wildlife trees should be left in regeneration harvest units. If all potential wildlife trees are mistletoe-infected, a different species should be planted. <FP IV-52]

Table 6-1 Numbers of wildlife trees to be retained after harvest for snag creation.\*

Working Group	Snags >17" DBH	Green Trees >17" DBH	Total per acre
All	2.6/ac.	0.8/ac	3.4
<p>*These are in addition to the 15 percent requirement for biological legacy.</p> <ul style="list-style-type: none"> <li>• Green trees are in addition to snags.</li> <li>• If snags are not available or safe to leave, substitute green trees for conversion</li> <li>• Apply only to treated portion of the harvest unit; not riparian reserves or retention tree patches.</li> <li>• At least one snag per harvest unit must be a hard snag greater than 25" DBH.</li> </ul>			

**Modify site treatment practices, particularly the use of fire and pesticides, and modify harvest methods to minimize soil and litter disturbance.** [ROD C-44>

Many species of soil and litter-dwelling organisms, such as fungi and arthropods, are sensitive to soil and litter disturbance. Site treatments should be prescribed which will minimize intensive burning, unless appropriate for certain specific habitats, communities or stand conditions. Prescribed fires should be planned to minimize the consumption of litter and coarse woody debris. Other aspects to this standard and guideline include minimizing soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment, and reducing the intensity and frequency of site treatments. Soil compaction, and removal or disturbance of humus layers and coarse woody debris, may impact populations of fungi and arthropods.

**Provide for retention of old-growth fragments in watersheds where little remains.**

The distribution of old-growth stands throughout the landscape is an important component of ecosystem diversity, and plays a significant role in providing for biological and structural diversity across the landscape. Isolated remnant old-growth patches are ecologically significant in functioning as refugia for a host of old-growth associated species, particularly those with limited dispersal capabilities that are not able to migrate across large landscapes of younger stands. These include, but are not limited to, many species of fungi, lichens, bryophytes, arthropods, and vascular plants, and will likely include vertebrate species such as small mammals and amphibians, and various bird species. Isolated patches will function as refugia where old-growth associated species are able to persist until conditions become suitable for their dispersal into adjacent stands. Loss of these old-growth stands may result in local extirpation of an array of species. It is

prudent to retain what little remains of this age class within landscape areas where it is currently very limited. This will ensure future options for management and enhancement of the diversity within adjacent developing stands

Landscape areas where little late-successional forest persists should be managed to retain late-successional patches. This standard and guideline will be applied in fifth field watersheds (20 to 200 square miles) in which federal forest lands are currently comprised of 15 percent or less late-successional forest. This assessment should include all allocations in the watershed. Within such an area, all remaining late-successional stands should be protected. Protection of these stands could be modified in the future, when other portions of the watershed have recovered to the point where they could replace the ecological roles of these stands.

### ***Known Northern Spotted Owl Activity Centers***

Standards and guidelines in the Late-Successional Reserve portion of these standards and guidelines specify the protection of 100-acres of owl habitat around all known owl activity centers. Management of stands in the Matrix surrounding these areas will be designed to reduce risks of natural disturbance.

### ***Protection Buffers***

These standards and guidelines incorporated from the Scientific Analysis Team Report will result in protection for specific species. The following rare and locally endemic species are likely to be assured viability if they occur within designated areas. Where these species occur in the Matrix, however, the following standards and guidelines will be applied. For the birds listed below, activities that are implemented in 1994 should use this information to the greatest degree possible. Activities implemented in 1995 and later must include these provisions. For the Lynx, implementation should follow the schedule described for Survey and Manage Component 2.

#### **Birds:**

White-headed Woodpecker, Black-backed Woodpecker, Pygmy Nuthatch, and Flammulated Owl - These species will not be sufficiently aided by application of mitigation measures for riparian habitat protection or for marbled murrelets alone. They all occur on the periphery of the range of the northern spotted owl on the east slope of the Cascade Range in Washington or Oregon. The viability of these species within the range of the northern spotted owl was rated as a medium risk on National Forests, although they each are much more widely distributed elsewhere.

Apply the following mitigation standards and guidelines to ensure that the distribution and numbers these species do not severely decline within the range of the northern spotted owl. These guidelines apply to the forest Matrix outside designated habitat for the northern spotted owl and Riparian Reserves. Maintain adequate numbers of large snags and green-tree replacements for future snags

within the four species' ranges in appropriate forest types. Where feasible, green-tree replacements for future snags can be left in groups to reduce blowdown. Specifically, the Scientific Analysis Team (SAT) recommends that no snags over 20 inches DBH be marked for cutting. The Scientific Analysis Team recognizes, however, that safety considerations may prevent always retaining all snags. Use of standardized definitions of hazard trees is required. For the longer term, provide for sufficient numbers of green trees to provide for the full (100 percent) population potential of each species.

As depicted by Neitro in *Management of Wildlife and Fish Habitats in Forest of Western Oregon and Washington* (1985). The 100 percent population potential for white-headed woodpeckers is 0.6 conifer snags per acre in forest habitats. These snags must be at least 15 inches DBH (or largest available) and in soft decay stages, and must be provided in stands of ponderosa pine and mixed pine/Douglas-fir.

The 100 percent population potential for black-backed woodpeckers is 0.12 conifer snags per acre in forest habitats. These snags must be at least 17 inches DBH (or largest available if 17 inch DBH snags are not available) and in hard decay stages, and must be provided in stands of mixed conifer and lodgepole pine in higher elevations of the Cascade Range. Provision of snags for other cavity-nesting species, including primary cavity-nesters, must be added to the requirements for these woodpecker species. Site-specific analysis, and application of a snag recruitment model (specifically, the Forest Service's Snag Recruitment Simulator) taking into account tree species, diameters, falling rates, and decay rates, will be required to determine appropriate tree and snag species mixes and densities. ***If snag requirements cannot be met, then harvest must not take place.***

As identified by the expert panel, black-backed woodpeckers also require beetle infested trees for foraging; some such trees should be provided in appropriate habitat and sanitation harvest of all such trees would be detrimental to the species. More information is needed on habitat use, seasonal occurrence, and use of forest age classes and burns for the black-backed woodpecker.

Pygmy nuthatches use habitat very similar to those of white-headed woodpeckers. Pygmy nuthatches require large trees, typically ponderosa pine within the range of the northern spotted owl, for roosting. Provision of snags is assumed to provide for the needs of pygmy nuthatch, as no species-specific guidelines for the species have been developed. Additional information on ecology of pygmy nuthatch within the range of the northern spotted owl is needed to develop more precise standards and guidelines.

Flammulated owls are secondary cavity-nesters and use cavities, in snags and live trees, created by woodpeckers or, less often, that occur naturally. It is assumed that standards and guidelines for snags and green-tree replacements for woodpeckers and other primary cavity-nesting species, as provided by existing National Forest Land and Resource Management Plans and for the woodpeckers in this species group, would provide for flammulated owls.

*NOTE:* The snag recommendations above are based on the model presented by Neitro and others (1985). In that model, snag requirements for individual species were treated as additive in developing snag requirements for the overall community of cavity excavators. As noted above, “provision of snags for other cavity-nesting species, including primary cavity nesters, must be added to the requirements for these two woodpecker species” (black-backed and white headed woodpeckers).

Snag requirements are developed by the National Forests for specific forest cover types, and these may be further broken down by geographic location. The intent is to tailor the requirements to those species that are actually expected to occur in an area. To determine if the protection buffer requirements should be added to existing Forest Plan requirements, the basis for those existing requirements should be analyzed to determine if they include the species identified by SAT at the specified level of percent population potential. If they do not, then the SAT requirements must be added to the existing Forest Plan requirements.

#### Mammals:

Lynx - Lynx are rare within the range of the northern spotted owl. On the Gifford Pinchot National Forest, they are found primarily along the crest of the Cascade from Mt. Adams north through the William O. Douglas Wilderness. The lynx is currently listed by the Fish and Wildlife Service as a Category 2 candidate (a species for which additional information is needed to propose listing as threatened or endangered). A petition was filed to list the lynx as endangered within the northern Cascades of Washington, based on small population size, population isolation, and lack of adequate prey base (snowshoe hare). The Fish and Wildlife Service, however, ruled that available information does not warrant listing the lynx in Washington.

Three primary habitat components for lynx are (1) foraging habitat (15 to 35 year old lodgepole pine) to support snowshoe hare and provide hunting cover, (2) denning sites (patches of greater than 200-year old spruce and fir, generally less than 5 acres), and (3) dispersal/travel cover (variable in vegetation composition and structure). The major limiting factor is abundance of snowshoe hare, which in turn is limited by availability of winter habitat (primarily early-successional lodgepole pine with trees at least six feet tall). Past excessive trapping of lynx and incidental mortality of lynx from hunting of other species have depressed populations and may have been detrimental to local lynx populations in Washington. Roads provide access to hunters and trappers and thus road density may be related to lynx mortality.

The reserves and other designated areas in these standards and guidelines will provide denning habitat within protected forest stands in juxtaposition with early-successional vegetation in the forest Matrix. Connectivity between many of the denning patches will be provided by the network of buffers along streams under the Riparian Reserves.

In addition, the Scientific Analysis Team proposed development of site-specific timber harvest, roading, and fire management plans in known lynx range. These plans should be developed in consultation with state wildlife agencies and should address: (1) minimizing road construction, closing unused roads, and maintaining roads to the minimum standard possible; (2) using prescribed fire to maintain forage for snowshoe hare in juxtaposition with hunting cover; (3) designating areas as closed to kill trapping of any furbearer to avoid incidental lynx mortality to maintain population refugia for lynx in key areas; (4) planning for kill trapping closure on a wider basis if data indicate a declining lynx population as a result of incidental trapping mortality; and (5) developing and implementing a credible survey and monitoring strategy to determine the distribution of lynx throughout its potential range.

### ***Habitat Management for Bats***

These measures apply within Matrix and AMA lands. See page 2-78.

### ***Survey and Manage***

These measures apply within all land allocations. See page 2-63.

### ***Recreation Sites***

Measures to minimize disturbance to species applies in all land allocations, see page 2-50.

### ***Fire and Fuels Management***

For areas in the Matrix that are located in the rural interface, fire management activities should be coordinated with local governments, agencies, and landowners during watershed analysis to identify additional factors which may affect hazard reduction goals. Hazard reduction may become more important in the rural interface and areas adjacent to structures, dwellings or other amenities. <ROD C-48]

### ***Timber*** [FP IV-56>

#### ***Planning and Inventory***

1. Except where necessary for other resource values, all stands scheduled for final harvest will have reached at least 95 percent of the Culmination of Mean Annual Increment (see Glossary).
2. A Ten-Year Timber Sale Action Plan for proposed timber sales, based upon the harvest schedule identified in this Forest Plan, should be updated annually.
3. Ordinary salvage, including scattered mortality salvage of dead and dying material, may be permitted as specified for each management area. Such salvage is subject to all applicable standards and guidelines, e.g., if the management area does not permit roads, salvage must be done without the use of mechanized ground equipment within the management area. It is recognized that there is no specific way to define the difference between catastrophic salvage, resulting from an unusual act of nature, and ordinary salvage, which is a more normal, somewhat predictable occurrence. The determination will depend upon consideration of a number of factors on a case-by-case basis. In

all cases, the land manager must consider the possible effects on wildlife habitat, aesthetics, and other resources before the decision to salvage is made.

4. An area should not be harvested unless seed of the correct species, seed zone, and inventory is available or natural regeneration is prescribed.
5. Utilization standards should be reviewed periodically and adjusted to meet management requirements.
6. Available plant association and management guides should be utilized in planning activities on the ground.

### *Silvicultural Exam and Prescription*

1. The treatment or manipulation of vegetation requires silvicultural examinations and prescriptions. Exceptions to this are removal for safety reasons, rights-of-way clearing, and mineral operations.
2. Both even-aged and uneven-aged silvicultural systems should be considered available when selecting the harvest method to be used on a specific site. The selection criteria are found in Appendix F of the Forest Plan FEIS and summarized beginning with No. 4 below.  
The prescribed silvicultural treatment will be based upon the standards and guidelines for the specific management area in which it is applied.
3. There will be no conversion of tree species unless a specific management area requires conversion to meet standards and guidelines. <FP IV-57> [IV-86]
4. An overstory removal cut should be prescribed when:
  - a) The stand contains a salable quantity of merchantable timber.
  - b) It has at least two distinct canopy levels.
  - c) The highest level does not exceed the minimum stocking level.
  - d) The highest level is composed of mature or cull trees.
  - e) It is determined that the condition of trees in the upper level makes it undesirable to leave them in the stand until the lower level(s) become merchantable.
  - f) The lower levels contain crop trees at or near the recommended stocking level.
5. Commercial thinning should be prescribed when:
  - a) The stand contains enough excess merchantable trees to sell.
  - b) It is stocked to the recommended level with crop trees.
  - c) The growth of crop trees is being inhibited by the density of the stand.
  - d) The characteristics of crop trees (young stand) indicate growth will increase in an acceptable period if thinning occurs.
  - e) The characteristics of crop trees near rotation age indicate that growth can be maintained at an acceptable rate if thinning occurs.
6. A regeneration cut should be prescribed when:
  - a) A stand contains a salable quantity of merchantable timber.
  - b) Its total live tree stocking is:
    - i) At or below minimum stocking level in all tree classes;



- ii) The number of trees exceeds the minimum stocking level, but trees are primarily mature;
  - iii) The stocking level will soon be reduced to below the minimum level by predictable mortality; or
  - iv) There is a stand structure and composition capable of supporting repeated harvest entries.
- c) It has crop tree stocking to recommended level, but stocking in mature and excess trees does not permit expectation of retaining recommended crop tree stocking following the harvest activity.
  - d) The area is able to be reforested within five years.

“Regeneration cut” means even-aged management manipulation of a forest canopy for the purpose of initiating new age classes, typically with the top canopy layer of the stand reduced to a canopy area coverage of 15 to 60 percent, as described in the 2470/1330 memo *Silvicultural Prescription Terminology* from the Forest Supervisor to District Rangers, dated March 3, 1993.

The minimum green-tree and snag retention standard and guideline for Matrix lands (see page 6-3) may be achieved by the “light forest retention” silvicultural system, which is similar to a traditional “seed tree cut, with reserves.” Light forest retention is most appropriately used in the General Forest management area, and in other management areas where it meets the standards and guidelines. It is the preferred prescription where it is consistent with ecosystem management goals. The terminology “clearcut” or “clearcut, with reserves,” is not appropriate for this minimum level of green-tree retention. Heavier canopy retention levels, “medium or heavy forest retention” are most appropriately used in land allocations where standards and guidelines or occasionally local conditions call for a denser canopy. Site-specific silvicultural prescriptions shall be developed in concert with watershed analysis, addressing standards and guidelines and ecological objectives. Objectives and rationale for leaving green trees in addition to the fifteen percent retention standard and guideline must be described in the project NEPA document.

7. Precommercial thinning should be prescribed when:
  - a) A stand is stocked to the recommended level with crop trees.
  - b) It does not contain mature trees eligible for removal cutting.
  - c) It is so dense with excess and cull trees that crop trees will not reach merchantable size.
  - d) It has characteristics indicating that thinning will increase growth in an acceptable period of time. This includes a crown ratio greater than 40 percent and an absence of serious mistletoe infection.
8. A salvage cut should be prescribed when:
  - a) A stand contains a salable quantity of salvageable dead trees plus other trees which can be identified as certain to die before the stand becomes eligible for another silvicultural prescription.
  - b) It is ineligible for other silvicultural treatment.
  - c) Other treatment is deferred.
9. Group selection may be prescribed in mature stands where multiple age classes are evident, standards and guidelines for resources other than timber call for a high percentage

of canopy cover to be retained, and access logistics permit harvest creating 1/2 acre to 2 acre gaps in the stand. The resulting small openings are more correctly termed “gaps” rather than “clearcuts.” The group selection prescription must be supported by analysis applying the selection criteria for choosing even-aged vs. uneven-aged management, as outlined in Appendix F of the Forest Plan FEIS. Individual tree selection prescriptions are discouraged for the Gifford Pinchot National Forest, because of the absence of naturally occurring all-aged stands.

Group selection is further described in the #2470/1330 memo “Silvicultural Prescription Terminology” from the Forest Supervisor to District Rangers, dated March 3, 1993.

10. There should be no treatment when:
  - a) A stand is healthy and will not benefit from stocking level control
  - b) Deferral of treatment is appropriate.
11. Harvest priority should be as follows:
  - a) Poorly stocked, mature stands should receive highest priority for regeneration harvest. Next, in order, should be: poorly stocked immature stands, defective or damaged mature stands, poorly growing immature stands, and mature stands in good condition.
  - b) Lightly stocked, damaged overstory with a certified understory should receive highest priority for overstory removal. Next, in order, should be: lightly stocked stands with healthy overwood and certified understory, lightly stocked overwood with underwood stocking above the minimum, lightly stocked stands with pole understory and an overwood which is not vigorous, and lightly stocked stands with underwood of commercial size and an overwood which is not vigorous.
  - c) The commercial thinning of vigorous, well-stocked young stands should receive highest priority for intermediate cutting. Next, in order, should be: the commercial thinning of slow-growing, well-stocked young stands, the commercial thinning of lightly stocked stands, salvage cutting, and sanitation cuts. The presence or absence of purchasers will also be a factor in the scheduling of intermediate harvest. <FP IV-87]

### *Reforestation* [FP IV-57>

1. Suitable lands planned for harvest will be satisfactorily reforested within five years of final harvest felling. Suitable lands deforested by fire, insects, and other natural causes will be reforested according to the objectives for the management areas. (See page 6-14, Table 6-2 Reforestation Stocking Standards by Working Group.)
2. To reduce susceptibility to disease and insect infestation, species diversification should be fostered. This can be accomplished by such means as planting a variety of species, maintaining genetic diversity in planting stock, and allowing for natural regeneration. <FP IV-57]
3. To reduce the time lag in achieving management and habitat objectives, genetically improved planting stock will be used where available. Genetically improved stock means the seed source of the stock has been genetically or phenotypically selected for desired characteristics, has sufficient levels of genetic diversity and is adapted to the local environment.

**Restocking Standards** [FP IV-88]

See 36 CFR 219.27(c)(3). Trees harvested to achieve timber production objectives must be cut using Forest management methods which reasonably assure that land can be adequately restocked within five years after final harvest (felling), unless management of other resources dictates a longer regeneration period. Adequate stocking (stocking standards) has been described in treatment class and site for each working group in terms of minimum number of certified stems, spacing, and species composition. Five years after final harvest (felling) means:

- a) Five years after regeneration harvest.
- b) Five years after final overstory removal in shelterwood cutting.
- c) Five years after the seed tree removal in seed tree cutting.
- d) Five years after selection cutting.

The following discussion defines and clarifies the table entries for Table 6-2:

*Working Group:* A stratification used to separate stands into similar conditions or problems. First defined by District/SO Silviculturists in 1979. Subalpine Fir was added due to reanalysis of land suitability in 1983.

*Management Intensity:* (Treatment Class) A collection of silvicultural practices, relatable levels of funding, and silvicultural needs. They are as follows:

- a) Ext (Extensive Management): Reforest, and final harvest
- b) PCT (Precommercial Thin.): Reforest, precommercial thin, and final harvest
- c) Low (Low Mgt.): Reforest, commercial thin, and final harvest
- d) Intensive (Intensive Mgt.): Reforest, precommercial thin, commercial thin, and final harvest.

*Site:* A measure of the timber producing potential of an area.

*Number Stems Per Acre:*

- a) Minimum: A level below which additional restocking is mandatory.
- b) Desirable: A level above which additional restocking is not mandatory.

Plantations with stocking levels between the minimum and desirable levels will be replanted only after analysis of management direction and economics indicate replanting would be cost effective or provide an ecological benefit. Replanting above minimum levels will not be performed routinely without support of such analyses.

*Acceptable Species:* A list of tree species that will be used to determine stocking levels.

Table 6-2 Reforestation Stocking Standards by Working Group

Working Group	Management Intensity	Site	Number of Stems Per Acre		Acceptable Species
			Minimum	Desirable	
Western Hemlock	Extensive	All	125	300	Western hemlock, Douglas-fir, western redcedar, Pacific silver fir, western white pine, grand fir, noble fir, western larch, ponderosa pine, black cottonwood, lodgepole pine, Englemann spruce, Pacific yew, big leaf maple
	Intensive	High	125	400	Refer to list for western hemlock extensive treatment class
		Medium	125	350	
		Low	125	300	
Low	High, Medium, Low	125 125 125	325 300 300	Refer to list for western hemlock extensive treatment class	
PCT	All	125	300	Refer to list for western hemlock extensive treatment class	
Lodgepole Pine	Extensive	All	125	250	Douglas-fir, grand fir, Pacific silver fir, noble fir, subalpine fir, ponderosa pine, western white pine, lodgepole pine, Alaska yellow-cedar, western redcedar, western larch, Englemann spruce, western hemlock, mountain hemlock, red alder, black cottonwood, bigleaf maple, Pacific yew
Subalpine	Extensive	All	125	125	subalpine fir, lodgepole pine, Pacific silver fir, whitebark pine, Pacific yew
Mountain Hemlock	Extensive	All	125	250	mountain hemlock, subalpine fir, Pacific silver fir, noble fir, western white pine, Alaska yellow-cedar, lodgepole pine, Englemann spruce, western hemlock, Douglas-fir, Pacific yew
Red Alder	Extensive	All	200	350	grand fir, red alder, black cottonwood, bigleaf maple, Douglas-fir, western hemlock, western redcedar, Pacific yew
Silver Fir	Extensive	All	125	300	Pacific silver fir, grand fir, subalpine fir, noble fir, Englemann spruce, western white pine, lodgepole pine, Douglas-fir, Alaska yellow-cedar, western redcedar, mountain hemlock, western larch, black cottonwood, Pacific yew
	Intensive	High	125	400	Refer to list for silver fir extensive treatment class
		Medium	125	350	
		Low	125	300	
PCT	All	125	300	Refer to list for silver fir extensive treatment class	
Low	High	125	350	Refer to list for silver fir extensive treatment class	
	Medium	125	300		
	Low	125	300		

**Timber Stand Improvement** [FP IV-57>

All regenerated stands will be considered for timber stand improvement. Priority should be based upon stand condition, requirements of the silvicultural prescription, and levels of benefits expected. This process should be documented.

### *Timber Sale Preparation*

For the purposes of the silvicultural direction in this section, an *opening* is created by any silvicultural treatment which retains less than 40 percent crown closure.

1. Openings created by even-aged timber harvesting methods will not exceed limits established by the Regional Land Management Guide. Openings in the Douglas-fir type of the coastal Douglas-fir zone (Western Hemlock Working Group on the Gifford Pinchot National Forest) will be no larger than 60 acres and no larger than 40 acres elsewhere. Exceptions are permitted in the following cases:
  - a) When natural catastrophic situations such as fires, windstorms, or insect and disease attacks occur.
  - b) When larger openings will reduce resource damage to soils, water, fish and riparian values. This might include the use of a logging system which would minimize overall resource disturbance.
  - c) When required to prevent the spread of insects or disease.
  - d) When visual resource management requires shaping and blending of openings.
  - e) When existing shelterwood units are larger than the maximum size. In all of the latter instances, openings can be increased by no more than 50 percent without review by the Regional Forester and 60-day public notice. To exceed this 50 percent limit or to increase the standard limits on openings for any other reason, a 60-day public notice and review by the Regional Forester is required.
2. Created openings will be separated by blocks of land that generally are not classed as created openings and that contain one or more logical regeneration harvest units. These areas shall be large enough and contain a stand structure appropriate to meet resource requirements. Resource requirements may include wildlife habitat, watershed, landscape management, and others. Two or more even-aged harvest areas which are contiguous, cornering, or otherwise share a common boundary of any length, will be considered to be a single created opening. Their combined acreage will not exceed the size limits for created openings.
3. The total area of created openings contiguous to 30-acre or larger natural openings should normally not exceed one-third the size of the natural opening and not occupy more than one-third of the natural opening perimeter. Openings should not be created adjacent to any natural openings (regardless of size), unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife and visual management objectives. The determination of adequate vegetation will be made by an appropriate interdisciplinary team.

4. For silvicultural purposes, a harvested area will no longer be considered a created opening when trees are 4-1/2 feet in height, meets the minimum reforestation stocking standards (Table 6-2), and are certified free to grow.
5. Separate utilization standards are used in determining harvest levels for the first and future decades of the planning horizon. These standards are listed in Table 6-3.
6. Where questions arise concerning timberland suitability, the process described in FSM 2400, GP Supplement No. 150, will be used. The process for identifying tentatively suitable forest lands is identified in FSH 2409.13, 21, effective 3/15/93. <FP IV-58]

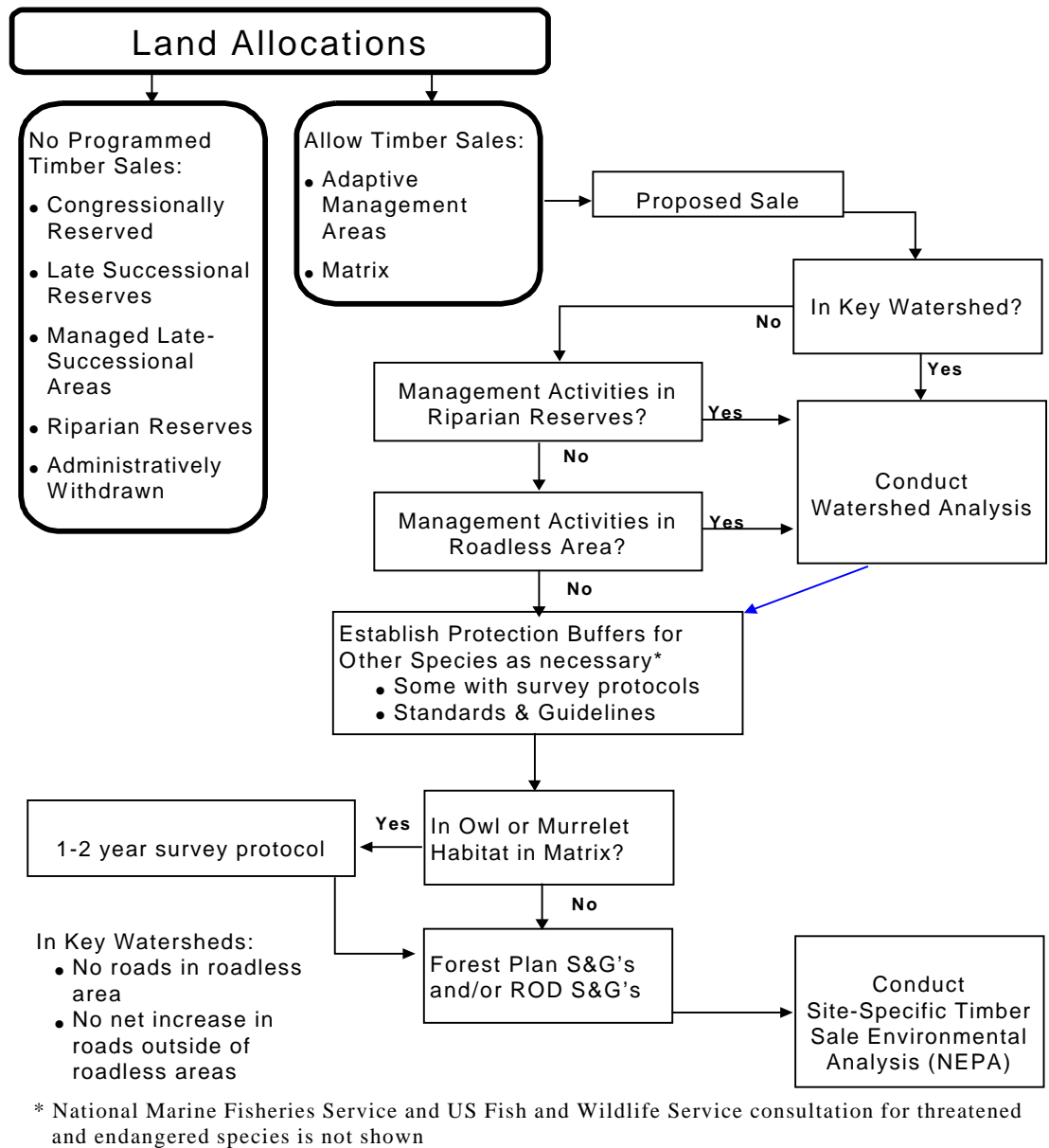
*Table 6-3 Utilization Standards Determining Harvest Levels for the First and Future Decades of the Planning Horizon*

<b>First Decade</b>	<b>Min. DBH 1/ (inches)</b>	<b>Min. Top 2/ DIB (inches)</b>
Existing mature trees, except lodgepole pine (First and Future decades)	9	6
Existing commercial thinning size trees and lodgepole pine	7	4
Future Decades All, except surviving stands of first decade existing mature	7	4
1/ DBH = diameter at breast height 2/ DIB = diameter inside bark.		

Standards in individual timber sale contracts may vary depending on market demand and logging costs.

A description of the activities preceding programmed timber harvest is portrayed in the following Figure 6-1.

Figure 6-1. Steps to a Programmed<sup>1</sup> Timber Sale



<sup>1</sup> Programmed timber sales are those which contribute to PSQ (timber output) projections. Timber sales may also occur outside Matrix and AMA lands where timber management is used as a tool to achieve other resource objectives. Non-programmed sales would follow the same process as programmed sales.

## Management Area Categories

National Forest land within the Gifford Pinchot National Forest is assigned to various Management Area Categories (MACs). Each Management Area Category has a goal, or management emphasis. Each Management Area Category includes one or more management areas. Each management area has a set of standards and guidelines and other management practices designed to achieve multiple use goals and objectives. The direction given in this section applies only to the management areas within the Matrix. The management area are shown on the Amendment Map.

*Table 6-4 Management Area Categories within the Matrix.*

<b>Management Area Category</b>	<b>Code</b>	<b>Acres*</b>
Recreation River	6L	1,407
	6M	1,994
Roaded Recreation	DL	439
	DM	741
Deer and Elk Winter Range	EM	9,139
	ES	39,135
Mountain Goat Summer Range	MM	899
	MX	3,585
Scenic Rivers	NL	10,737
Mountain Goat Winter Range	QM	7
	QX	1,149
General Forest	TS	264,722
Visual Emphasis	VL	17,077
	VM	51,788
<b>Total Matrix</b>		<b>402,770</b>
* Includes Riparian Reserves		



## Deer and Elk Winter Range

### Management Area Category E

Includes Management Areas EM and ES

#### **Goal**<sub>[FP IV-133]</sub>

Manage habitat in conjunction with all other management areas within the biological winter range to provide a mix of forage and cover that, over time, maintain a level of deer and elk commensurate with other resource management goals and objectives. Accomplishment of this goal will require a cooperative program with the Washington Department of Fish and Wildlife, particularly in increasing the current deer population.

#### **Description of Lands Where This MAC is Applied**

This typically includes lands up to 2,200 feet in elevation on south- and west-facing aspects to 2,000 feet on east-facing aspects, and to 1,800 feet on north-facing aspects. Other areas that deer and/or elk utilize during an average winter are also included.

#### **Desired Future Condition**

Management activities, including timber harvest, are locally apparent. Tree species and sizes are varied and well distributed. Optimal cover may be present, particularly if required to ensure that at least 44 percent of the biological winter range in the 5th field watershed is in optimal cover. Regeneration harvest areas are usually less than 30 acres in size and well dispersed. Dispersed recreation, viewing wildlife, and hunting are among the recreational opportunities, although many roads are closed during the winter months.

#### **Standards and Guidelines**

The following direction applies to all Management Areas in MAC-E unless otherwise indicated.

See “Deer and Elk” in Chapter 2 for additional information concerning standards and guidelines applicable to other management areas within the biological range.

#### **Recreation**

##### *Planning and Inventory*

1. The Visual Quality Objectives and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription	VQO	ROS
EM	Partial Retention	Roaded Natural
ES	Modification	Roaded Natural

*NOTE:* Inclusion of the Partial Retention VQO in management prescription EM is not intended to be a conflict; rather, Partial Retention is essentially compatible with deer/elk management. Generally, the only significant deference to Partial Retention in these prescriptions is a limitation on the size of regeneration timber harvest units in immediate foreground areas (up to about 500 feet). Some limitation on unit size also occurs in middle ground viewing areas. Because of the relatively small area to which these unit size limitations are applicable, they should have little adverse effect upon deer/elk outputs across the MAC E as a whole.

2. Cultural resources and other features of interest may be interpreted if no significant adverse effects on wildlife will occur.

### *Use Administration*

Off-road vehicles may be permitted on designated trails only.

## **Wildlife And Fish**

### *Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration*

Direct habitat improvements such as forage seeding, fertilization, burning, and road closures should be initiated to improve deer and elk carrying capacities. Forage seeding and fertilization projects should be consistent with guidelines in the Plant Association Guide for the Western Hemlock zones.

## **Range**

### *Planning and Inventory*

1. Livestock grazing may be permitted.
2. Conflicts between livestock and deer and elk should be resolved in favor of deer and elk.
3. Improvements should be available to, and not adversely affect, wildlife.

## **Timber**

### *Planning and Inventory, Regeneration, and Intermediate Harvest*

See “Deer and Elk” in Chapter 2 for associated standard and guidelines applicable to the entire biological winter range.

1. Timber harvest will be scheduled. Ordinary timber salvage may be permitted.
2. Thermal and optimal cover should be in contiguous blocks at least 60 acres in size, and distributed over the management area. The intention is that no acre of forage (regeneration harvest unit) should be more than about 800 feet from

thermal/optimal cover, and no acre of thermal/optimal cover should exceed about 2,000 feet from forage.

- a) Regeneration harvest units should normally be 10 to 20 acres in size, with a maximum size of 20 acres.
  - b) Thermal and optimal cover should be in contiguous blocks at least 60 acres in size, and dispersed over the management area. The intention here also is that forage should not be more than 800 feet from thermal or optimal cover, and thermal/optimal cover should not be more than about 2,000 feet from forage.
3. Some stands may be harvested prior to culmination of mean annual increment (CMAI) where necessary to meet forage objectives.
  4. No harvest is to occur in optimal cover (stands above 21 inches dbh) if less than 44 percent of the biological winter range (BWR) in each 5th field watershed is in optimal cover. See Table 6-5, page 6-24.

#### *Silvicultural Exams and Prescriptions and Reforestation*

1. Prescriptions and reforestation plans should provide for direct wildlife habitat improvements such as forage seeding, fertilization, and prescribed burning to improve wildlife habitat values. Forage seed and fertilization, when included in an approved reforestation plan, should take place immediately after site preparation.
2. Planting or seedling density should ensure adequate openings for forage production.

#### *Timber Sale Preparation and Harvest Administration*

1. Firewood cutting, except for campfire use, should be limited to designated timber harvest areas.
2. Timber harvest units should be irregularly shaped to increase edge for wildlife habitat.
3. Timber harvest activities may be limited from December 1 to April 1 to prevent harassment of deer and elk.

### **Minerals And Geology**

#### *Development Proposals*

To the extent reasonable, mineral activities may be limited from December 1 to April 1 to prevent the harassment of deer and elk.

### **Lands**

#### *Special Use Management*

Recommendations for permits, leases, rights- of-way, and easements should afford protection for deer and elk from December 1 to April 1.

### *Landownership Planning*

All lands should be placed in Ownership Category II, Retain or Acquire.

## **Facilities**

### *Road Construction and Operation*

Roads not needed for through traffic or access to an active project or a specific recreation destination should be closed, either permanently or seasonally from December 1 to April 1, to prevent wildlife harassment.

If open, through roads and those roads to recreation destinations should be managed to accommodate passenger car traffic.

## **Protection**

### *Fire Suppression*

Fire Suppression Strategy, Contain, should be used.

### *Pest Management Plan Inputs and Prevention*

Protection of wildlife habitat and adjacent resource values should be emphasized in pest suppression and prevention activities. <FP IV-135]

Table 6-5 Optimal Cover by 5th Field Watershed

<b>NFS Watershed</b>	<b>Watershed Name</b>	<b>BWR Acres</b>	<b>Optimal Cover Acres</b>	<b>Percent Optimal Cover</b>
01	Clearfork Cowlitz	5,787	1,911	33%
02	Middlefork Cowlitz	12,881	5,840	45%
03	Toutle River	202	74	36%
04	Lower Cispus	19,550	8,825	45%
05	Middle Cispus	6,288	1,298	21%
06	Middle Lewis	8,697	1,484	17%
07	Muddy River	11,822	3,056	26%
08	Lower Lewis	13,795	1,506	11%
09	Wind River	42,115	13,164	31%
10	L.White Salmon	10,297	3,648	51%
11	White Salmon	2,747	2,236	81%
13	E. Fork Lewis	6,493	89	1%
14	Washougal River	0		
15	Puyallup River	0		
16	Kalama River	189	9	5%
17	Rock/Dog Creek	2,638	1,318	50%
20	Nisqually River	6,438	1,987	31%
22	Lower Cowlitz	925	510	55%
23	Upper Lewis	1,081	603	56%
24	Upper Cispus	0		
25	Upper Cowlitz	18,339	2,913	16%

## General Forest

### Management Area Category T

Includes Management Area TS

#### **Goal** [ROD-3>

Produce a predictable and sustainable level of timber sales other resources that will not degrade the environment. <ROD-3]

#### **Description of Lands Where This MAC is Applied** [FP-IV-136>

Portions of the Forest which are suitable for commodity production. They are timber producing lands but also include areas with such market values as minerals, energy, and forage for livestock grazing. Some lands not suitable for timber management may occur within these areas.

#### **Desired Future Condition**

Evidence of land managed for timber production and other commodities is apparent. All tree sizes and mixtures of native species from seedlings to mature sawtimber are well distributed. Recreational opportunities are available for hunters, anglers, off-road vehicle operators, and other motorists.

#### **Standards and Guidelines**

##### **Recreation**

##### *Planning and Inventory*

1. The Visual Quality Objectives and Recreation Opportunity Spectrum class assigned to these Management Areas are:

<b>Management Prescription</b>	<b>VQO</b>	<b>ROS</b>
TS	Modification	Roaded Modified

2. Where appropriate, recreational activities compatible with commodity management may be encouraged. Driving for pleasure, hunting, dispersed camping, wildlife viewing, berry picking, cross-country skiing, the use of off-road vehicles, and interpretation of cultural or other features of interest are examples of possible activities.

##### *Use Administration*

Off-road vehicles may be permitted on designated routes or areas.

## Range

### *Administration*

Grazing may occur.

### *Nonstructural Improvement and Maintenance*

Plant species selected for range improvement should not significantly compete with forest tree species.

## Timber

### *Planning and Inventory*

Ordinary timber salvage is usually permitted, except where limited by Forest-wide standards and guidelines.

### *Regeneration Harvest*

All regeneration harvest methods will be determined on a case-by-case basis.

## Lands

### *Landownership Planning*

To sustain the Forest's capability to meet the demand for wood fiber, highly productive lands should be placed in Ownership Category II, Retain or Acquire; other lands should be classified as Category III, Neutral.

## Facilities

### *Road Operation*

Roads being managed for commodity production will generally accept high-clearance vehicle use. Closures, however, may be applied to roads not being used for commodity production by using the Eliminate or Prohibit traffic schemes. The Discourage traffic scheme can also be used to close roads by allowing the roads to degenerate until they are no longer passable.

### *Fire, Administrative, and Other (FA&O) Construction and Reconstruction*

Fire, administrative, and other structures may be permitted if no alternative exists and they are needed for resource protection.

## Protection

### *Fire Prevention*

The industrial inspection program should be emphasized.

### *Fire Suppression*

Suppression Strategy, Control, should be used in younger, less-than-sawlog-size stands. Elsewhere, Strategy, Contain or Control, should be used.

### *Pest Suppression and Prevention*

1. Insects and disease should be aggressively suppressed using the most cost-effective strategies. This may include such activities as stump treatment for root rots and application of pesticides for defoliators and cone insects. Cost-effective pest prevention activities should be intensive.
2. These lands should be surveyed for *Phellinus weirii* as soon as practicable, with emphasis placed on the lower elevations in the Cowlitz River Drainage. <FP  
IV-137]



## Mountain Goat

### Management Area Categories M, Q

Includes Management Areas QM and QX Winter Range  
and MM and MX Summer Range. [FP IV-129>

#### **Goal**

Manage habitat to provide forage and cover that maintains the (1990) carrying capacity of 230 animals.

#### **Description of Lands Where This MAC is Applied**

Places where mountain goats are known to exist or to have existed in the past as identified on the accompanying map.

##### Winter Range - Q

Winter range habitat is typically characterized by mid-elevation steep slopes with heavy coniferous forest cover. These areas may have avalanche chutes, rock outcrops, cliffs, and ledges.

##### Summer Range - M

Summer range is characterized by higher elevation habitat where coniferous slopes and rocky and ledge-type terrain are interspersed. Gently sloping meadows within the above habitat are commonly used for feeding and, sometimes, resting.

#### **Desired Future Condition**

On summer range and locally on winter range, open ridge areas, rock outcrops, talus slopes, and avalanche chutes are common and are generally in a natural condition. On winter and locally on summer range, some timber harvest areas may be evident but are usually screened by trees. Most trees on forested land will be pole size or larger. Vegetation ranges from natural openings through stands of mature and old-growth timber. There are few roads and those that do exist usually are closed to motorized traffic. The area is used by backpackers and hunters and affords outstanding opportunities to view scenery and wildlife.

#### **Standards and Guidelines**

The following direction applies to all management areas in MACs M and Q unless indicated otherwise.

**Recreation**

*Planning and Inventory*

1. Development or management which concentrates recreational activity should not occur.
2. New trails should be designed to avoid key habitat features such as rock outcrops, talus slopes, avalanche chutes, and kidding areas.
3. Existing trails which conflict with mountain goats should be relocated or be limited in use to reduce harassment.
4. The Visual Quality Objective and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

<b>Management Prescription</b>	<b>VQO</b>	<b>ROS</b>
Winter Range		
QM	Partial Retention	Roaded Natural
QX	Modification	Roaded Natural
Summer Range		
MM	Retention	Roaded Natural
MX	Modification	Roaded Natural

5. Cultural resources will generally not be interpreted.

*Facility Site Reconstruction and Construction*

Facilities should be limited to those required to protect resources.

*Use Administration*

ORV use may be permitted on designated trails or routes only.

Recreational off-road vehicles, including oversnow machines, should not be permitted on mountain goat summer range, Management Prescriptions MM and MX, April 15-December 1, and on winter range, Management Prescriptions QM and QX, November 1- June 30.

**Wildlife and Fish**

*Surveys*

A mountain goat population survey should be completed at least every five years in cooperation with the Washington Department of Game

**Range**

*Administration*

Any conflict between grazing by livestock and mountain goats should be resolved in favor of mountain goats.

## Timber

### *Planning*

Timber harvest will be scheduled. It will be done to provide mountain goat habitat. Logging systems which do not require roads should be used unless no reasonable alternative exists.

Ordinary timber salvage may be permitted.

### *On Winter Range—Management Areas QM and QX*

1. A maximum of four percent of lands classified as suitable for timber production in the Western Hemlock Working Group (3.6% in the True Fir Group) may be regeneration harvested per decade. These harvest rates, based upon an average rotation age of 240 years in the Western Hemlock Working Group (280 years in the True Fir Group), are required to provide the desired levels of forage and optimal cover.
2. A minimum of 50 percent of suitable timberland in the winter range should be large sawtimber (21" + DBH) to provide optimal cover in blocks of at least 100 acres in size.
3. The object of intermediate harvest should be to gain rapid tree diameter growth while generally maintaining a closed canopy for thermal cover.

### *On Summer Range—Management Areas MM and MX*

A maximum of five percent of the suitable timberland may be regeneration harvested per decade.

A minimum of 30 percent of the land suitable for timber production should be maintained pole size (9" + DBH) to large sawtimber to provide optimal cover.

### *Silvicultural Exam and Prescriptions, and Reforestation*

Prescriptions and reforestation plans should provide for direct wildlife habitat improvements such as forage seeding, fertilization, prescribed burning, and the development of optimal cover

### *. Reforestation and Timber Stand Improvement*

1. Herbicides should not be used if they jeopardize desirable wildlife browse species.
2. Prescribed burning should be used in site preparation whenever practicable to enhance forage production on both summer and winter range and optimal cover development on winter range.

### *Timber Sale Preparation and Harvest Administration*

1. Timber harvest and road building should not be performed on winter range, Management Prescriptions QM and QX, between November 1 and June 30.

2. Regeneration timber harvest units should be no larger than 30 acres; most will be between 10 and 20 acres.
3. Thermal cover should be provided on at least two sides of timber harvest openings.
4. To provide hiding and thermal cover, a buffer of at least 200 feet should be maintained adjacent to avalanche chutes, cliffs, and rock outcrops which are important mountain goat habitat. Timber harvest should not occur within this 200-foot area.
5. Firewood cutting may be permitted.

### *Genetic Forest Tree Improvement Program*

Genetic improvement activities should be limited to select trees and evaluation plantations.

## **Minerals And Geology**

### *Exploration, Development, and Administration*

1. Common mineral sources which adversely affect mountain goats should not be developed.
2. Exploration should be performed in a manner which does not significantly disturb mountain goats.
3. Activities may be limited from November 1 to June 30 to protect mountain goats.
4. Cliffs, rock outcrops, and avalanche chutes should be avoided when practicable

## **Lands**

### *Federal Energy Regulatory Commission (FERC) License and Permits*

Exploration should be performed in a manner which does not significantly disturb mountain goats.

### *Landownership Planning*

Lands should be placed in Ownership Category II, Retain or Acquire.

## **Facilities**

### *Road Construction and Operation*

Construction of roads and other facilities should not be permitted from November 1 to June 30 in winter range, Management Prescriptions QM and QX. See Chapter 2, "Special Habitat Management Requirements," for timing restrictions in kidding areas..

*Roads should be constructed only if no reasonable alternative exists.*

Major through routes should be managed for standard passenger car use. Some local roads required to access recreation destinations may also be managed for passenger car use. All other roads should be maintained only for intermittent timber management activities. Local roads not being used for resource management activities should be closed using the Eliminate or Prohibit traffic schemes or decommissioned.

All local and minor collector roads in Mountain Goat Winter Range, Management Prescriptions QM and QX, should be closed from November 1 to June 30.

## **Protection**

### *Fire Suppression*

During periods of low fire hazard in higher elevations, Fire Suppression Strategy, Confine, should be used. Strategy Contain, should be used there and at lower elevations during periods of moderate fire hazard, unless fire intensity or resource values require Control.

### *Pest Suppression and Prevention*

Pests which adversely affect vegetation essential to mountain goats should be suppressed. Biological and cultural methods will be favored. <FP IV-132]

## Roaded Recreation with Timber Harvest

### Management Area Category D

Includes Management Areas DL and DM

#### **Goal** [FP IV-95>

Provide a variety of dispersed recreational opportunities in areas conveniently reached by auto.

#### **Description of Lands Where This MAC is Applied**

These lands accommodate dispersed recreation—hiking, fishing, berry-picking, camping, wildlife viewing, rockhounding, winter sports—beside or near roads. They include unique or distinctive portions of the Forest with features like clustered lakes, berryfields, and roaded scenic corridors.

#### **Desired Future Condition**

Management activities, including timber harvest are evident, but not conspicuous. Vegetation will remain largely natural in appearance along the major travel ways and may vary from natural openings through stands of mature and old-growth timber. Travel to dispersed sites over roads maintained at a variety of standards is an important aspect of the recreational experience. Much of the area provides for interaction with a near-natural environment.

#### **Standards and Guidelines**

The following direction applies to all management areas in MAC D, unless otherwise indicated.

#### **Recreation**

##### *Planning and Inventory*

1. Locations for viewing, photographing, or interpreting wildlife, cultural, geologic, biological, and other features of interest should be identified and evaluated.
2. The Visual Quality Objective and Recreation Opportunity Spectrum class assigned to these management areas are:

Management Prescription	VQO	ROS
DL	Retention	Roaded Natural
DM	Partial Retention	Roaded Natural

### *Facility and Site Management and Administration*

Areas which are designated for management as berryfields should be maintained by such methods as emphasizing permits for plant removal and encouraging the removal of encroaching vegetation by volunteers. Future research may provide more efficient methods for perpetuating these popular berrypicking areas.

#### *Use Administration*

Off-road vehicles may be permitted on designated routes or areas.

### **Wildlife And Fish**

#### *Habitat Improvement*

Opportunities for hunting and fishing may be enhanced by methods such as fish stocking and habitat improvement.

### **Range**

#### *Administration*

Livestock grazing may be permitted. Animals should be kept away from fields which are being managed for berrypicking during the harvest season.

#### *Structural Improvement and Maintenance*

Loading ramps, stock tanks, fences, holding pens, and other improvements should be located away from areas of concentrated recreation except for those specifically designed for recreation stock.

### **Timber**

#### *Administration*

Harvest will be scheduled and ordinary salvage may be permitted in management areas DM or DL, with the level of harvest determined principally by the assigned VQO and Roaded Natural ROS class.

#### *Reforestation and Timber Stand Improvement*

Site preparation and slash disposal within foreground areas and adjacent to concentrated use areas should employ methods which minimize visual disturbance.

#### *Timber Sale Preparation*

Timber harvest systems which minimize ground disturbance, such as aerial, cable, or low ground pressure equipment, should be used to remove logs and debris in foreground areas.

### *Genetic Forest Tree Improvement Program*

Select trees should be marked inconspicuously. Other genetic Forest tree improvements should be located away from areas of concentrated use.

## **Minerals and Geology**

### *Development Proposals*

The development of common minerals material sources, if necessary, should occur away from areas of concentrated use.

## **Lands**

### *Landownership Planning*

Lands needed to protect the integrity of the management area should be Retained or Acquired, Ownership Category II. The remaining land should be placed in Category III, Neutral.

## **Facilities**

### *Transportation Planning*

Roads and other facilities which are not consistent with the recreation objectives should be located away from concentrated use areas.

Local roads should be closed or decommissioned unless needed for a specific recreational purpose.

## **Protection**

### *Fire Suppression*

During periods of low fire hazard, a Containment Fire Suppression Strategy should be used. When hazard is high, a Control Strategy should be used.

### *Pest Suppression and Prevention*

Pest suppression and prevention methods which minimize visual disturbance should be employed. Biological and silvicultural treatments should be favored. Hazard trees in use areas should be removed. <FP IV-97]



## Scenic and Recreational Rivers

### Management Area Categories N, 6

Includes Management Areas NL, 6L, and 6M [FP VI-108>

#### **Goal**

Scenic or Recreational River characteristics pending possible addition to the National Wild and Scenic Rivers System.

#### **Description of Lands Where This MAC is Applied**

Lands within 1/4 mile of designated rivers within the Forest boundary appearing to be both eligible and suitable for addition to the National Wild and Scenic Rivers System. Also included are those eligible river corridors for which suitability has not yet been determined. Suitability for those rivers will be determined.

#### **Desired Future Condition**

##### **Scenic Rivers NL**

Some structures, farming, and evidence of timber harvest may be visible, but the shorelines are largely undeveloped. The rivers are accessed in some places by road and in some instances a major travel route parallels the river. A challenging interaction with the natural environment is available.

##### **Recreational Rivers 6L and 6M**

Development is acceptable. The full range of agricultural and forestry uses may be evident; parallel roads or railroads on one or both banks, as well as bridge crossings and other river access points, will occur.

#### **Standards and Guidelines**

The following direction applies to all Management Areas in MAC N and 6, unless otherwise indicated. Because this MAC follows the stream corridor, much of this MAC is subject to the standard and guidelines of the Aquatic Conservation Strategy. Additional management direction is described in the Wild and Scenic Rivers Act and guidelines for its implementation:

#### **Recreation**

##### *Planning and Inventory*

1. Those rivers determined to be suitable and their immediate environment are recommended for designation under the Wild and Scenic Rivers Act of 1968.

- a) Rivers for which suitability has not been determined will require additional analysis. If the analysis finds one or more rivers or segments to be suitable, those will also be recommended for designation under the Act. Until the analysis is completed, no activities should be permitted that would alter the eligibility or potential classification of the stream.
  - b) Many of the Scenic and Recreational River corridors include lands which are actually extensions of other management areas outside of, but adjacent to, the river corridor. Included are lands having attributes needed to complete other prescriptions such as Special Interest Areas, Developed Recreation Sites, and Visual Emphasis Viewsheds. Where the management direction for these lands is more restrictive than that for the Scenic or Recreational River corridor in which they occur, the more restrictive direction applies. These “included” management area prescriptions are considered to be a part of these recommendations for designation under the Act.
2. Cultural resource surveys for identification of significant resources are encouraged. Cultural resources and other features of interest which are not jeopardized by public exposure may be interpreted.

The Visual Quality Objectives and Recreation Opportunity Spectrum Classes assigned to these Management Areas are:

<b>Management Prescription</b>	<b>VQO</b>	<b>ROS</b>
Scenic River		
NL	Retention	Roaded Natural
Recreational River		
6L	Retention	Roaded Natural
6M	Partial Retention	Roaded Natural

*Facility and Site Reconstruction and Construction*

Site design and facility selection should be compatible with the assigned ROS or WROS Level:

Scenic River

Subject to meeting the goals of the Aquatic Conservation Strategy, recreation sites may be established in close proximity to the river, but should be widely spaced, blend with the natural landscape, and be screened from the river.

Recreation River

Subject to meeting the goals of the Aquatic Conservation Strategy, recreation facilities may be established in close proximity to the river,

although extensive development is not required. Site development may still be kept to a minimum, with visitor services provided outside the river area.

### *Facility Use Administration*

1. Off-road vehicles may be permitted in Scenic and Recreation River corridors on designated trails.
2. Guide service and other recreation concessions in keeping with the assigned ROS or WROS class may be permitted.

### **Wildlife**

#### *Structural Habitat Improvement and Maintenance*

Structural habitat improvements should utilize native or natural-appearing materials.

### **Range**

#### *Administration*

Livestock grazing may be permitted.

### **Timber**

#### *Planning and Inventory*

##### Scenic Rivers

Harvest will be scheduled consistent with the assigned Visual Quality Objectives in the NL prescription. Timber salvage may be permitted in corridors assigned the NL prescription.

##### Recreation Rivers

Harvest will be scheduled consistent with the assigned Visual Quality Objectives. Ordinary timber salvage may be permitted.

Timber harvest and related activities are also limited due to the “included” prescriptions described under Standards and Guidelines, Recreation, No. 1 (b), above.

#### *Timber Sale Preparation and Harvest Administration*

1. Firewood cutting for home or commercial use may be permitted where timber has been harvested in Scenic and Recreation Rivers areas. Gathering firewood for campfire use may be permitted.
2. To minimize visual disturbance, log and debris removal within the foreground of the river should be done by aerial or cable systems, with low ground pressure equipment, or hand piling.

3. Logs and debris should be yarded away from foreground areas as seen from the river, use areas, and major travel routes.

### *Genetic Forest Tree Improvement Program*

Genetic improvement activities in the immediate foreground along Scenic Rivers, are limited to select trees. In Recreation Rivers, genetic activities may be permitted if they meet the assigned Visual Quality Objectives.

## **Minerals and Geology**

### *Development Proposals*

1. Common mineral material sources should not be developed.
2. A no-surface occupancy stipulation will be encouraged in mineral leases.
3. Prior to, and in some instances after designation under the 1968 Act, rivers are generally subject to mining claim location and mineral exploration. Approved plans will include reasonable mitigation and reclamation measures to minimize surface disturbance, sedimentation and visual impairment.

## **Lands**

### *Special Use Management*

1. Utility corridors, dams, diversions and hydroelectric power facilities will be prohibited to the extent of Forest Service authority. Existing facilities may be maintained.
2. Locating new utility lines within Scenic River corridors should be discouraged. Where no reasonable alternative exists, routes should cross, not parallel, the river or be limited to the existing right-of-way.
3. Federal licenses or permits for water resource projects, including dams and transmission lines, will not be recommended unless the project will not have a direct and adverse affect on the Scenic and Recreational Rivers character.

### *Landownership*

National Forest lands should be placed in Ownership Category II, Retain.

Other ownerships should be in Category V, Additional Study.

### *Scenic and Recreational Rivers Study*

Encourage the participation and cooperation of public and private landholders, particularly in river corridors including other ownerships.

## Facilities

### *Transportation Planning*

1. In Scenic River corridors, roads may occasionally cross or come near the river, but they should be infrequent and inconspicuous.
2. Roads are generally permitted in Recreation River corridors.
3. Roads and other facilities are also limited due to the “included” prescriptions described under Standards and Guidelines, Recreation, No. 1(b).

### *Road Operation*

Roads accessing developed recreation sites within Scenic and Recreation River corridors should be managed to accommodate passenger car traffic.

Local roads not required for a specific recreational objective should be closed using the Eliminate or Prohibit traffic management schemes or decommissioned.

Major through roads should be managed using the Encourage traffic management scheme.

## Protection

### *Fire Management Planning*

Use minimum impact techniques in the foreground as seen from the river.

### *Fire Suppression*

The Fire Suppression Strategy Control should be used.

### *Pest Suppression and Prevention*

1. Strategies which protect the Scenic or Recreation character of these areas and avoid the degradation of water quality should be used to suppress the outbreak of pests.
2. Unacceptable damage to sensitive visual areas should be prevented with Integrated Pest Management strategies; cultural methods should be preferred.
3. Pest suppression and prevention methods which maintain the visual and recreation attributes of these areas and protect adjacent resource values should be emphasized. <FP IV-112]

## Visual Emphasis

### Management Area Category V

Includes Management Areas VL and VM [FP IV-98>

#### **Goal**

Provide a visually natural or near-natural landscape as viewed from the designated travel route or use area.

#### **Description of Lands Where This MAC is Applied**

Scenic viewsheds which are sensitive because they are viewed by many people from major roads, trails, and recreation sites, including lakes and streams.

#### **Desired Future Condition**

These areas accommodate a variety of activities which, to the observer, are either not evident or visually subordinate to the natural landscape. Management of the visual attributes of the corridor provides a continuing opportunity to appreciate scenic worth. Vegetation is diverse and includes a wide variety of tree species and sizes, living and dead. Stands exhibiting mature and old-growth characteristics may be common. Viewing scenery, hiking, and camping occur, and access to other recreational facilities is provided.

#### **Standards and Guidelines**

The following direction applies to all Management Areas in MAC V, unless indicated otherwise.

#### **Recreation**

##### *Planning and Inventory*

1. The management area visual corridor should be inventoried for sites where scenic, cultural, geological, biological and other features of interest may be viewed and interpreted.
2. Viewing opportunities should be enhanced by opening views to such features as distant peaks, unique rock forms, and unusual vegetation.
3. The Visual Quality Objectives (viewed from the designated travel route or site) and Recreation Opportunity Spectrum class assigned to these Management Areas are:

<b>Management Prescription</b>	<b>VQO</b>	<b>ROS</b>
VL	Retention	Roaded Natural
VM	Partial Retention	Roaded Natural

### *Facility and Site Reconstruction and Construction*

1. Parking areas should be screened from the designated travel route or recreation site except where visibility might deter vandalism.
2. Industrial camps should not be allowed within the foreground of the designated route or site.

### *Use Administration*

Off-road vehicles should be limited to specified trails.

## **Range**

### *Administration*

Livestock grazing may be permitted.

### *Structural Improvement and Maintenance*

Structures such as loading ramps, stock tanks, fences, and holding pens should be located away from the immediate foreground.

## **Timber**

### *Planning*

Timber harvest will be scheduled, and ordinary timber salvage may be permitted in compliance with the assigned Visual Quality Objectives.

### *Reforestation*

Site preparation methods which minimize visual disturbance should be employed in the foreground.

### *Timber Sale Preparation and Harvest Administration*

Temporary spur roads and landings should not be visible from the designated travel route or recreation site unless there is no reasonable alternative.

### *Genetic Forest Tree Improvement Program*

Genetic improvement activities should be limited to select trees within the immediate foreground of the designated route or sites. Select trees should be inconspicuously marked. Beyond the immediate foreground, genetic activities

should meet the assigned Visual Quality Objectives as viewed from the designated route or sites.

## **Minerals And Geology**

### *Development Proposals and Administration*

1. Common mineral material sources should not be developed within the foreground of the designated travel route or recreation site. Visible sources existing in these areas should be identified and programmed for rehabilitation.
2. Within the foreground of the designated travel route or recreation site, and to the extent reasonable and operationally feasible, surface mining and geothermal activities should not be visible unless there is no practicable alternative. Where visible, mitigation measures should be applied.

## **Lands**

### *Landownership Planning*

Lands should be placed in Ownership Category II, Retain or Acquire.

## **Facilities**

### *Transportation System Planning*

1. In planning and designing the designated travel route, location of the route parking areas, viewpoints, etc. should be identified and analyzed with the visual resource in mind. Preference should be given to blending the road into the landscape rather than emphasizing speed and efficiency.
2. Material stockpiles and other facilities should not be visible in the foreground from the designated travel route.

### *Road Operation*

Dust abatement should be considered on the designated travel route.

Vegetation adjacent to the designated travel route or recreation site should be controlled in a visually inconspicuous manner, primarily by hand or machine methods. Any use of chemicals should be timed to avoid vegetative brownout (e.g., a dormant spray used in the fall).

Local roads should be managed using the Discourage, Eliminate, or Prohibit traffic management schemes. Roads providing access to a specific recreation destination may be managed to allow passenger car use and should be maintained at a level commensurate with the recreation opportunity.

## **Protection**

### *Fire Management*

1. The Fire Suppression Strategy should be Control for all fires.



2. Fire suppression techniques which minimize impacts on visual values should be employed in areas seen from the designated travel route or recreation site.
3. Fire Hazard Reduction should apply. Residues from thinning or harvesting activities remaining in the immediate foregrounds of areas seen from the designated travel route or recreation site should be left in the following condition:
  - a) Less than two feet above the ground.
  - b) Screened by shrubs, grasses, or other understory vegetation.
  - c) Sparsely distributed and behind large diameter, dead material as opposed to tangles of small limbs. <FP VI-100]