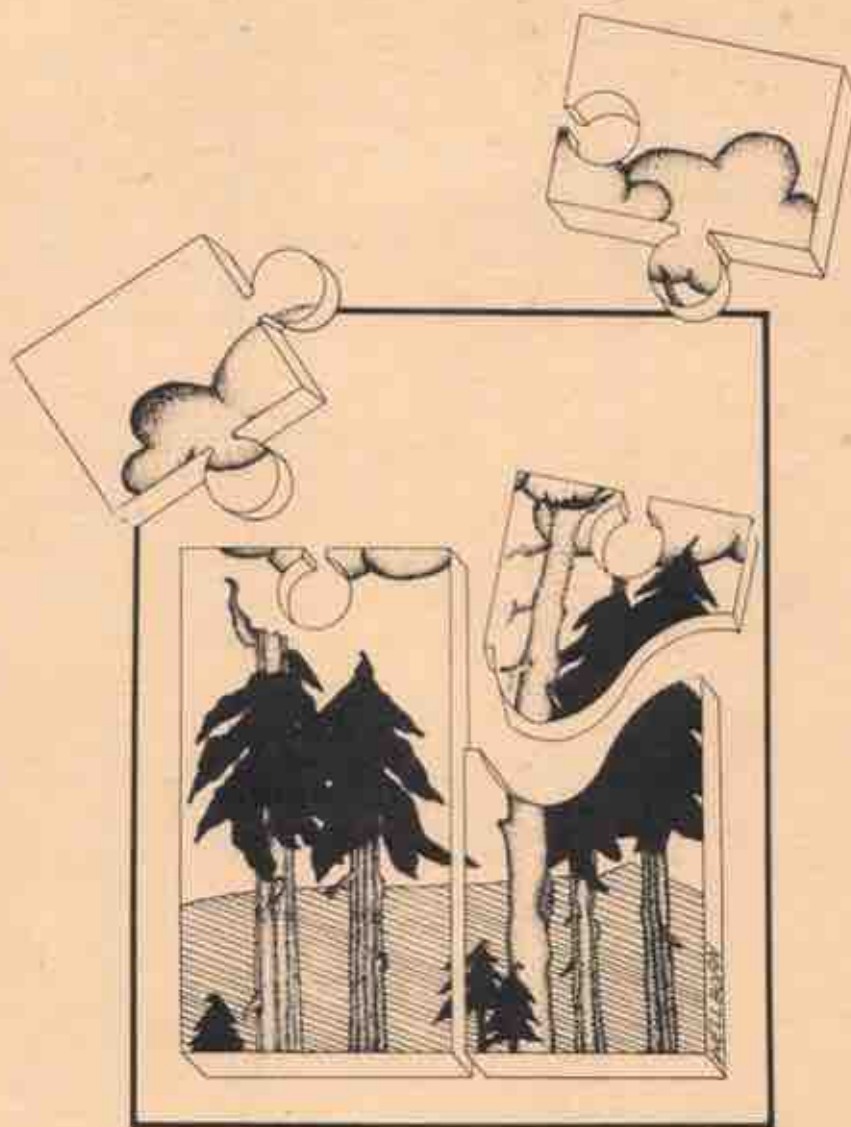
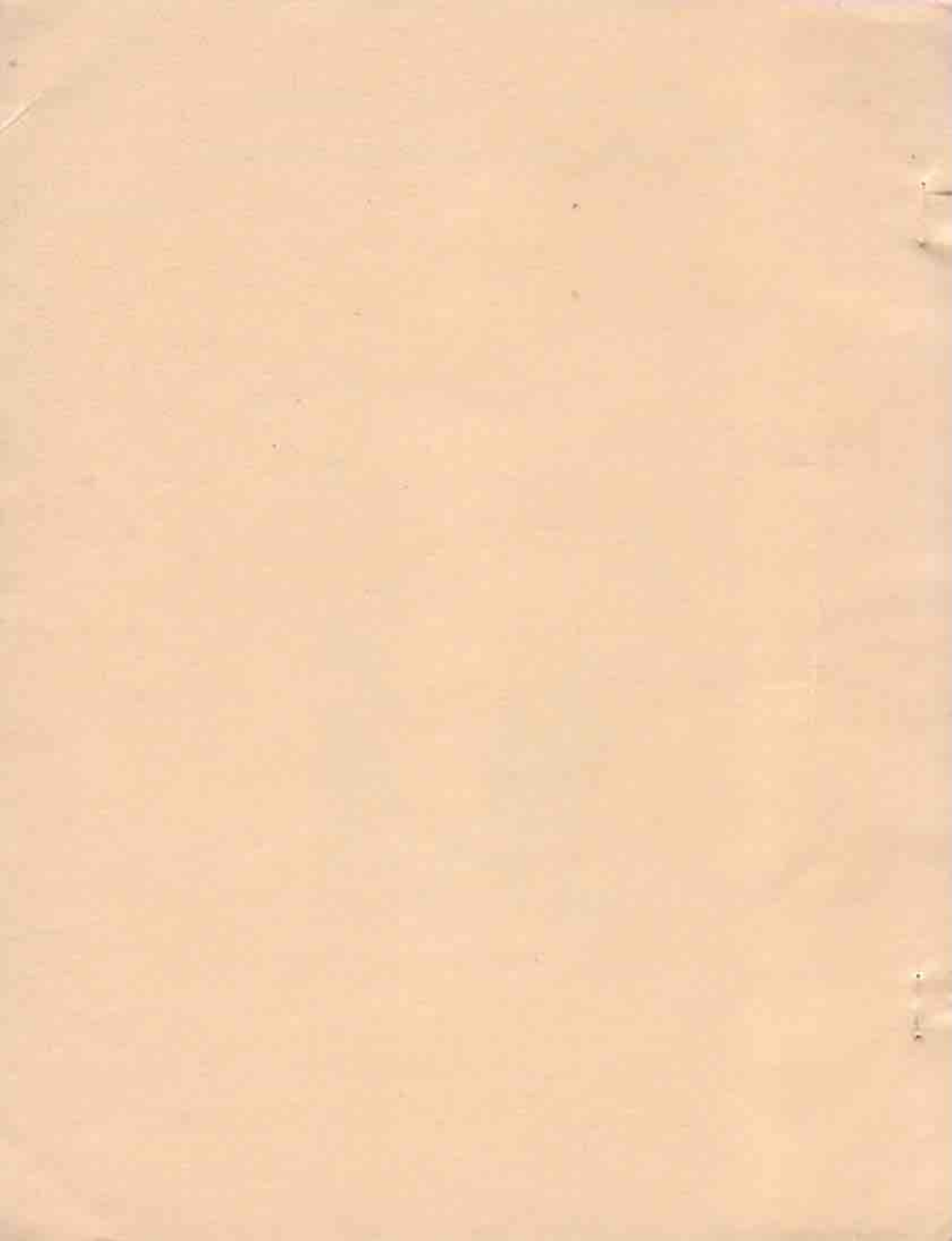


# Saving All the Pieces: Old Growth Forest in Oregon

by Cameron La Follette



Oregon Student Public Interest Research Group



SAVING ALL THE PIECES:  
OLD GROWTH FOREST IN OREGON

by  
Cameron La Follette

"The first rule of intelligent tinkering is to save all the pieces."

Aldo Leopold

SEPTEMBER 1979

OREGON STUDENT PUBLIC INTEREST RESEARCH GROUP

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## SUMMARY

The question of the Forest Service's decisions about and attitudes towards old growth forests is addressed through trips to all National Forests in Oregon to speak with personnel at the Supervisor's Office level. Further information is presented through background research and interviews with interested parties. The study operates on the premise that some old growth ought to be retained, but that the amount needed cannot be properly determined without a good inventory, which forms the basis of a rational evaluation.

Old growth forest management has become an increasingly complex and public issue. Scientists have become interested in the characteristics of old growth forests and greatly added to the fund of knowledge about them, thus paving the way for the asking of new questions. Public awareness has increased because of the rapid liquidation of old growth in Region 6. The Roadless Area Review and Evaluation (RARE II) in particular has focused attention on the qualities of the roadless areas, many of which contain important stands of old growth.

In order to sort out the decisions and policies, information on the discoveries of scientists working with old growth forests has been presented in a general manner. Appropriate policies that affect old growth management, such as timber management, the Area Ecology Program, the Spotted Owl Management Plan and certain laws, are explained. Elucidation of alternative viewpoints is presented through brief interviews with members of the research, environmental and industry communities.

To discover what the Forest Service activities on old growth are at the National Forest level, each Supervisor's Office was visited. Policies, inventories and management techniques were discussed with Forest Service personnel. Supervisor's Offices in Washington were called for a brief synopsis.

The study makes the following conclusions:

1. The Forest Service has no standardized policies on old growth, which is causing an unorganized and inadequate evaluation of the resource.
2. There is no standardized inventory of old growth forest, nor guidelines available for doing one. Such guidelines should be developed to aid the National Forests in completing standardized inventories.

3. A greater emphasis needs to be placed on developing an integrated old growth system throughout the National Forests, with an emphasis on distribution of enclaves and corridors to prevent isolation of stands. Preservation, rather than lengthened rotation, should be the cornerstone of the policy.
4. Public involvement on the old growth resource to date has been very slight. The Forest Service should undertake greater public involvement, land-use planning and research efforts to become better acquainted with old growth forest.
5. There are several areas of major concern, where the amount of old growth remaining is small and needs to be retained: the central Oregon forests (Fremont, Deschutes, Ochoco, Malheur), and the Siulaw.
6. There are several RARE II areas that have significant amounts of old growth and need Wilderness classification to protect this and other values.

## INTRODUCTION

This study is not meant to reiterate the research that has been done on the characteristics of old growth forests. It was undertaken at least partly because of policy changes within the Forest Service, such as the Roadless Area Review and Evaluation (RARE II) and the National Forest Management Act, and concentrates on the political aspects of old growth management and preservation. It operates on the premise that some old growth should be provided in an integrated system for various reasons, including, wildlife, watershed, recreation, aesthetics, ecosystem stability and habitat diversity, but that the amount of old growth which should be provided cannot be determined without a good inventory of the resource.

Old growth is picking up momentum as a public issue very rapidly. This is true for several reasons. One is the rapid liquidation of old growth occurring in the Pacific Northwest Region of the Forest Service for reasons that will be discussed more fully later. A second reason is the increased research that is being done on old growth, bringing to light hitherto unknown values. Perhaps the piece of research that has most caught the public eye is the work on the northern spotted owl which is dependent on old growth Douglas fir. A third is the realization that, especially in Oregon, the majority of the Wilderness areas, where old growth might be provided, are in the subalpine zone or above treeline. Few contain low elevation old growth. Therefore, most of the remaining old growth is in the already roaded portions of the National Forests which have been opened for timber harvest.

However, there are some significant patches of old growth in some roadless areas in the state. These are being evaluated currently for their Wilderness potential in the Forest Service's RARE II process. RARE II encompasses a bit under one fifth of the National Forest Land in Oregon, or about five percent of the state's total land area. Under RARE II, the Forest Service is ranking all roadless areas in one of three categories: Wilderness (requiring Congressional action) non-Wilderness, and further planning. Old growth is prime wildlife habitat and highly important for species which require large territories and solitude. Several Oregon roadless areas provide this kind of habitat (see recommendations.) However, the main criteria for the inclusion of an area in the National Wilderness Preservation System are directly human-related. They include opportunities for solitude or primitive recreation, and size--the area must be at least 5,000 acres or of sufficient size to make its preservation practicable. The area must be primarily affected by the forces of nature and may contain ecological, geological or other features of scientific, educational, scenic or historical value.<sup>1</sup>

Many areas were taken out of consideration for Wilderness in RARE II because they rate low on these values, even though their wildlife values may be high. The Draft Environmental Impact Statement for RARE II



identifies wildlife in human-related terms also, as recreation visitor-days. Using this yardstick, Wilderness has little value:

Preservation of wildlife habitat and the fisheries resource in its natural state will best be maximized by alternative J (the maximum Wilderness alternative)...To the extent that progression towards ecological climax occurs, it will benefit species requiring old growth forests...Wilderness recommendations do, however, restrict the amount of physical modification that can be done to improve habitat...Alternative B (the maximum non-wilderness alternative) provides the least natural habitat but the most opportunity for habitat manipulation...The data show the greatest increase in present use would occur under alternative J...Long-term use shows a different pattern, however, with maximum use under alternative B... This is because in the long-term, management plans provide for taking advantage of increased access under non-wilderness conditions to increase fish and wildlife and its use by recreationists including hunters, fishermen and viewers.<sup>2</sup>

RARE II is also extremely important to public interest in old growth because of the effect it has on developed parts of the forest. While the roadless areas are being evaluated they are not available for development, but they are in the allowable cut base. This means that in order to maintain the cut while protecting the roadless areas, cutting must concentrate on the managed parts of the Forests, which can increase the liquidation rate of the old growth on these parts of the forests even more. While this is not yet a problem on some forests, on others a problem is developing (see individual forest sections).

Some have said that if much more Wilderness is created in Oregon, The rest of the National Forest lands may be allocated principally to timber harvest. This study addresses the old growth resources that are contained largely in these non-wilderness areas and examines Forest Service policies on old growth at the National Forest, regional and national levels.

There are three aspects to the decision-making process, the inventory, evaluation and the selection of a decision. This report has concentrated on only one aspect of the Forest Service involvement with old growth; the inventory. First, before any inventory can be done, there must be a firm definition of the thing being inventoried. The inventory must be homogenous, thorough and easily understood, e.g., made available in as compact a manner as possible, before an evaluation can be made. In order to be effective, especially in matters of concern to the public, an evaluation must be done through the use of homogeneous criteria that take into account both the short term and long term effects of any decision. To the greatest extent possible, evaluations must be made without bias. The safety valve generally used by the Forest Service to prevent bias is the use of interdisciplinary teams. Above all things, an evaluation dealing with priceless natural resources must take into account the irreversible and irretrievable nature of many possible decisions, and trade-offs that are made in implementing them.

Unfortunately, if the inventory process is poorly done, or the definitions untenable or vague, then the entire process is set on its head. The fact that stopgap measures are necessary in certain circumstances to protect the resource while it is being evaluated does not negate the need for a thorough inventory and evaluation as soon as possible. Rather, temporary measures underline the need for a good inventory. Without the inventory, no sound basis exists for ultimately determining whether any measures adequately protect the resource. For this reason, the question this paper addresses is not how much old growth there should be or where it should be, except as interim measures. Rather this study examines whether the inventory is well enough done, the uniformity will enough understood, to make a good evaluation.

I have included a list of recommendations for the Forest Service based on the information gathered in this study.

## FOOTNOTES

1. 16 USC 1131
2. Roadless Area Review and Evaluation Draft Environmental Impact Statement, U.S. Forest Service, p. 46



## METHODOLOGY

This study focuses on the U.S. Forest Service for the following reasons:

- It owns by far the greatest amount of timberland in Oregon compared to other agencies;
- some resource inventory already exists;
- recent policy changes redefine its goals and methods in forest management;
- It contains the greatest amount of old growth on public land in Oregon;
- the majority of the National Forest old growth is outside of protected areas and is vulnerable to timber harvest.

The study consisted primarily of visiting every National Forest Supervisor's Office in the state of Oregon during the summer of 1978. Information was collected from wildlife biologists, land use planners and timber managers concerning the old growth inventory, if there was one, and any land use decisions or policies taken by the Forest. An average of two days was spent on each National Forest. The basic list of questions used consisted of the following:

1. What is the Forest's definition of old growth?
2. Has an inventory been done of the old growth on the forest?
  - a. In what form?
  - b. How complete is it? (e.g., in sampling form or otherwise?)
3. What is the Forest's present stand on old growth as a resource?
4. Is the forest using the key species approach to old growth? If so, how has it affected decisions concerning old growth?
5. Are there any troubles with including old growth in land use planning?
6. To what extent would the outcome of RARE II influence decisions on old growth on the forest?
7. If the forest has identified old growth for preservation or management, what is its allowable cut contribution--i.e., what are the trade-offs involved?
8. What management decisions have been taken concerning old growth?
  - a. What factors influence this (timber, wildlife habitat, etc.)?

This list includes only basic questions; once I discovered answers to those, others invariably became important. If there were any maps available showing old growth areas, I copied these, but mapped information turned out to be in such a heterogeneous form that it was of very little use.

In addition, I interviewed members of the timber industry, researchers and environmentalists. The following list of questions was used:

1. How would you define old growth?
2. Do you think that old growth is a critical issue?
3. Why or why not?
4. Should there be some old growth left on National Forest lands?
5. If so, in what capacity (managed, preserved, in Research Natural Areas, Wilderness)?
6. Is the spacing of it important?
7. Why or why not?

## QUALITIES AND LOCATIONS OF OLD GROWTH FORESTS

### Ecological Relationships

The Pacific Northwest is well known for its forest resources and especially for its primary commercial tree, the Douglas fir. But the area is just as well known for another aspect of its forests: The old growth, both Douglas fir and other species, which still exists in parts of the state.

An old growth stand is a climax or near-climax community. This means that the final association of plants and animals is occupying the site, and will continue to do so until a disturbance should come along and begin the successional sequence again. In these areas we may find that there are wildlife species which are dependent on the plant associations there, and do not do as well without them, though they may be able to survive elsewhere. An area that best fits the needs of a particular species is called the optimum habitat of that species. Since old growth forests are the climax forests and ecologically stable, there are many intertwining relationships between the plants and wildlife. Some wildlife species are so specialized that they cannot live anywhere except in old growth forests of a certain kind:

There is an element of the avifauna of the Douglas fir forest that is dependent on mature forest stands. These species have evolved to become specialists requiring the stability and diversity which only old growth forests can provide. There are, in addition, a whole gamut of species which are dependent to a lesser extent on these old growth stands. <sup>1</sup>

Sometimes the relationships are amazing. For example, it has been found that there is a fungus (mycorrhizae) that inhabits the roots of conifers, especially Douglas fir. They increase the nutrient absorbence capacity of the roots, and receive food in return. But how do the fungi get from tree to tree? It turns out that the fruiting bodies are eaten by small rats and woodmice, who deposit the spores in new locations through their fecal matter. Without these creatures the mycorrhizae could not spread, and the nutrient supply of the trees would not be so rich. These mycorrhizae are found in old growth stands, and they colonize adjacent clearcuts. <sup>2</sup>

Along with research indicating the importance of old growth in maintaining forest ecosystem stability is work indicating the loss of gene pool diversity given current management techniques. The gene pool is all of the genes in a population of a species. In nature, organisms must be able to adapt to the environment. Some genes aid the organism to change better than others. Diversity in the gene pool provides flexibility for the population in case of changes in the environment. To an extent, the more diversity in the gene pool, the larger will be the number of potential "right combinations" that will help a population of organisms adapt to a new environment. The less gene pool diversity, the greater are the chances that a population will be unable to survive great change. One of the practices

of intensive forestry is "genetic improvement," which aims to maximize some traits, such as fast growth, at the expense of gene pool diversity. In addition, research by Dr. Roy Silen, Principal Plant Geneticist for the Pacific Northwest Forest and Range Experiment Station points to a probable loss of options in maintaining gene pool diversity with extensive silvicultural management.

It is the replacement of the original gene pool with a more "profitable" one which wreaks a great consequence...In forestry the crop is long-lived, and it may take the length of human lifetime just for any mistakes in the altered gene balance to show up. <sup>3</sup>

Research also indicates that species diversity is reduced after large increments of silvicultural practice. Initial increments of silvicultural practice yield large returns in diversity, but each ensuing increment adds proportionately less until there is a net loss. <sup>4</sup> This loss of diversity is due to four silvicultural options: 1) shortening of grass-forb and shrub stages; 2) effects of even-aged Douglas fir monoculture; 3) elimination of snags; 4) elimination of old growth forests. <sup>5</sup>

However, research of this nature is in its infancy. The great majority of it has been done in the past 10 years. A great deal remains to be done, although the rudiments of knowledge that have been uncovered provide starting points.

### Description of some old growth forests

There is another aspect to old growth besides the scientific one: people's perceptions of it. Old growth is something different to everyone. However, there is a large variety of old growth types in Oregon. The following subsection is a description of those types which show their qualities. The section is not attempting to define old growth or provide a "character guide" for what old growth should look like. <sup>6</sup>

Generally when people think of old growth they think of the classic scene rather like the Olympic Mountains rain forest in Olympic National Park in Washington: the immense and towering trees that shade out all the sunlight except for pale dapplings to the forest floor. The ground underfoot is like a carpet, covered only with the thick richness of moss and a silence like that of a cathedral. The old growth forests of Oregon however, are more varied than that. Beginning with physical descriptions we'll start with the Northwest portion of the state along the Cascades and the Coast ranges. The old growth forests here at the lower elevations are mostly huge and towering Douglas fir and western hemlock with a few western red cedar. The forest floor underneath us is damp and palely lit by the light filtering down through the canopy. On the floor is a heavy coat of moss. The fallen bodies of dead giants are also coated with moss and on top of them grow many tiny seedlings of western hemlock.



Rain forest in the Coast Range with hemlock growing off a nurse log.

These are nurse logs. Eventually they will rot away, leaving the smaller trees to fend for themselves on octopus-like roots suspended above the ground.

Everywhere you will see snags rotting slowly back into the soil, and fallen logs, soft to the touch, doing the same. The ground is thick with needles from the trees.

On the forest floor grows very little except some tiny wildflowers and huge green rosettes of sword-ferns and deerferns. The ancient alders overhanging cool streams are hung

with moss and have small licorice ferns growing on the limbs when it is damp enough, which is almost always, for it rains frequently. The Douglas fir is not truly the climax species of this stand; the western hemlock is. But western hemlock does not grow well in sunshine, it needs shade. So underneath the Douglas fir canopy we will often find smaller canopies composed entirely of western hemlock. Even this canopy is taller than a person by several feet. In such areas the sun reaches the ground only in the smallest patches.

If we go up on a hill we will see that most of the trees have broken tops because they are so old, and a secondary branch has grown up to become the new top. The limbs radiate from the trunk like huge fans, but the first limbs are often hundreds of feet off the ground. Many of the trees have huge shelf fungi on them, multicolored and flat. This conk rot is responsible for thinning out the stand so that the trees remaining in old growth can grow to the proportions they do. Death of some increases the sunlight, water and nutrients for the rest.



If we are in a quiet place we might come upon a spotted owl blinking unafraid from a limb in the cool greenery. The smell is of dampness and rain; it is very still and quiet.

At higher elevations, the dominant canopy species becomes Pacific silver fir, and the trees are not always so large. Often the stand is dominated by tall, straight noble fir with the Pacific silver fir growing up underneath. Some places in the High Cascades there is very little understory, mostly huckleberry and the tall, swordlike stalks of beargrass, which in the spring yield a creamy, conelike flower. A wet, frosty climate in the Cascades will mean an herb-rich understory, with species like the butterfly-shaped vanillaleaf, oakfern and delicate inside-out flowers. It depends on the rain--and snow. If it is dry, the understory will be very sparse. If we are quiet we may hear the screech of a Stellar's jay or a flash of the buff wings of a Clark's nutcracker.

On drier sites of southwestern Oregon where the rain is not so heavy as in the Willamette Valley and on the coast, the old growth stands are very diverse. In the extreme southwest part of the state there is some redwood old growth, mixed often with Douglas fir. There is in general a greater mixture of species we have not seen much in the northwest Cascades, such as ponderosa pine, white fir, sugar pine and incense cedar. On the driest sites we will find huge specimens of fragrant incense cedar, which is resistant to drought. The lower flanks of the Siskiyou Mountains have forests of Douglas fir and tanoak. The Douglas fir makes up about half of the canopy; the rest is made up of deciduous trees. Canopy is more open than further north. Tall forests of sugar pine and incense cedar are found, especially in drier places. As we move south we see the towering Douglas fir less, and more ponderosa pine. These trees are always easy to spot, because as they begin to grow more slowly the bark turns orange-red and thickens into fire-resistant plates. On the wetter sites there will be arching thickets of vine maple, sometimes nearly impossible to walk through, as well as other rain-loving plants. In drier places the understory is a thick mat of manzanita, with its twisting mahogany stems, and ceanothus. One often sees the golden chinkapin as a shrub or small tree with its long leaves painted gold underneath. One lovely tree found among the mixed evergreens in the Siskiyou is the Pacific madrone. Tall and willowy, with smooth gold and sometimes violet bark, we can always pick it out of a stand of evergreens.

On the east side of the Cascades there is less Douglas fir. At high elevations there are large stands of small mountain hemlock. On low elevations, especially on the flats of central Oregon, the old growth is composed of stands of huge ponderosa pine, sometimes over 400 years old. If we go into an area that has not had too much fire suppression, we will see the ponderosa the way it was when fires still swept through the stands: tall pines, evenly spaced, marching across the flat. There is very little understory --perhaps a sprinkling of low, gray-green bitterbrush or

rabbitbrush. These stands are almost parklike, the trees are so widely spaced, and so little grows underneath. All that is seen are the giant girths of the orange-barked trees. Oftentimes wildfires will bring in some of the shrubs, but many of the ponderosa pine old growth areas have had no fires in them for 70 years or more. These stands are characterized by the heavy buildup of dead wood on the ground, and very many young seedlings, sometimes in thickets hard to walk through.



Lodgepole pine climax on poorly drained soils in central Oregon.

On poorly drained soils, and some well-drained ones, throughout central and northeastern Oregon, we will find areas densely populated with lodgepole pine. Old growth lodgepole looks a little different from what we have seen before; first, the trees are rarely as large as the ponderosa pine or the Douglas fir. Second, the lodgepole has many lower branches, which give the trees a scruffy look. The canopy closure may

reach up to 70 percent in some dense stands. Usually there is not too much ground cover. What we will notice most is that there are very few snags. Lodgepole, once dead, does not stand up long, and the old trees are more likely to be found on the forest floor. The climax stands of lodgepole are nearly always even-aged and pure. Fires play a part in the maintenance of these stands, for old growth of the lodgepole usually is said to begin at about 80 years, and to last no more than 200, at most. They regenerate after a burn. There may be a little rabbitbrush or some grasses; but the area will probably be dry, and very quiet except for perhaps a woodpecker's call. As we walk through the stand we will see that the bark is grey and not very heavily furrowed; instead it is in small plates that can be peeled off easily. There are few trees that we cannot put our arms around. This area looks very different from the old growth we saw on the west side of the Cascades, not so old, not so majestic, and very much drier. But it is a mistake to judge old growth merely by the age of the trees, for old growth Douglas fir may live to be 1,000 years old, while ponderosa pine is very old at age 400, and lodgepole rarely lives to be older than 200.

#### Location of Oregon's Old Growth

The remnants of old growth are scattered across the state on National Forest lands, Bureau of Land Management lands, and private and state lands. There is, however, very little old growth left on the private timberlands of the large timber companies, due to overcutting in the past several decades. <sup>7</sup> In the interests of economic efficiency, the large companies have been liquidating the old growth rapidly. The amount of old growth on the lands of small private woodlot owners is unknown, likewise for the state landholdings.

Better than half of Oregon is in federal ownership; at 15.5 million acres, the Forest Service owns about 25 percent of the state; at 16.5 million acres, the Bureau of Land Management (BLM) owns another quarter. The U.S. Fish and Wildlife Service owns a smaller amount. The National Park Service controls Oregon's one National Park, Crater Lake, and National Monuments. Other agencies hold smaller amounts.

The Forest Service and BLM have by far the largest amounts of old growth remaining in Oregon, although actual amounts are not accurately determined. The Forest Service owns large tracts of forest land across Oregon, so it frequently has large tracts of old growth, even with the on-going timber management activities.

Of the ten BLM Districts in Oregon, the five that are west of the Cascade crest--Salem, Roseburg, Eugene, Coos Bay and Medford--hold by far the greater amount of timber land owned by BLM--nearly 2 million acres. The eastern Districts--Burns, Baker, Prineville, Vale and Lakeview--hold only 182,000 acres of timberland. <sup>8</sup> The vast majority of the timber sale receipts come from the Western Oregon Districts. Almost all the lands

owned by the BLM in Western Oregon are Oregon and California Railroad lands. These lands were alternate sections given by Congress to the Oregon and California Railroad, and later taken back into federal ownership when the terms of the grant were violated. As a result of this, the BLM's ownership pattern in Western Oregon is checkerboarded. While the O&C lands constitute only 10 percent of the BLM's timberland nationwide, they contribute 90 percent of the harvest. Of the receipts from timber sales on these lands, 75 percent goes to the counties, divided up on a percentage basis according to the value of the lands in each county. 25 percent is returned to the BLM.

Old growth is affected by the make up and management of BLM lands. First, because of the checkerboard ownership pattern, there are few large patches of old growth on BLM lands. Second, the BLM interpretation of the O&C Act of 1937, which requires the BLM to manage these lands "for permanent forest production" and other uses, and the county payments, have tended to encourage timber harvest on these lands. This results in some Districts having very little old growth left. The Salem District, for example, has approximately 13,000 acres of commercial forest land which is still old growth.<sup>9</sup> The actual amounts of old growth left on BLM lands in western Oregon is unknown, however. The resource inventories required for the land use planning process have in most cases not yet been done. Most of the Districts, with the exception of the Medford, are at least a year away from completing their Management Framework Plans.<sup>10</sup>



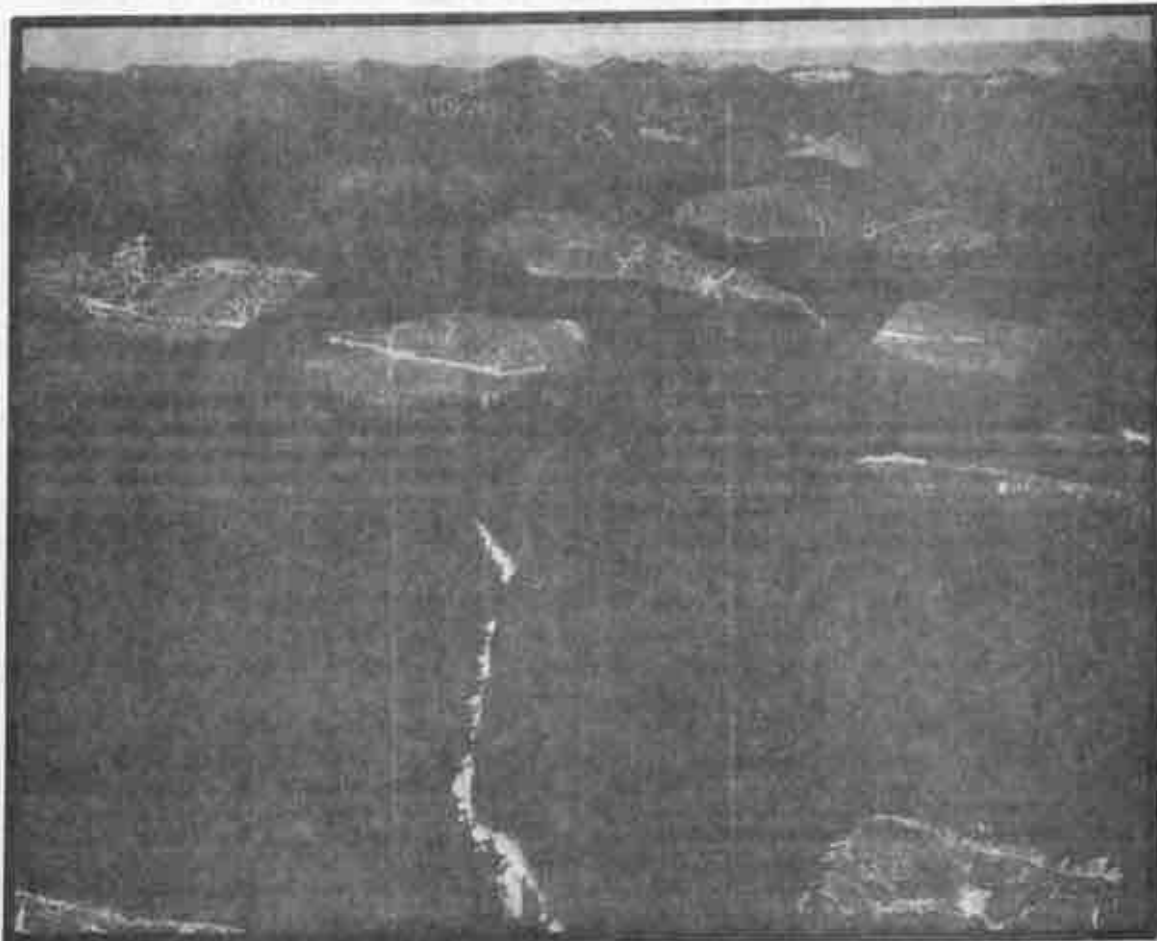
### Footnotes

1. Meslow, Charles: "The Relationship of Birds to Habitat Structure-- Plant Communities and Successional Stages" in Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p. 17
2. Juday, Glenn: "Old Growth Forests: A Necessary Element of Multiple Use and Sustained Yield National Forest Management" in Environmental Law, 8:2, p. 504
3. Silen, Roy: "The Care and Handling of the Forest Gene Pool" in Pacific Search 10:8, June, 1976
4. Edgerton, Paul J. and Jack Ward Thomas: "Silvicultural Options and Habitat Values in Coniferous Forests" in Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p.62
5. Meslow, Charles: "The Relationship of Birds to Habitat Structure-- Plant Communities and Successional Stages" in IBID, p. 13
6. This is merely a general description of old growth forest, not a detailed and accurate biological one. The figures on canopy closure and age are those used by the Forest Service .
7. In this paper, the definition of "overcutting" is "the cutting of more than is sustainable in the future." By this definition, the Beuter Report (Timber for Oregon's Tomorrow) clearly states that the industry has been overcutting. See Timber For Oregon's Tomorrow, Research Bulletin 19, Forest Research Laboratory, Corvallis, for a more detailed analysis.
8. USDI Bureau of Land Management: BLM Facts, Oregon and Washington, p. 9
9. IBID, p. 10
10. Conversation with Ron Sadler, BLM State Office, June, 1978

## INTEGRATION OF TECHNIQUES: AN ECOLOGICAL PERSPECTIVE

From the previous subsection it is clear that the rate of old growth liquidation has been quite high in the past, and is still continuing on the public lands, where the major reservoirs of old growth are:

Despite the concern, old growth had declined rapidly. The elimination of old growth on forest industry lands is now virtually complete. National Forests and certain BLM lands hold the key to the future of old growth in the region. Until recently, national forest management generally tried to harvest old growth as early as possible and replace it with younger, rapidly growing stands, thereby maximizing wood yields...If national forest managers continue to preside over the liquidation of old growth and do not implement old growth management plans to replacement stands (sic), then there can be no sustained yield of the unique old growth products and benefits...<sup>1</sup>



Staggered clearcuts in the Santiam River drainage, Willamette National Forest.

Some land managers have begun to be concerned about this: on various National Forests across the state old growth policies are being proposed. From an ecological point of view, however, this is only beginning. There are already parts of the state where there is very little or no old growth--especially the north coast range and the central flatlands. In order to maintain migration routes, gene pool diversity and communication lines among old growth dependent species, all the old growth "islands" that are being retained in a sea of intensively managed younger forest must be linked together. If they are not, each old growth area will actually become an island--the species living there will be cut off from interchange from the same species living in other islands. Without migration of species, each "island" will become less and less diverse as species go extinct in that island or are unable to find enough territory to sustain themselves.

This has led to a concern among ecologists that the various techniques used to manage and preserve old growth be integrated into an overall system that links all the pieces together (see the interview with Jerry Franklin, p. 45). It is argued that in order to do this, it is necessary to take a statewide view, so that areas with small amounts of old growth are given special attention, and the major reservoirs of old growth such as the Willamette and Mt. Hood National Forests, are singled out to provide larger amounts in strategic locations. The large stocks are particularly important to provide the territory for species needing solitude or large tracts for hunting.

Integration of techniques simply means that all the land allocations which provide for old growth are strategically placed so that they link up with one another. Allocations should be made with the idea in mind of providing old growth. Of course, the particular structure of the old growth system in a certain area should be tailored to meet the needs of the unit being planned.

Since one purpose of the old growth system is to insure ecological diversity, as well as maintain the flow of unique benefits provided by old growth, a diversity of techniques should be used. While all result in old growth retention, some are management oriented--they permit habitat manipulation to some extent--and others are preservation oriented. Preservation means that the area is essentially allowed to change naturally; the ecological cycle is left undisturbed. Some or all of the techniques should be used in any given area to promote diversity.

Of critical importance is a network of old growth enclaves strategically placed throughout the forest. Enclaves are fairly large patches of old growth--generally up to 2,000 to 3,000 acres in size. They can be watersheds (see glossary) which aid protection of water quality as well as having identifiable natural boundaries. The use of watersheds is especially important if, as in the Coast Range, aquatic productivity is important. Fundamentally, the selection of old growth enclaves should be guided by their representativeness and their protectability.<sup>2</sup> Each enclave must be a unit sufficiently representative that it can continue providing old

growth benefits after all the surrounding landscape is altered. For protectability, windthrow is a common hazard which can be avoided by careful selection. Landslides (mass soil movements) are another threat. Unstable soils cover much of the Cascade and Coast Ranges. Bad choice of sites for an enclave can lead to its destruction in a landslide.

Smaller old growth groves are critical in areas where the supply of old growth is low; they are needed to "connect" other areas. Groves that are very small, however, are in constant jeopardy because occurrences on the edge of the stand, such as windthrow or logging, effect the whole stand. Such stands provide some of the old growth benefits, such as woody debris and lichens.

Long rotation areas are another possibility. This will be explained in more detail later; essentially, they provide for partial timber harvest of old growth areas by lengthening the rotation age to, for example, 300 years. The effect of long rotation on total yield is less than withdrawal of an area from harvest. Long rotations are problematical in that they allow some habitat manipulation, such as precommercial thinning. Such practices are detrimental to the development of old growth characteristics such as dead and down logs, which is one of the key attributes. In order to perpetuate the gene pool diversity, regeneration should be natural also. Management activities should generally cease after age 100. 3 Long rotations are already being proposed by the Forest Service for visual management corridors along highways, streamside buffers and wildlife management area.

Of critical importance to the old growth system are stream buffers. First, they provide "corridors" between the larger enclaves. They are also migration routes. As explained more fully later, old growth buffer strips protect water quality for human consumption and anadromous (migratory) fish. The roots of the trees prevent bank erosion. Buffers must be wide enough to prevent windthrow. Furthermore, riparian (streamside) areas are very rich wildlife habitat, especially in old growth areas:

Riparian zones are those areas influenced by water...The water influence enables a greater plant biomass, faster growth, and a greater plant diversity than more xeric sites...Riparian zones are unique critical habitats; and because of their structure, diversity and edge components are extremely sensitive to manipulation. 4

Larger blocks of old growth are provided through Wilderness. Old growth on public lands is very heavily committed to wood production, so there are few roadless areas with old growth in them. 5 Maintenance of the integrity of old growth systems is in part dependent on these larger blocks. Those which remain should be given protection (see Recommendations).

Public land managers in Oregon have begun to integrate designations that provide old growth. All of the National Forests that have an old growth strategy are proposing to scatter small blocks of old growth throughout the forest. With the exception of the Willamette, these forests propose to put all blocks on long rotation rather than increase the use of preservation as a management tool. Perhaps the best example of integration of techniques is provided by the "Minimum Wildlife Habitat Guidelines" for the Ochoco and Area 3 (Umatilla, Wallowa-Whitman and Malheur). Essentially, these guidelines propose to scatter small blocks of old growth across the forests based on units in the planning system (see Introduction to Eastside Forests). The concept of maintaining an old growth watershed has also been proposed. One of the alternatives in the Alsea planning unit brochure on the Siuslaw National Forest proposes a Drift Creek Watershed Management Plan, which would protect the watershed of this coastal river and provide old growth habitat. Combined with smaller old growth patches, stream buffers and two Wildernesses, an integrated old growth system would be provided. The Forest Service already has a stream buffer policy, basing the amount of protection given on the erosion potential.

Integration of techniques is an ecological policy which mixes various old growth retention allocations. Used in a statewide perspective, it can provide the necessary key elements of old growth to maintain forest productivity.

#### Footnotes

1. Juday, Glenn; "Old Growth Forests: A Necessary Element of Multiple Use and Sustained Yield National Forest Management" in Environmental Law 8:2, p. 498-517.
2. IBID, p. 508
3. IBID, p. 511
4. Bull, Evelyn: "Specialized Habitat Requirements of Birds: Snag Management, Old Growth and Riparian Habitat" in Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p. 80-81.
5. Juday, Glenn: "Old Growth Forests: A Necessary Element of Multiple Use and Sustained Yield National Forest Management" in Environmental Law 8:2, p. 513.



## TIMBER MANAGEMENT TECHNIQUES

In order to give a better perspective on the old growth issue and the methods used by the Forest Service to deal with it, it is necessary to discuss the management techniques used by the Forest Service, and other agencies, to harvest old growth. While this is only an introduction to the complexities of the questions of forestry management, it will put the management of old growth in perspective.

In the Forest Service decision-making process concerning land allocations, the most comprehensive document is, or should be, the land use plan, whether done for a particular planning unit, (a portion of the Forest) or the entire National Forest. This plan should provide for the basic allocations on the Forest. Other plans, such as Timber Management Plans, are written with the land base allocated by the Land Use Plan. The land use plan, for example, does allocate land for timber. The Timber Management Plan details the management of the timber resource and the environmental impacts of that management, on the land allocated to timber harvest by the Land Use Plan. The Timber Management Plan decides what management intensities and cutting methods and rotation ages should be used in what proportions to best meet the goals of the Land Use Plan.

Very few land use plans prepared by the Forest Service in Oregon have addressed the question of old growth preservation. The Umpqua Land Use Plan is a typical example: it contains no provision for old growth at all, except indirectly, through other allocations. Currently the Forest Service has no land allocations for old growth preservation, though old growth may be preserved in a variety of ways. Two of the most frequently used options are a Wilderness, designated by Congress, and Research Natural Areas, designated administratively by the Forest Service for research purposes. There are other administrative designations, but the definitions of these vary by Forest. They include: Primitive Recreation Areas or Dispersed Nonmotorized Recreation Areas. An old growth area could also be designated as a Special Interest Area. These are designated to preserve unusual values and manage for recreational use in natural environment. They can be managed for different purposes, such as geologic, botanical or scenic values. Recreation is permitted when there is no conflict with protection of the area. Roads and motor vehicles are limited to recreation purposes when there is no conflict with protection of the environment.

The Forest Service does not preserve old growth simply because it is old growth. Generally, that old growth which is retained is retained as a result of management options selected and implemented by the Forest Service. For example, the Deschutes Land Use Plan Final Environmental Impact Statement proposes long rotations (see glossary) in certain areas of the forest to provide old growth wildlife habitat. The purpose is to provide habitat for old growth dependent species, not to provide old growth for its own sake. Similarly, other timber management options may result in old growth retention.

Most timber management options do not result in old growth retention, however. Below is a discussion of various timber management techniques which affect old growth.

In its Timber Management Plans the Forest Service makes use of what is known as the allowable cut effect, although there is no legitimate economic reason for its use. To understand this concept it is important to understand other terms and concepts used by the Forest Service. Allowable cut is the amount of timber that can be harvested from an area of timber land, given certain constraints, one of which is even flow. Rotation age or simply rotation is the period of time between one harvest and the next. Even flow is a policy adopted by the Forest Service as a management constraint to insure that there will not be a shortfall of timber in the future. Essentially, the policy provides that the allowable cut can be no higher than that which can be sustained for several generations in the future. The even flow policy was planned to help maintain the timber production from National Forest lands at the same level while more and more forests are converted from high-volume per acre old growth stands to lower volume per acre second growth stands. This supposedly eliminated the problem of very high wood volumes in old growth harvests causing allowable cuts to be inordinately high until the old growth was liquidated. Under the even-flow policy, however, if the Forest Service can show in its Timber Management Plans that use of intensive management techniques such as precommercial thinning, artificial seeding, herbicides, fertilizers and genetic improvement, will improve forest growth in the future, then the allowable cut today can be raised, thus increasing the old growth liquidation rate. This is known as the allowable cut effect. Of course, if the Forest Service is wrong in these predictions of growth increase, allowable cuts in the future index of even flow policy will be very unstable.

Timber harvest methods also affect old growth retention. The Forest Service uses both clearcutting--total overstory removal at one entry--and partial cutting methods, depending on the site class of an area. The site class is the capability of a piece of land to grow timber. The higher the site class, the greater the land's capability to grow timber. Site class varies with soil conditions, rainfall, brush species that precede conifers on disturbed sites, steepness of slope, and other things. Clearcutting is generally done on high site lands where regeneration is not a problem. It has received adverse publicity because of the visual impacts and the soil erosion and watershed damage that occurs from using it in the wrong places. This method is most often used in the northwest Cascades and Coast Range. On the remainder of the National Forests in Oregon, cutting is primarily done by shelterwood. This is the practice of removing the overstory in more than one entry, usually two or three, spaced 5-10 years apart. The residual stand provides shade for the new second growth. Generally, the last overstory trees are not taken until the understory





A shelterwood cut, showing residual overstory and young second growth.

is at least four feet tall. This understory may be naturally regenerated, or planted from nursery stock, or both. Shelterwood cutting tends to remove up to 70 percent of the canopy at the first entry,<sup>2</sup> making it somewhat minimal for old growth.

Another partial cutting method no longer used by the Forest Service is selective cutting. This practice can easily degenerate into "high-grading"--removal of the largest and most vigorous trees and leaving the rest. High-grading has been practiced extensively on the central Oregon flatlands, leaving the forest undisturbed except for the immense stumps scattered through the stand. High-grading can lead to an unhealthy forest being left, since the best trees are removed.

Many of the eastern Oregon forests also have much timber removed in the form of salvage sales, where the dead and down mater-

ial is removed. Such a sale may or may not include a cut of the living trees. Salvage sales remove one of the essential old growth components: the standing and down dead material, which adds greatly to the complexity of the stand for wildlife purposes, among other things. Selective cutting, if done with caution, does not necessarily eliminate the old growth characteristics from a stand. In combination, however, a stand can become very degraded, from an old growth standpoint, because the net effect is to remove the original overstory and "clean up" the structure of the forest.



Clearcut with logging slash. The remaining stand may be vulnerable to windthrow.

Neither of these methods provide for old growth in the long run. The clearcutting removes it all at once; it may or may not grow back. While shelterwoods provide for some old growth in the short run, old growth will be equally scarce on the east and west sides in the long run. Long rotations are a possibility, although the conventional economics of forestry preclude old growth also.

The reason that current management practices for timber do not provide old growth is that there is a cost involved in letting the trees grow to old growth proportions.

If timber were the only forest resource of value, few stands would be grown past fifty years of age. A business manager recognizes that investments must be found which return 7 percent to 10 percent or more annually, and only young stands of timber are able to grow fast enough to provide this return. The age at which these trees are cut is often referred to as "economic maturity", although this term is deceptive because true economic maturity would consider all forest values.

Other forest resources do have values, though they are not always market values. Critical wildlife habitat, natural fisheries, scenery, and the experience of viewing very large trees, are all values which cannot be purchased in a store. Because these resources do not usually return someone a profit, many people regard them as having little value. In fact, the value of a non-market resource may be very great even though no one would make a profit from such resources if the government did not provide them. National defense is an example of such a resource.

Forest Service lands are generally not managed on a strict economic maturity basis because non-timber values must be taken into account. Congress recognized that non-timber values exist and are important when it passed the National Forest Management Act of 1976. This law requires the Forest Service not to harvest stands of timber until they have reached the culmination of mean annual increment (MAI). At that point the average annual growth rate of the stand has reached a peak and begins to decline. This usually occurs at an age much greater than economic maturity. Even so, trees under this management may be harvested between the ages of 70 to 120 years, long before they acquire old growth characteristics.

There is therefore a difficulty in providing for old growth on public lands. The capital inventory of the stand must be carried for a longer period of time if the trees are to be left to reach old growth age. This can get very expensive. Many of the features of old growth forests, such as their nutrient cycling abilities, naturally are valuable to the forest manager. Hartmann<sup>3</sup> concludes that the benefits flowing from the standing timber could, if calculated, greatly lengthen the rotation age, if not preclude harvest altogether. As old growth forests become more scarce, these benefits and other features, such as scenic attractiveness, greatly increase in value. The Forest Service National Forest Management Act and the BLM Federal Land Policy and Management Act require the agencies to consider all resource values and to maximize the total value of all resource outputs from public lands.

In order to fulfill the requirements of these Acts with respect to the values of old growth timber some Oregon National Forests and BLM Districts are managing some stands of timber on extended rotations of up to 300 years or more. These stands, it is hoped, will have many of the characteristics of natural old growth stands, and still provide partial timber yields. Long rotations are currently the cornerstone of Forest Service old growth strategies.

Many scientists feel that old growth characteristics begin to appear in Douglas-fir stands at about 200 years of age. If a portion of a national forest is managed on a 300 year rotation then only one-third of that acreage will exhibit old growth characteristics at any given time. For example, if it is desired that 5 percent of the commercial forest land in a national forest exhibit old growth characteristics then 15 percent must be managed on a 300 year rotation.

Annual timber yields from land managed at a 300-year rotation are about 30 percent to 40 percent less than from land managed at a rotation equal to culmination of mean annual increment. The economic cost of waiting 300 years to harvest timber, as opposed to the 40 or 50 years when using an "economic maturity" rotation is greater still. The value of retaining old growth must be greater than this cost if old growth protection is to be desirable.

If 100 percent of a national forest were allowed to grow to 300 years or more the abundance of old growth would render it low in value. If only 1 acre of the forest was allowed to grow to 300 years the scarcity of old growth would make it very valuable. Somewhere between these two extremes the costs of growing stands to long rotations will equal the benefits of old growth retained. This point designates the amount of old growth which should be provided.

#### Footnotes

1. O'Toole, Randal: The Citizen's Guide to Forestry and Economics, p. 21
2. These are general timber management figures, not specific to any particular area.
3. Hartmann, Richard: Economic Inquiry Vol. 14, March, 1976, pp. 52-58

## THE AREA ECOLOGY PROGRAM

One aspect of the old growth question is indirectly receiving attention through a program called the Area Ecology Program. When all the inventories are completed and mapped, there should be an accurate inventory of the old growth on each National Forest in an Area.

The Area Ecology Program was begun in 1963 by Dr. Fred Hall at the Range and Wildlife Habitat Lab in La Grande. The original intention was to inventory range habitat conditions in the Blue Mountains and produce guides to range quality, primarily for cattle. In 1964 the program was moved from the Research Branch of the Forest Service to the National Forest Branch because the inventory was so project-oriented. However, it remains cooperative with the Research Station.

Later the original concept was broadened to include inventory not only of range conditions but of all plant communities on the National Forests, a much broader and more time-consuming task. The change arose from the observation that natural resources were not being inventoried at the level of sophistication needed for sound management decisions.

An Area is an organizational unit made up of several National Forests. In Region 6 there are 8 Areas:

- Area 1: Mt. Baker-Snoqualmie, Olympic
- Area 2: Okanogan, Wenatchee, Colville
- Area 3: Wallowa-Whitman, Umatilla
- Area 4: Ochoco, Malheur
- Area 5: Winema, Deschutes, Fremont
- Area 6: Umpqua, Siskiyou, Rogue River
- Area 7: Willamette, Sluslaw
- Area 8: Gifford Pinchot, Mt. Hood

This reorganization occurred recently; up until October there were only 6 Areas. In the old scheme, Areas 7 and 8 were combined; Area 3 included the Malheur and Area 4 included the Ochoco. The new reorganization was done to lower the work load of the Area Ecologists. With the new Areas, each Ecologist will have approximately 3 million acres of land to work with. Under the old design, an Ecologist could have up to 6 million acres.

There is one Ecologist for each Area, although currently Areas 1 and 8 do not have an Ecologist. There are two phases to the work being done by each Ecologist:



Phase 1: Classification of all vegetative units useful to land managers. This is a very project-oriented inventory. Along with the plant community inventory it includes information on the slope, topography and soils so that techniques suitable for management can be ascertained. For example, the inventory of a plant community might include a discussion of the length of time needed for reforestation if a species is harvested; site productivity and revegetation methods, range condition and indicators of site disturbance. Criteria for classification of a vegetative unit are:

1. Each unit must be significantly different for management purposes.
2. The type can be recognized on the ground at any stage of disturbance.
3. The type has limited variability in species composition.
4. The type has limited variability in productivity.

Phase 2: The Area Ecologists' time will be divided into two tasks. First, to consult with and train land managers in the use of the classification system. Second, to investigate significantly difficult land management problems.

The Area Ecology program does not include the mapping of the vegetative units--plant community maps. This would be an enormous task for the Area Ecologist, given the fine breakdown of plant communities needed. If the National Forests want maps of the plant communities, they develop them themselves.

Supervision of the Area Ecologists is on two levels. Technical supervision is provided by the Regional Ecologists in Portland: Dr. Fred Hall, the plant ecologist, and Dr. Len Volland, the statistical ecologist. Administrative supervision is provided by the National Forest Supervisors in the Area. At fall and spring meetings the Regional Ecologists, Area Ecologists and Supervisors meet to discuss goals and targets for the next six months.

Money is not appropriated directly for the Area Ecology Program. Money is allocated yearly from the Regional Office for Special Projects, of which the Area Ecology Program is one. This past year, that amounted to \$240,000, which was apportioned to the National Forests for field-work by the Ecologists. Additionally, this sum is supplemented by the Supervisors from Forest Funds for special assistants to the Ecologists. Another lump sum is allocated for the Regional part of the Area Ecology Program, under the general heading of Regional Office operations.

The reorganization of the Area Ecology Program alluded to previously has changed the Program's status. Some terms need to be defined in order to understand this change. Under the Resources Planning Act of 1974, resource inventories must be conducted in order to determine the level of resource outputs the National Forests can sustain. Resource inventories can be on three levels: Level 1 is a minimal operation,

covering only what absolutely needs to be done. This level does not meet RPA goals. Level 2 is a cost-effective use of the dollar, and conforms to the minimum standard of RPA. Level 3 is a high standard of RPA, and includes projects and funds that are desirable if available.

The Area Ecology Program has in the past been at Level 3--desirable, but not at top priority. This changed; the Program and all current Area Ecologists are now Level 1--essential to meeting RPA goals. Additions to the Program, such as the two other Ecologists and special assistants, are probably less important, though essential to the fulfillment of long-term goals. Because of the change in status, appropriations from the Regional Office, as well as funding increases, are more easily come by.

The longterm goals to be fulfilled by the Area Ecology Program consist of completing basic ecological inventory data in time for the next round of planning to be done by the Forest Service under the National Forest Management Act of 1976. The plans must be done by 1985; the inventory data will be done by 1983, if the staffing increases are completed now. This includes two more Area Ecologists, and special assistants. The National Forests in those Areas that are first to complete the ecological inventory will be the first to write the new plans. Presently, these Forests will probably be the Ochoco, Malheur, Umatilla and Whitman.

Old growth figures in the Program in several ways. First, although old growth is not one of the directly-inventoried resources, yet much of the inventorying is done in old growth areas because old growth is a climax or near-climax community, and used as a baseline to measure disturbance in other areas. Second, most of the ecological maps that will be done will identify the successional stage and age class currently occupying a site although that is not the primary emphasis. The primary emphasis is identification of the plant community, not the age class. Third, because the inventory is project-oriented, land managers can use it to evaluate, among other things, the wisdom of liquidating an old growth area based on its natural productivity. This will help formulate more ecologically sound cutting schedules. Fourth, the inventory will provide some measure of information about types of old growth about which nothing is known, such as lodgepole pine and white fir. Fourth, it is the first Region-wide attempt to look at the National Forests ecologically and base land management on ecological principles. It is therefore noteworthy that the Regional Office considers the Program to be essential to meeting RPA goals.



## Footnotes

1. Information in this section principally from conversations with Dr. Fred Hall, Plant Ecologist, Region 6, October 10, 1978, and December 14, 1978.

## LAWS AFFECTING OLD GROWTH

The Forest Service has a history of legislation regulating the use and management of the National Forests. All of them, from the Organic Administration Act of 1897, can be interpreted to show that the Forest Service has a mandate to manage and preserve old growth.

Juday<sup>1</sup> has done a study of the laws relating to Forest Service activities that point to a mandate for the protection of old growth. This discussion is principally a condensation of that work.

The Organic Act of 1897 provided that the National Forests should be established for the following purposes:

1. "(T)o improve and protect the forest"
2. To secure "favorable conditions of water flows"
3. "(T)o furnish a continual supply of timber." 2

The first purpose is very important. Both the science of forestry and the science of ecology were in their infancy at the time; however, the legislators saw the forest as more than a collection of trees. It is in fact a complex mosaic of habitats and interrelationships. The language of the Act implies management of the National Forests should either be to improve the ecological integrity of a degraded forest or to protect it in a healthy forest. A portion of the ecological integrity of the forest devolves from the older age classes. Research has shown that streams flowing through old growth areas provide the cleanest water, with the least sediment load and most complex mosaic of microscopic habitat, which is the basis for the aquatic food chain.<sup>3</sup> Thus the second provision of the Act is provided for in old growth forest. The third provision can also be met by managing a portion of the National Forests under an extended rotation.

Section 1 of the Multiple-Use Sustained-Yield Act of 1960 states that the National Forests shall be managed for five purposes: "outdoor recreation, range, timber, watershed and wildlife and fish."<sup>4</sup> Many of these uses are principally found in old growth areas, such as certain forms of research benefitting the science of silviculture, intact salmon runs and certain forms of recreation.

The definition of multiple-use includes: "harmonious and coordinated management of various resources, each with the other, without impairment of the productivity of the land."<sup>5</sup> This definition is very important ecologically. Even with the limited information currently available, it is doubtful if the forests could maintain longterm productivity for many multiple use benefits without old growth. Genetic diversity would be reduced; likewise the food webs impaired and reduced in complexity. Other factors, such as aquatic habitat and critical soils, would also be impaired. The current trend towards old growth liquidation therefore falls short of the legislative standard "without impairment to the productivity of the land."

The National Environmental Policy Act of 1969<sup>6</sup> recognized "the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man,"<sup>7</sup> and declares it to be the policy of the Federal Government "to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans."<sup>7</sup>

This provision of NEPA shows a definite concern for maintenance of the ecological balance in forests, among other environments. As recent research shows, old growth is a critical part of that stability; the sundering of dependency relationships could lead to longterm decline in forest productivity. For man and nature to exist in harmony the integrity of the ecological system must be maintained. Without old growth it is doubtful if that legislative directive could be upheld. NEPA also requires all agencies to do "a detailed statement" on any "major federal action significantly affecting the quality of the human environment."<sup>8</sup> Over the years, these Environmental Impact Statements have become quite sophisticated in measuring resource tradeoffs. Few to date have dealt directly with old growth, partly because of a lack of research on the qualities of these forests. However, as an aspect of multiple use, the directive on EIS's should also be upheld for old growth.

The National Forest Management Act of 1976 (NFMA)<sup>9</sup> is the most recent act to set standards for National Forest Management. The Act calls for the development and adoption for management plans for units of the National Forest system under the principles of multiple use and sustained yield. The Secretary of Agriculture is required to adopt guidelines for all such plans.

The criteria for these guidelines is in effect a mandate for the management of old growth. For example, subsection (g)(3)(B) of the NFMA requires that the plan guidelines "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives," and "preserve the diversity of tree species similar to that existing in the region controlled by the plan."<sup>10</sup> The draft regulations for the Act have been released by the Forest Service, and the final version will be out in winter or spring of 1979. A thorough analysis of these draft regulations as they pertain to old growth is found in CHEC Resource Bulletin Number Fifteen, the National Forest Management Act and Old Growth, reproduced in full in the appendix. The definition of "diversity" in the draft regulations concentrates on numbers of species and distribution of plant and animal communities, instead of on type diversity, which would include age diversity as well as species richness. The regulations' definition, which simply counts numbers or species, does not differentiate between old growth and younger trees of the same species. Yet, there are whole plant and animal communities associated solely with old growth forests, which will be eliminated without the old growth component.

The NFMA also mandates research to determine that the effect of management practices required in a Plan "will not produce substantial and permanent impairment of the productivity of the land." <sup>11</sup> Many of the specifics of eliminating old growth from the forests are unknown. Research will improve the status of our knowledge. The NFMA was far-sighted in realizing that problems we do not currently recognize may exist in the future and that research now can help avoid pitfalls in forest management. The most important aspect of NFMA is the improvements in the public planning process. Section (h) of the proposed regulations says that all levels of planning will reflect "responsiveness to changing conditions of the land and desires of the American people." As old growth becomes more scarce it becomes more valuable for research, for recreation, and for protection of water quality. Concurrently, section (g) states that there will be, at all levels of planning, "Early and frequent public participation." It is important to note as well that the NFMA requires the Forest Service to do interdisciplinary planning of all resources, of which old growth is indisputably a part.

Two other laws deal with National Forest activities in a manner that requires old growth retention. The Bald Eagle Protection Act of 1940 <sup>12</sup> prohibits the taking of bald eagles. "Take" means "molest or disturb." <sup>13</sup> Molestation and disturbance include activities that disturb the habitat of eagles. In practice this means that 40 acres around the eagle nest site are reserved. The nest site is typically a large stick platform located in an old growth stand.

The Endangered Species Act of 1973 (ESA) <sup>14</sup> applies to wildlife dependent on old growth. As the old growth ecosystem itself diminishes, wildlife dependent on it may approach extinction. This is especially true of higher predators, such as the spotted owl, which require large feeding and nesting territories. The ESA states as policy that: "(t)he purposes of this chapter are to provide a means whereby the ecosystem upon which endangered species and threatened species depend may be conserved." <sup>15</sup> If an old growth dependent animal were formally listed in the Federal Register as threatened or endangered by the Secretary of the Interior, then all federally-sponsored activities which modified its "critical habitat" would have to cease. <sup>16</sup> The only old growth dependent animal to be listed is the bald eagle which is only part old growth dependent. In Oregon, the eagle is only threatened, which carries with it less stringent requirements for protection by federal agencies.

#### Footnotes

1. Juday, Glenn: "Old Growth Forests: A Necessary Element of Multiple Use and Sustained Yield National Forest Management" in Environmental Law 8:2, p. 497-522
2. 16 U.S.C. 475
3. Meehan, William, Frederick Swanson and James Sedell: "Influences of Riparian Vegetation on Aquatic Ecosystems with Particular Reference to Salmonid Fishes and Their Food Supply" in Importance, Preservation and Management of Riparian Habitat: A Symposium
4. 16 U.S.C. subsection 528 (1976)
5. 16 U.S.C. subsection 531 (a) (1976)
6. Public Law 91-190
7. 42 U.S.C. 4331
8. 42 U.S.C. 4332
9. 16 U.S.C. 1604 (1976)
10. 16 U.S.C. subsection 1604 (g) (3) (B) (1976)
11. 16 U.S.C. subsection 1604 (g) (3) (C) (1976)
12. 16 U.S.C. subsection 668 (1976)
13. 16 U.S.C. subsection 668 c (1976)
14. 16 U.S.C. 1531-1543 (1976)
15. 16 U.S.C. subsection 1531 (b) (1976)
16. Public Law 95-632, passed by the 95th Congress on November 10, 1978, created an amendment to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536). The amendment (16 U.S.C. 1533) authorized an endangered species committee at the cabinet level to decide whether to grant an exemption from the requirements of the Endangered Species Act to projects over which irreconcilable conflicts have developed. Exemptions granted under this amendment are not subject to the requirements of the National Environmental Policy Act of 1969 as a major federal action. 16 U.S.C. 1535 of the amendment reauthorizes the Endangered Species Act for 18 months.



## REGIONAL POLICY

The last chapter dealt with the laws that affect old growth retention on National Forest lands. A previous section discussed the timber management policies that affect old growth. Most of them encourage liquidation.

To date, Region 6 has no policy on old growth retention, (although that is changing). Currently, each National Forest in Oregon and Washington is dealing with the old growth problem individually. One of the major stumbling blocks preventing the development of a regional policy has been the classic forestry attitudes towards old growth:

An old maxim states that forestry begins with the axe. This means that a declining overmature old growth forest must be harvested and salvaged for use, and then replaced by young growing trees to meet the needs of subsequent generations. The old forest must make way for the new... Professional foresters are trained to accept the philosophy that the conversion of an old growth unmanaged forest (like the one in the Northwest) to a managed forest, with its favorable distribution of age classes, is desirable from social, economic and forestry points of view.<sup>1</sup>

However, principally because of the provisions of the National Forest Management Act, Region 6 has recognized that old growth is an element of habitat diversity. On May 17, 1977, the Regional Office issued a memo stating:

We are well aware of the desirability of diversified vegetation in our overall management of National Forests. This concept is now legislatively directed in the National Forest Management Act. Plant diversity, without question, includes extended rotation 'old-growth' components. The direction to be resolved is not 'if' but 'how much' and 'where.'

However, the Regional Office has not issued any policies that pertain to old growth with the exception of the spotted owl management plan. This plan is not region-wide, but pertains only to the habitat of the northern spotted owl, which is dependent on old growth Douglas fir for nesting and feeding. It finds habitat primarily in the forests west of the Cascade crest, and nests in the broken chimneys of old growth Douglas fir trees that have a secondary canopy. The spotted owl's prey, primarily the red tree vole and the flying squirrel, are also old growth dependent. The thick canopy closure of the old growth forests protects the spotted owl from predators.





An adult northern spotted owl.

In 1972 the Forest Service funded a study of the habitat requirements of the northern spotted owl, and from these studies it was eventually realized that the spotted owl had potential endangered status, as its habitat was being rapidly eliminated by timber management practices. Currently, the owl is on the threatened list for the state of Oregon. The Endangered Species Task Force, a committee composed of representatives from the Forest Service, Bureau of Land Management, Oregon Department of Fish and Wildlife, Washington Department of Game, and others, drew up a plan that would preserve enough of the spotted owl's habitat on public lands to maintain a viable population. This action

was intended to keep the owl off the Federal Endangered Species List.<sup>2</sup> In 1976 the Endangered Species Task Force came up with the Spotted Owl Management Plan, which set up guidelines for the amount of old growth needed per pair of spotted owls, and the number of pair required to provide Oregon with a minimum self-sustaining population. The plan in its entirety may be found in the appendix, but the main provisions state that:

1. There will be 400 pair of owls maintained in western Oregon. This will be done through agency distribution.
2. The allocation of owl pairs for the National Forests in Oregon is as follows:

Mt. Hood:	35	pair
Siuslaw:	22	pair
Willamette:	100	pair
Umpqua:	40	pair
Siskiyou:	32	pair

Rogue River:	35	pair
Winema:	16	pair
Deschutes:	10	pair
TOTAL:	290	pair

The remaining numbers will be found on BLM and other lands. The Winema and Deschutes are covered in the plan, although they provide marginal habitat for the spotted owl. Although the Washington forests west of the Cascade crest (Gifford Pinchot, Olympic and Mt. Baker-Snoqualmie), are also included in this plan, no allocations have been made for them.

3. 1,200 acres of contiguous land is to be provided per pair of owls. Of that, 300 acres at the core must be old growth maintained for the sole benefit of the spotted owl. The remainder of the habitat must be at least 50 percent in forest stands older than 30 years. The definition used here is as follows: "Old growth forest must be at least 200 years old and contain an average of 8-10 old-growth overstory trees (a minimum of four) per acre, with a developed understory greater than 30 years of age."

4. A management area should encompass the home ranges of a minimum of three pair, with six pair being ideal. Single pairs are acceptable in peripheral habitat.

5. Core areas for each pair should be separated by approximately one mile, center to center.

6. Goal management areas of three or more pairs should not be less than 8 and not more than 12 miles apart. Single bird management areas should not be less than 5 or more than 8 miles apart.

The Spotted Owl Management Plan is not actually a policy on old growth; for example, spotted owls do not usually use old growth Pacific silver fir or ponderosa pine habitat. However, in the absence of any other policy on old growth, especially for forests west of the Cascades, it has frequently filled that role. The plan deals with the habitat requirements of a certain species, and concentrates on managing the habitat for that species. This sort of management is called featured species management: "The featured species concept is the principle of selecting particular wildlife species and concentrating management efforts towards fulfillment of their needs. (USDA Forest Service, 1971)".<sup>3</sup>

The May 17, 1977 memo quoted above directed the forests west of the Cascade crest in Oregon and Washington to map spotted owl habitat, both potential and actual. These maps were used in developing the above-mentioned allocations. In the interim, before the land use planning is done to determine the actual land allocations on the forests, the Regional Office has stated that

spotted owl nest sites will be protected consistent with the 1976 guidelines for all locations found that are not in timber sales sold before 1977. The Interim guidelines provide for leaving at least a 300 acre protected area around each nest site, or development of a special plan around each nest site that will provide for spotted owl requirements.

#### Footnotes

1. Hagenstein, W.D.: "The Old Forest Maketh Way for the New" in: Environmental Law 8:2, p. 492.
2. Minutes of the Endangered Species Task Force Meeting, August 4, 1977, p. 2
3. Black, Hugh, and Jack Ward Thomas: "Forest and Range Wildlife Habitat Management: Ecological Principles and Management Systems" in: Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p. 54

## INTERVIEWS

The seven interviews which follow were chosen with the idea of elucidating some of the controversy that surrounds old growth, and of setting forth some differing viewpoints. Broadly, there were three categories of interviews: Three researchers: Eric Forsman, a graduate student at Oregon State University whose research has concentrated on the northern spotted owl; Jack Thomas, with the Range and Wildlife Habitat Lab in La Grande; and Jerry Franklin, with the Forest Sciences Lab in Corvallis. Two environmentalists were interviewed: Andy Kerr, with the Oregon Wilderness Coalition, and Dave Corkran, with Friends of Bull-of-the-Woods. Two representatives of the timber industry were interviewed: John Thompson with Georgia-Pacific, and Dick Angstrom, with Associated Oregon Industries.

All interviews are not verbatim, and while the same basic questions were asked, they differed slightly. They are all nearly verbatim, and each is presented in its entirety.

Eric Forsman

Associate Research Biologist

Oregon State University

1. How would you define old growth?

Anything from one old growth tree to a stand with a multilayered canopy. One old growth tree in a second growth stand will qualify. For old growth forest, that definition would have to be qualified: there should be a multilayered overstory with one to two layers of second growth which is quite shade tolerant. For the understanding of foresters that should be further qualified to include the number of stems per acre. The criteria would be reasonably similar for old growth on either side of the Cascades.

2. Do you think old growth is a critical issue?

Yes.

3. Why?

On the westside, our research indicates that elimination of old growth is doing the following things: causing a population decline of spotted owls, and is closing out the option of finding out more about most animals' habitat requirements in old growth--in a quantitative way, especially for non-game animals, such as the pine marten, the flying squirrel and the red tree vole. We don't know what effects we are having on the botany and the animals. Until we know these things, it is bad policy to systematically remove something whose effects are not known. Yet this is happening.

Theoretically, reduction of diversity reduces stability, and that is exactly what we are doing with intensive management. There will be a relatively narrow range of plant communities and animals. That is poor practice. It has not been completely documented that reducing diversity reduces stability in truly complex systems, but the indicators point that way.

4. Should there be some old growth left on National Forest Lands?

The Forest Service is committed to "multiple use", which is a very ambiguous term. But it means not only management not only for the greatest dollar return, but also management for wildlife and plants. The Forest Service has the obligation to provide diversity and manage for all species. To date this has meant managing for some species and



ignoring those about which nothing is known. Ideally (as a biologist) I would like to see the habitat for all pairs of spotted owls preserved; but the probability of that is zero. The only possible approach is to try to maintain a population scattered over the historical range. The needs of other old growth dependent species is therefore partly provided for.

5. In what capacity should there be old growth?

Few Wildernesses or roadless areas have good old growth; the majority of it is on the managed part of the forest. Work needs to concentrate there, with the commercial timber sites. If these areas are to remain as timber land, then extended rotation management should be used.

6. Is the spacing of the stands important?

In terms of spotted owl sites, no site should be separated by great distances from another, in order to permit genetic interchange. With commitment to manage birds in one area only you reduce genetic diversity and variability. While the importance of this is not yet known, it is important to maintain options. Maintenance of a variety of habitats for the spotted owl aids in, for example, competition of the spotted owl against the barred owl, which is encroaching on its range. I would say that in old growth areas outside of spotted owl range, the same general arguments would apply, and the same approach to retention should be taken.

Jack Ward Thomas

Principal Research Wildlife Biologist

Range and Wildlife Habitat Lab, La Grande

1. How would you define old-growth?

In the Blue Mountains of Oregon and Washington, the Forest Service has a working definition of old-growth conditions in true fir and mixed conifer stands. Such stands are described as having 15 or more trees per acre more than 21 inches d.b.h., two or more canopy levels, at least 70 percent crown closure (overstory plus understory), presence of trees with heartrot and signs of decadence.

Each forested plant community, of course, would be different. The key components seem to be large tree size and a particular stand structure - both atypical of younger stands.

2. Do you think old-growth is a critical issue?

Yes. And, it will become even more critical as old-growth becomes more scarce and more valuable.

3. Why?

There is great pressure to harvest the timber presently standing in old-growth stands to convert those stands to more efficient production of wood products. There is a limited and shrinking amount of old growth--do we retain some? If so, why, how much, where, and for how long? With the extremely high and increasing commercial value of the standing timber, the issue becomes increasingly dramatic.

4. Should there be some old-growth left on National Forest lands?

Aldo Leopold said that "the first rule of intelligent tinkering is to save all the pieces." That is the simple, but eloquently stated, reason why a scientist would say "yes."

The ecological role of old-growth in the forest is poorly understood. Some forest ecologists suspect that old-growth represents a unique community of plants and animals. If old-growth does make up a unique ecological community, there is a distinct possibility that a conflict will arise with the provisions of the "Threatened and Endangered Species Act." This has not yet been thoroughly investigated. Until we know more about such things it probably behooves us to follow Leopold's advice.

5. What criteria should be used to determine what kind and amount of old-growth should be left?

The primary criterion should be to retain representative stands of old-growth. Secondary considerations would entail such things as stand size, location, and proximity to other such stands. Such criteria are based on the necessity to preserve stand sizes large enough to be a viable ecological community located in an area providing reasonable protection and is in close enough proximity to other such stands to prevent isolation of "old-growth species."

I again emphasize that our scientific knowledge about the role of such stands as distinct plant and animal communities is extremely limited. Any criteria for selection of such stands for retention must, due to lack of precise information, be based on extrapolation of currently available knowledge and theory.

6. In what capacity should there be old-growth?

If the decision is made to maintain such stands in the managed forest community over time, it would be necessary to begin the process by the retention of some existing stands. However, those stands will not last forever. So, it would be necessary to manage for old-growth in order to provide replacement stands.

No one has yet produced an old-growth stand through forest management. It is theoretically possible to accomplish that aim through silviculture. But the proof of that ability will be a long time in coming.

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In my estimation, there is a critical need for a firm scientific understanding of the ecological role of old-growth. Research in this area is underway in bits and pieces. All debates about how much old-growth should be maintained and how it should be managed will be, of necessity, a clash of conflicting opinion until scientific knowledge is available. At least one thing all those interested in old-growth--for preservation or for utilization--should be able to agree upon is the urgent need for scientific answers to such questions as: Is old-growth a unique wildlife habitat; does old-growth provide a particular ecological community; what is the appropriate size for old-growth stands to insure its ecological integrity as a community; how close must these stands be to prevent ecological isolation; et cetera? In short, we are engaged in a multi-million dollar debate, without the necessary scientifically derived information to fully display benefits and costs (monetary and biological) of alternative decisions.

Jerry Franklin

Chief Plant Ecologist

1. How would you define old growth?

Old growth is a forest dominated primarily by large trees over 200 years of age. Furthermore, it is a stand of trees, not individual trees. Other old growth characteristics found for the Douglas fir/western hemlock zone, vary from type to type, and are not always the same. However, one would expect to find substantial amounts of snags and down logs--this is the key attribute.

2. Do you think old growth is a critical issue?

A critical issue is one of survival--of life and death. Old growth is certainly not that. In the sense of environmental quality and quality of life, I personally don't think old growth is an issue, but I can imagine that other people would think that it is. My opinion is based on the fact that there are already substantial acreages of old growth reserved.

3. Why?

Old growth is not a critical issue because there is not a lot of survival value associated with its retention. As far as its being an issue in the quality of life, there are two points to be made: first, a lot of old growth is going to be retained anyway through various designations; second, there is no positive evidence that any species relies exclusively on old growth. Therefore, it is not possible to use the argument that by reducing the amount of old growth we are lowering organic diversity. If we did not already have old growth reserves, I would be worried; we do need to retain some. But we have already made that decision; the question now is how many additional areas are needed.

4. Should there be some old growth left on National Forest lands?

You can talk about what is preserved right now, but that does not address the question of what is intended for the acreages under consideration for preservation right now. I would not want to answer the question generically. I cannot specify, say by National Forest, because I do not have a feel for their overall plan for preservation. I see some positive signs, however, such as the Hebo Plan on the Siuslaw and the Spotted Owl Management Plan. I am using the baseline of what has already been preserved to deal with the question of what more should be done.

5. What criteria should be used to determine what kind and amount of old growth should be left?

The most important criterion is to maintain the necessary diversity to perpetuate organisms dependent on that system. A secondary criterion should be the amount of old growth that people want and require for aesthetic and recreational needs. I don't think that old growth is that much more important or better than later stages of a mature forest in providing ecological services to the environment, such as ameliorating the soil and providing litterfall. If we are good with our forest management, we can perpetuate some of the characteristics of old growth without actually perpetuating the old growth forest. Things such as snag management and stream buffers attest to that; snag management is one of the best examples.

6. In what capacity should there be old growth?

One of the better strategies is the National Park system--taking large chunks of land. Certainly one of the better strategies is not Research Natural Areas, because management alternatives and public uses are constrained because of the specific focus of the designations--for research. I prefer the concept of integrating old growth areas (whether long rotation or Wilderness or Research Natural Area) into the intensively managed forest instead of completely segregating them, as in a Wilderness. As an ecologist, if I had my druthers, I'd place less emphasis on Wilderness and more on integration of techniques, providing that we do need some large blocks of old growth. Thus, for the remaining old growth that will be preserved, I prefer this technique. There would have to be a certain minimum size of areas to make old growth blocks viable. Ultimately, of course, it boils down to a social judgement.



Andy Kerr

Western Field Representative

Oregon Wilderness Coalition

1. How would you define old growth?

I define old growth from a biological standpoint, not an economic one. Some of my friends in the timber industry and Forest Service define old growth as any trees past the rotation age. However, I prefer to use a combination of biological indicators, such as, height, diameter, age, degree of decadence and canopy structure. It is not necessary that a stand contain all of the above characteristics; that is part of the diversity involved.

2. Do you think old growth is a critical issue?

Yes.

3. Why?

Because of the diminishing nature of the old growth resource due to the relatively rapid liquidation of our old growth forests both on public and private lands in the past 40 years. On private lands, where many of our best old growth sites were, we will never again have old growth. This is because the timber industry is planning to manage its lands on a rotation ranging from 40 to 100 years. The situation will not be much better on National Forest lands unless substantive steps are taken in the near future.

4. Should there be some old growth left on National Forest lands?

First, the Forest Service should undertake a more intensive study of the older forest community. The Service really knows very little about it. The old saying, "a little knowledge is dangerous," could well apply here, because the Forest Service land-use planners now know a little about old growth, and some Forest Service employees now feel they know all they need to know. The Forest Service is making irreversible decisions based on inadequate information. In the interim, while research is being done, the Forest Service should make special efforts to avoid the decimation of old growth stands.

The National Forests by law are to manage for multiple use and sustained yield. In the past, the Forest Service seemed to have been under the impression that multiple use meant that some of the trees went for 2 X 4's, some for 2 X 8's and some for plywood. While the Forest Service has changed dramatically, it still has a long way to go. The Forest Service is clearly not managing wildlife on sustained yield. The reasons for this include, for example, several species of wildlife on the National Forests which are declining because the



Forest Service is eliminating their habitat. The most blatant habitat elimination is occurring in old growth stands. The Forest Service should consider multiple use management (especially old growth management) in regional perspective. For example, in the Oregon Coast Range, only about one-fourth of the land is in federal ownership. Much of the old growth in the Coast Range was on private land, and no longer exists. The little old growth remaining is primarily on federal forest land. It is clear that private land is going to make no contribution to old growth management in the foreseeable future. Therefore, the Forest Service must take a lead in the preservation and management of old growth forests. It is clear that in order to preserve natural diversity in the Oregon Coast Range it will be necessary for the Forest Service to assume responsibility for what some might consider more than its fair share of the old growth. This is undoubtedly true for other areas.

5. In what capacity should there be old growth?

There needs to be all kinds: preserved, areas of experimentation with the long rotation--and a deferred category, until we learn more. For example, 5 years ago we knew almost nothing; now we know a great deal, though we have but scratched the surface.

6. Is the spacing of these stands important?

They must be geographically dispersed, to insure the diversity of old growth types and the wildlife species dependent on them.

Dave Corkran

Friends of Bull-of-the-Woods

1. How would you define old Growth?

There are several different types; it depends on the plant community. West of the Cascades it tends to be the presence of large trees, especially Douglas fir and western hemlock, primarily below 3,500 feet. There is an absence of ground cover and a cathedral-like atmosphere. A good associated wildlife species would be the varied thrush.

2. Do you think old growth is a critical issue?

Yes, because if we want old growth in 400 years, then we need to dedicate land to it now, especially cutover land, to plan for it.

3. Why is it a critical issue?

There are many reasons:

1. Old growth is habitat diversity for wildlife; 40-70 species are dependent on it. If you do not preserve old growth you narrow forest diversity and habitat niches available. When you do that there becomes a real danger of ecological instability.

2. Water quality is higher in old growth forests than in managed forests because soil disruptions are less frequent.

3. Old growth is an ameliorating influence on the managed forest; it is habitat for such beneficial creatures as woodpeckers, mycorrhizal fungi and their rodents, which can spread to clearcuts and colonize them.

4. There is recreational and aesthetic value to old growth.

5. The timber quality in old growth stands is much greater than in second growth; it is finer grain.

6. There is evidence to suggest that under old growth stands there is actual soil formation through litterfall and the crushing of rocks by tree roots--actual creation of humus. The cutting of trees time after time leads to net soil loss. Present forestry practices are causing loss of soils faster than they can be built up; old growth management would prevent this.

7. There are also genetic reasons for not cutting all the old growth. Longevity might get bred out, for example. We don't really know what we are breeding out with the genetic improvement program.

4. Should there be some old growth left on National Forest lands?

Yes. The Forest Service should see that some high site, low elevation areas are managed on 400-year rotations--the more the better. There needs to be enough land managed that way to always provide for the same percentage in old growth. There should be at least 15-20 percent of the land base that is high site, low elevation in old growth at any given time, with some more land in long rotations to provide future old growth.

5. In what capacity should there be old growth?

There should be Wilderness, and Research Natural Areas and old growth management. We need areas where nature takes its course, but there is not enough old growth in Wilderness and the roadless areas to provide for our needs. Thus, old growth management is important from an ecological standpoint.

6. Is the spacing of these stands important?

Yes. All of the old growth cannot be designated in one area, especially in low site, high elevation areas, because the trees will most likely not reach old growth characteristics. The areas need to be scattered for rotation purposes. In the managed part of the forest, patches, if large enough, serve the ecosystem regeneration function. Old growth management is an intellectual problem which needs to be addressed.

John Thompson

Manager, Environmental and Government Affairs, Land and Forest Resources

Georgia-Pacific Corporation

1. How would you define old growth?

Trees past the rotation age. I wouldn't necessarily be talking about an area that hadn't been cut before. You can't put an age limit on it, and it varies by species. There can be a younger stand in an old growth forest.

2. Do you think old growth is a critical issue?

Yes, it is an issue of interest.

3. Why?

On Georgia-Pacific lands it is a subject of controversy. One reason is environmental: the small amount of old growth on Georgia-Pacific lands is of interest because of the machinery size of the mills. Right now they are mostly geared to the big logs. Second, there are changes on the ground in dealing with old growth versus dealing with second growth. There are great differences in slash amounts; cutting an old growth forest leaves a great deal more slash than cutting a second stand because of the larger number of cull logs and dead trees. In second stands, however, there is sometimes now not enough slash to do a good broadcast burn to prepare the site for reforestation.

On public lands it is also controversial. There is a significant inventory of old growth on National Forest lands. The Forest Service uses the principle of sustained yield/even flow to calculate the allowable cut. This plus the large old growth inventory skews the computation of the allowable cut: it unnecessarily limits the amount of fiber that could be taken off public lands on a sustained yield basis. Old growth is also of environmental interest for those who prefer an old growth to a second growth forest for recreation. The retention of old growth is primarily an aesthetic argument. It is also a subject of controversy because of the many different definitions of old growth.

4. Should there be some old growth left on National Forest lands?

Yes. It does not necessarily tie to the concept of Wilderness. There should always be representative samples of forest types around--some should be made Research Natural Areas and be used primarily for research, and these areas should change with time. My message to those who want to save old growth is--you better start planting now. The primary reason

for wanting these areas is for their research value--that is their primary benefit. There should also be areas for the purpose of recreation and education.

5. What criteria should be used to determine what kind and amount of old growth should be left?

Old growth should be there in optimum proportion to satisfy the needs of all the public. Current mechanism for assessing the needs and desires of all the people who have an interest in the National Forests is woefully inadequate. In addition, a special look ought to be taken at the immediate impact on adjacent landowners and local citizenry. This is a valid concept because of the imbalance in Federal land ownership in the eastern versus the western states.

Dick Angstrom

Director of Forestry Division, Associated Oregon Industries

1. How would you define old growth?

There are two separate definitions, depending on what you are talking about. The timber management definition is, "trees declining in growth rate." The Wilderness definition would be trees 100 years or older, with flora and fauna stabilized in the ecosystem.

2. Do you think old growth is a critical issue?

Yes.

3. Why?

There are several reasons. First, many areas being studied in RARE II are primarily old growth. Second, certain grades of timber are found only in old growth. Third, old growth on prime forest lands is critical to Oregon's economy. This is especially true for those forest lands in RARE II, which are not currently harvestable. It is not so critical for old growth in the managed part of the forest, as they are designated to be cut. There are 90,000 jobs, both direct and indirect, in Oregon, tied to the continued operation of the Independent mills--those that do not own timber of their own and must buy it off public lands. Any reduction in the allowable cut will have a corresponding drop in employment.

4. Should there be some old growth left on National Forest lands?

Yes.

5. What criteria should be used to determine what kind and amount of old growth should be left?

There are already many areas protected as old growth reserves of some sort. The Forest Service land use planning process through the use of Environmental Impact Statements will identify new areas as they are needed. Designation of such areas should give priority to maintaining site classes 1, 2, and 3 for forest management, and the lower site classes for Wilderness. There could be deviations from this policy due to the uniqueness of the area, public use, fragile soils, et cetera. A second criterion for designation of old growth areas should be public need. There should be a qualitative base developed for assessing need for more areas. While some areas could be designated as old growth stands, the physical uniqueness of the area should be uppermost.



For areas within the allowable cut base, much more timber could be gained by having an adequate salvage program. Salvage logging in addition to the areas in the allowable cut base would take some of the pressure off designating commercial forest land as Wilderness. Special salvage crews should be out there taking that dead and dying material before it deteriorates enough to have no value.

6. Is the spacing of the stands important?

For public access, it is better to have many areas of smaller acreages than one big one. There should be two criteria for designating these stands and deciding on their spacing. The first is to look at the land and determine the site class. If it is a high one, it should be weighted towards timber management. If the site class is poor, it should be weighted towards Wilderness. The second criterion is people's needs. Most local operators are willing to compromise and withdraw some old growth for longevity and future needs.

## WESTSIDE FORESTS: INTRODUCTION

The National Forests that lie west of the Cascade crest are the Mt. Hood, the Siuslaw, the Willamette, Umpqua, Siskiyou and Rogue River. The Siuslaw is in the Coast Range. The Mt. Hood has some land on the east side of the crest. The first three forests or Area 6 (along with the Gifford Pinchot in Washington) are characterized by having the very moist, low-elevation Douglas fir/western hemlock old growth. The Umpqua, Siskiyou and Rogue River, or Area 5, have generally drier site old growth, some of it ponderosa pine and other species.

The great majority of the research that has been done on the characteristics of the old growth have been conducted in the Douglas fir/western hemlock zone. This sort of old growth can be divided into three age classes: 1) 200-400 years. In this age class there is a high proportion of healthy trees, with an intact canopy; 2) 400-600 years. There are many snags and down logs; the forests are mostly large Douglas fir with some broken tops; 3) 600 years and over. Surviving trees are isolated. The canopy exhibits openings and many replacement trees. The forest contains large Douglas firs with many broken tops.<sup>1</sup> Typically, more than one percent of a hectare of old growth is covered with standing live tree trunks. There is an average of 20 square meters of leaf surface per square meter of forest floor--more than twice that of most other forest regions.

There are four physical features unique to old growth which dominate the available habitats. These are, live old growth trees; large standing dead trees; fallen dead trees on land; and fallen dead trees in streams. A brief description of each follows.

Live old growth trees provide production through the needles of the canopy, but are also platforms for the growth of algae, mosses and lichen (a symbiotic association of a fungus, which provides structure, and an alga, which provides manufactured food). Many of these lichens are nitrogen fixing, and after mineralization by decomposers, return nitrogen to the soil. A special example is Lobaria, found only in the canopy of old growth Douglas-fir trees. The live canopy production of twigs, needles and buds attracts grazing insects, which in turn are the food base for songbirds such as the tree swallow, Townsend's warbler, hermit warbler, Golden-crowned kinglet and Ruby-crowned kinglet. Goshawks prey on these songbirds. Northern spotted owls are the other major predator in old growth, and they specialize in small mammals, principally the red tree vole, the bushy-tailed wood rat and the Northern flying squirrel.

Dead standing trees are used as bat roosts by the long-eared and the Silver-haired bat. Primary excavators such as the pileated woodpecker are attracted to snags to drill for ants and grubs. These holes provide nesting, denning and hiding places for birds and small mammals.

Fallen trees open the old growth canopy and allow greater penetration of light to the understory. These openings provide greater temperature and humidity fluctuations. Fallen trees go through a recognized decay process. Decay progressively diminishes as a layer of decayed material prevents oxygen from reaching the interior of the log. Moisture accumulates within, allowing the growth of nitrogen-fixing bacteria. These fallen logs are used as lookout perches, escape cover, runways, travel routes and escape sources. For example, it is the tunneling of moles and voles through these decomposed logs that spread the mycorrhizal fruiting bodies. Woody debris and logs also serve as seedbeds for new seedlings.

Fallen logs in streams are highly important as debris dams. They reduce the velocity of flowing water, and therefore reduce its erosive force. These logs also promote bank stability and keep the stream sediment low. Old growth watersheds therefore produce the highest quality water for human consumption. These streams are prime anadromous fish spawning areas because the streams are oxygen-rich, and unclogged by fine sediment. These logs also contribute to aquatic productivity. Many grazers and small predators break them down, making them more suitable to microbial action, and provide the food chain base for fish.

As a result of research such as this and on the spotted owl, old growth has been pinpointed as a necessary element of the forest ecosystem. However, for reasons previously mentioned, old growth has been regarded principally as a timber resource. It has been extraordinarily difficult to approach the question of its preservation or management. The spotted owl's habitat requirements and its dependence on old growth have attracted a great deal of publicity, and the previously explained spotted owl management plan was done partly in response to this publicity. Also as a response to public pressure the spotted owl has become the indicator species for old growth.<sup>2</sup> As an indicator species, the spotted owl's population is monitored, and if it is self-sustaining, then it is assumed that the populations of other old growth dependent species are also self-sustaining.

The two gravest problems facing land managers on the westside forests, however, is the lack of a good inventory and the lack of a definition. The mapping of spotted owl habitat required by the May 17, 1977 memo from Region 6 has been done in so many different forms, with so many different scales, that a factual evaluation of the habitat is nearly impossible, although many of the individual maps are good. Second, the maps do not deal with other ecoclasses of old growth besides the low-elevation Douglas fir. While it is the most heavily cut, harvest is increasing rapidly at higher elevations, such as the Pacific silver fir zone.<sup>3</sup>

The Area 5 and Area 6 ecologists are both working on inventories and plant community guides which will broaden the inventory base. These are long term projects, however, and at the time only the first stage is being completed: creation of a general plant community guide for classification purposes only.

The current priority for the Area 6 ecologist is classification of the Pacific silver fir communities for the benefit of land managers, who require information on them before managing them intensely. Thus, his work is confined primarily to the Cascades, where the Pacific silver fir grows. He is working very little on the Siuslaw. There are two crews on the Willamette (1 crew = 3 people) hired by the land use planning team, with the ecologist as the Supervisor. There are also two crews hired on the Mt. Hood, but the ecologist is not the supervisor. On both the Mt. Hood and the Willamette, some information is being gathered on plant communities other than the Pacific silver fir. The guide for the Pacific silver fir communities is expected to be done in the spring of 1981; since work has barely begun on the other communities, there is no timeline for them.

In Area 5 there are three main divisions: the Siskiyou block from Cave Junction east to Interstate-5, the Coast (another portion of the Siskiyou NF), and the Cascades, which consists of the Rogue River and the Umpqua. For the latter two, there is as yet no timeline. The Siskiyou block should be completed by March, with the plant communities sampled and analyzed for the preliminary guide. As for the mapping, the plant community data will eventually be given to the Ranger Districts, and they will be responsible for the actual fieldwork and mapping.

The most serious problem facing the westside forests at the moment is lack of a definition of old growth. This has created many of the difficulties involved in addressing old growth in land-use planning. While there is a definition of spotted owl habitat, it refers to one type of old growth only.

Following this introduction are the individual forest write-ups. These include an explanation of the inventory, land-use planning decisions, and a discussion of the problems specific to that forest.

#### Footnotes

1. This section is a synopsis. For more details on the ecological characteristics of old growth, refer to: Juday, Glenn; "Old Growth Forests: 'Necessary Element of Multiple Use and Sustained Yield National Forest Management'" in Environmental Law, 8:2 p. 498-522
2. A more detailed analysis of the Spotted Owl Management Plan will be forthcoming in the next few months.
3. Conversation with Bill Emmingham, Area 6 Ecologist (now Area 7), August 28, 1978.



## MT. HOOD NATIONAL FOREST

The Mt. Hood is the northernmost forest west of the Cascades, stretching down along the Columbia south to where it borders with the Willamette. The southeast border is the Warm Springs Indian Reservation. Headquartered in Portland, it has 70% of its land on the west slope of the Cascades, with the remainder on the east slope.

The Mt. Hood lies within three physiographic provinces: the Western Cascades, the High Cascades, and the Columbia Basin, from east to west. There are five timbered vegetation zones on the Mt. Hood. From west to east, they are: western hemlock, Pacific silver fir, mountain hemlock, grand fir/Douglas fir, and ponderosa pine. The western hemlock zone occurs generally below 3,000 ft. From 3,000 to 5,000 ft. is the Pacific silver fir zone. Above that to an elevation of about 5,500 ft. is the mountain hemlock zone. It has two subzones, a lower one with closed canopy, and an upper one with very parklike stands. The grand fir/Douglas fir zone on the east slope is a midslope forest from about 5,000 ft. down to 3,000 ft. where the ponderosa pine begins. The ponderosa pine zone extends down to 2,000 ft. At its lower end it grades into sagebrush types.

Although the forest has no old growth definition used for planning purposes, this one, taken out of the Mt. Hood Timber Management Plan Final EIS, is a general one in use:

Very old trees, usually well past physiological maturity. Definitions vary with localities but generally, it includes trees over 200 years of age.

A more descriptive definition for use primarily with spotted owls has been developed, and includes the following characteristics:

1. trees 200+ years old.
2. elevation below 4400 ft.
3. canopy closure 70% or greater.
4. multilayered canopy.
5. no noisy streams.

The amount of old growth on the forest is roughly known. The following tables are taken from figures acquired with plot samples taken in 1971 with subsequent adjustments for timber management activities, last done in 1975. The figures for old growth, therefore, are probably somewhat high. They are perhaps higher still for acres reserved from cutting. This category includes unregulated, deferred and reserved lands.

### OLD GROWTH--WESTSIDE

	<u>200-299 years</u>	<u>300+ years</u>
Douglas fir/western hemlock	175,500	61,000
true firs and other	51,700	11,100



# ACRES RESERVED FROM CUTTING--WESTSIDE

	<u>200-299 years</u>	<u>300+ years</u>
Douglas fir/western hemlock	19,300	6,700
true firs and other	5,700	1,200

# OLD GROWTH--EASTSIDE

	<u>200+ years</u>
Douglas fir/western hemlock	15,600
true firs and other	25,400

# ACRES RESERVED FROM CUTTING--EASTSIDE

	<u>200+ years</u>
Douglas fir/western hemlock	1,700
true firs and other	2,800

The only maps that relate to old growth at all are those that were done under direction of the Regional Office as directed in the May, 1977 memo for those forests containing spotted owl habitat. These maps were done on a scale of 2 inches to the mile in early 1978. They were done using the old timber type maps from 1960, and more recent Fireman's maps (up to 1977) to delete clearcuts. These maps were not fieldchecked.

Currently the Mt. Hood is getting new aerial photos; the Clackamas District is completely done. All other Districts will be completed by Fiscal Year 1979. The forest has no plant community maps for old growth. Currently, an inventory of habitat types is being done. "Habitat type" includes both plant community and successional stage.

The Mt. Hood is covered by several planning units, the status of which in the planning process is:

## Final EIS completed

Badger/Jordan  
Roaring River/Salmon River  
Huckleberry  
Mt. Hood Interagency Plan  
Eagle Creek  
The Dalles Watershed  
Bull Run

## TO BE DONE IN THE FORESTWIDE PLAN BY 1983

east Hood  
White River

Eightmile  
Lava

DRAFT EIS FORTHCOMING  
Clackamas

None of the land use plans for the Mt. Hood have identified old growth as an area of concern. The Clackamas will be the first one to do so.

The following land use allocation decisions have been made:

1. The Spotted Owl Management Plan allocated 35 pairs of owls to the Mt. Hood. In a memo dated Feb. 6, 1978, the Supervisor stated that a minimum of 35-43 pairs could be maintained without reducing the timber yield or entering any of the CFL as proposed in the Timber Management Plan.

DISCUSSION

The Mt. Hood has essentially not proposed any solutions to the old growth issue, with the exception of the allocations for spotted owls. The Mt. Hood, however, has a variety of old growth types because it straddles the Cascade crest, so the spotted owl allocations are insufficient. None of the land use plans mention old growth; therefore the Timber Management Plan does not either.

Even the management direction for spotted owls is unclear; there is no direction at all for spotted owl management outside of roadless areas. Old growth management for spotted owls has concentrated on spotted owls inside roadless areas, with very little emphasis on the much greater portion of the forest that is roaded and developed. The tendency, according to the wildlife biologist, has been to select the "prime" old growth areas and trade off the rest for timber management. Location of spotted owls has concentrated on areas already, or soon to be, set aside, such as the Mt. Hood Wilderness and Bull-of-the-Woods.

Up to 20% of the forest will remain unroaded after completion of the land use planning process. This figure includes the Mt. Hood Wilderness, but it is a conservative estimate because it does not include the additional old growth in Bull Run.

RARE II has had an important influence over the question of old growth on the Mt. Hood. Several of the best sites for spotted owls, such as Eagle Creek, had already been given designations other than "unroaded" through land use planning, and were therefore lost to old growth management. With the advent of RARE II these areas were deferred from timber harvest, along with being evaluated for their Wilderness qualities. RARE II has, in effect, been a second chance for these areas.

## SIUSLAW NATIONAL FOREST



Old growth Douglas fir in the Drift Creek watershed.

The Siuslaw National Forest consists of 624,883 acres in the Coast Range of Oregon. The southern boundary is the Umpqua River; in the north the forest extends to Cape Lookout. It is the only National Forest in Oregon with coastal property. It is headquartered in Corvallis.

Older forest on the Siuslaw has Douglas fir as the primary canopy species. The true climax is western hemlock, often found as an understory component and occasional canopy tree. Forest growth is generally lush because of high rainfall.

For management purposes, the Siuslaw has defined the characteristics of both the individual old growth Douglas fir tree and the stand of older forest. The definitions are taken out of the Hebo planning unit Draft Environmental Impact Statement. They are generally the same in other planning documents:

Old Growth Douglas fir: At least 200 years old, and has deeply furrowed bark that is flaking off; limbs are of large diameter and often gnarled; top is frequently flat and ragged. Adjacent ground cover normally consists of root parasitic flowering plants such as orchids.

Older Forest: Older forest vegetation is characterized by: (1) stands usually containing 4 or more conifers per acre over 200 years of age. Most of these old conifers are between 50 and 90 inches in diameter at breast height, have deformed tops (flat, broken, dead), large, gnarled all the way to the top, deeply fissured plate-like bark, contain dead wood, and are at least 160 feet tall. Mosses and lichens festoon the canopies. (2) Mature and young conifers occupy the areas between older

conifer trees. (3) Stands have a composite canopy closure of 50 to 90 percent. (4) Parasitic plants are common. (5) Dead and defective trees are common. (6) A secondary tree layer of tolerant species is often present.

There are four Ranger Districts on the Siuslaw: Alsea, Waldport, Mapleton and Hebo. The Siuslaw also has jurisdiction over the Dunes National Recreation Area, but there is no old growth in the NRA. The following table shows the amount of older forest on each District, its relative decline over the years, and the amount of commercial forest land in that District that is old growth.

	1975	1976	1977	1977 req. CFL	1977 non-CFL
Hebo	3,794	3,513	3,148	1,676	1,472
Mapleton	12,957	11,345	9,875	7,164	---
Alsea	9,738	9,194	8,529	7,601	928
Waldport	6,930	6,420	5,179	4,551	628
Total	33,419	30,472	26,731	23,703	3,028

The non-CFL areas consist of Neskowin Research Natural Area (295 acres), Cascade Head Experimental Forest (1,177 acres), Noble Fir Botanical Area, Marys Peak (808 acres), Stony Mountain (marginal, 120 acres), Cummins Creek Wilderness Study Area and Cape Perpetua Scenic Area (465 acres).

The Siuslaw did an inventory of this old growth first in 1973. This is periodically updated to show new timber sales and clearcuts. As of October 1977 an inventory of spotted owls was taken to identify the best old growth that suits their habitat needs. The original inventory is on a 1 inch equal 1 mile map, and shows the old growth and timber sales and contracts through 1977. The spotted owl habitat map shows timber sales and contracts through 1978, along with the designated areas. The scale is 2 inches equal 1 mile. Along with identifying the old growth areas that contain spotted owls, the map shows the groupings of old growth areas that will be considered as management areas as per the spotted owl management plan.

From this base inventory, the following decisions were made: (1) The Interim Policy (see attached). Because of the small amount of old growth on the Forest--the Siuslaw has less old growth than any other western Oregon forest--a decision was made to identify that old growth which was primary spotted owl habitat and place a moratorium on cutting it until the land use plans for the planning units are completed. At the present, 13,070 acres are affected by the Interim Policy; however, the land use plans will make the final determination as to the acreage of land to be managed as old growth. The following table shows the acreages in each ranger district affected by the Interim Policy:

#### Interim Policy acreages

Hebo	786
Mapleton	7,164
Alsea	1,737
Waldport	3,383

The intent of the Interim Policy was threefold: first, to ensure that there was enough habitat for the identified 55 pair of spotted owls on the Siuslaw; second, to place a hold on cutting until final decisions could be made at the planning unit level; third, to leave options open for management.

This third point is important. Although the Interim Policy is not a final decision, it states that the 13,070 acres, or whatever the final acreages are determined to be, will be managed on a 300-year rotation, having a timber yield of 50%. These acres are to be in the "special" category. Further analysis of this is made in the discussion section.

(2) Hebo planning unit Final Environmental Impact Statement, preferred alternative: to manage 2,000 acres as older forest (200-300 years old) at any one time through the use of the 300 year rotation, and provide 2,100 acres of older forest as nesting sites for bald eagles.

(3) Marys Peak planning unit Final EIS, preferred alternative: manage 1,364 acres (1,277 acres of which are National Forest lands, and 87 of which are City of Corvallis lands) to "maintain and create a continuous supply of older forest communities for a full range of habitat diversity and timber production." (p. 17).

(4) Siuslaw National Forest Timber Management Plan, Final EIS, preferred alternative: the lands identified in the Interim Policy are not mentioned in the TM plan, and the allowable cut is calculated at 100%. The reason for this, according to timber planners, is to avoid making tacit land allocation assumptions concerning the Interim Policy lands. The older forest identified in the Plan at 63% of harvest are the potential bald eagle nest sites.

(5) Alsea planning unit, Draft EIS, preferred alternative: manage 6,934 acres on long rotation, which will provide 2,300 acres at any one time in the old growth condition. 1,670 acres will be placed in the "unregulated" category until other non-timber management acres can provide older forest habitat. 1,400 acres of Drift Creek (11,000 acres, total size) are recommended for old growth management. The main links between old growth management areas are corridors, such as that proposed for Highway 34.



## DISCUSSION

According to a wildlife biologist on the Siuslaw, older forest is regarded not only as a critical component of wildlife habitat, but also as a component of diversity, an ecotype that deserves recognition in its own right. At this point information and knowledge about westside old growth is sophisticated enough that habitats for different species can be identified and provided for; the problem now is to tackle the management complexities. According to the wildlife biologist, three criteria were mainly used in the implementation of the Interim Policy: (1) habitat options: the old growth resource had been decimated to a critical point; (2) biological habitat needs of certain species--provision of habitat diversity; (3) the timber resource program: the Interim Policy was meant to preserve a certain amount of habitat without impacting the 1978-79 harvest schedule.

One way in which this last was done was to put the 13,000 acres of old growth on a 300 year rotation. For the first 100 years or so, commercial thinning and mortality salvage will be allowed. The stand will be inviolate for the remaining 200 years, to be used as wildlife habitat. Essentially, this allows the Forest to manage the wildlife habitat, and still realize 50% of harvest on all 39,000 acres.

The Alsea EIS is the first one for Region 6 to consider old growth management specifically on the basis of the Spotted Owl Management Plan. The emphasis in the EIS is on long rotation, and on the amount of old growth that can be provided "over the extended long term." This presumes that old growth management is a viable alternative to maintaining current stands. Also, the use of highway corridors as the links in an old growth system assumes that the disturbance from traffic will not be too great for old growth dependent species. The number of SOMAs that will be managed is specified in the EIS, but there is no explanation of the Spotted Owl Management Plan, or of SOMA allocation to the Siuslaw.

RARE-II was not used as one of the decision criteria. The Siuslaw has only 9 roadless areas. But one of them, Drift Creek, contains 2,000 acres of the prime old growth habitat on the Forest. According to the wildlife biologist, the important thing about Drift Creek, in this context, is that it contains older forest which is in good distribution with other patches. The Forest is likely to retain a portion of Drift Creek despite the outcome of RARE-II. The need for old growth management is not so critical that were Drift Creek to be put into Wilderness the Forest would withdraw 2,000 acres more from the managed part of the Forest to make up the loss.

The reason for this is that the Alsea District, in which Drift Creek lies, and the Waldport Districts, both have minimal amounts of old growth left that qualifies as good spotted owl habitat. The same is true for the Hebo District. Only the Mapleton District has enough old growth to allow the Forest to choose old growth areas for spotted owls.



WILLAMETTE NATIONAL FOREST



Pacific silver fir old growth, generally found at higher elevations.

The Willamette stretches for 110 miles along the central slopes of the Cascades, from east of Salem to the northern edge of Douglas County. It is within a one hour drive from Salem, Albany, Corvallis, Bend and Eugene, where it is headquartered. There are 1,800,000 acres within the forest boundary, of which 1,668,000 are the National Forest.

Like other National Forests on the west side of the Cascade crest, the primary canopy species in an older forest is Douglas Fir, although it is in actuality a subclimax to western hemlock, which would replace it in time. In most old growth forests, the western hemlock is found as an understory component and occasional canopy species. There are vaying shrub associations.

The Willamette does not have a definition of old growth pertaining only to that particular vegetative stage. Rather, old growth is defined in terms of timber types, for example, D4 and D5 refer to Douglas fir. D4 means that the diameter size class is over 21 inches. D5 is used only with Douglas fir and refers to age: very old. "H" refers to western hemlock. Stand condition is referred to by single, double or triple bar. Single bar is a 10-40 percent stocking level (trees per acre). Double bar is a 40-70 percent stocking level, and triple bar is a 70 percent plus stocking level. For management purposes, size classes 4 and 5 represent old growth.

The Final Environmental Impact Statement for the Willamette National Forest Land Use and Timber Management Plan contains a table which shows the total amount of old growth by planning unit, broken down into two species associations and age classes:

Planning Unit	DF 300+ yrs.	DF 200-299 yrs.
N. Santiam	49,000	34,000
S. Santiam	40,000	18,000
McKenzie	40,000	11,000
N. Fork	76,000	31,000
Middle Fork	48,000	33,000
Total	253,000	127,000

Planning Unit	True Fir 300+ yrs.	True Fir 200-299
N. Santiam	5,000	7,000
S. Santiam	4,000	7,000
McKenzie	4,000	8,000
N. Fork	20,000	20,000
Middle Fork	7,000	18,000
Total	40,000	60,000

The forest old growth in this table consists of commercial forest land acres in the Standard and Special components. These are represented by General Forest, Scenic Influence I and II, and Dispersed Nonmotorized and Motorized Recreation/Timber land use allocations.

In 1956 the Pacific Northwest Forest and Range Experiment Station did a timber typing of the Forest by aerial photography, interpreting from them the age class and stand condition of all timber on the Forest. However, there was very little field checking in this interpretation. No separate inventory has been done for the old growth. The original inventory is on 4 inches equal 1 mile scale maps. The most recent update of recent cuts and thinnings is in the Total Resource Inventory (TRI), but the information has not been compiled.

On June 15, 1977 a memo was sent out to the Ranger Districts from the Supervisor's Office giving instructions for the mapping of old growth suitable for spotted owl habitat. The following information was requested:

1. Habitat known to be presently occupied by spotted owl.
2. New units cut.
3. Units sold but not cut.
4. Those units to be sold before October 1, 1977.
5. Timber types D5=, or D5-D4=, or FM4D or H4D. This should cover all areas suitable for spotted owl nests and feeding areas. The 4400 feet elevation mentioned in the memo from the Regional Office is only to be considered a guideline.
6. Reserve areas: Wilderness, RNA's, etc.
7. Scenic I areas as identified in the Willamette Plan, as these can be managed on a 300 year rotation.

The maps received back from the districts were varying accuracy, and contained the following information:

Rigdon R.D.: Inventory done on a 1977 Fireman's map, showing  
 (a) timber with old growth component (b) cutovers (c) Scenic I  
 (d) special interest areas. Inventory completed September, 1977.

Sweethome R.D.: Inventory done on a 1976 Fireman's map, showing (a) D5 (b) D4 (c) Fiscal Year 1977, sold sales (d) Scenic I. Inventory completed September, 1977.

Lowell R.D.: Inventory done on U.S. Forest Service planimetric series quadrangles, revised 1967, showing (a) old growth (b) new units cut (c) units sold but not cut (d) Scenic I and reserve (e) spotted owl locations. Inventory completed May, 1977.

Blue River R.D.: Inventory done on maps reproduced from reductions of 2 inch to the mile USFS planimetric series quadrangles compiled in FY 1974, showing (a) potential habitat (b) known spotted owl range (c) known spotted owl location (d) reserve areas. Inventory completed September, 1977.

Oakridge R.D.: Inventory done on reproductions of USFS planimetric series quadrangles, revised in 1974, showing (a) spotted owl habitat (b) cutover areas (c) timber sale general areas (sales within boundaries) (d) scenic areas. No finishing date given.

Detroit R.D.: Inventory done on a 1977 Fireman's map, showing (a) D4, 5, FM 4, H4. Inventory completed Fall, 1977.

This inventory was completed so recently that no decisions have come of it. Nor is it highly accurate, because no field checking was involved, and also because the base maps show clearcuts only as far back as 20 or 30 years, so that areas which are depicted as old growth may actually be younger forest. The entirety of the decisions so far taken revolve around the land allocations made in the Willamette Plan. These decisions are:

1. To preserve enough habitat for 100 pairs of spotted owls as per the Spotted Owl Management Plan. The areas chosen are generally outside the managed part of the forest, i.e. RNA's, H.J. Andrews Experimental Forest, existing Wilderness areas, and old growth groves, all of which contain old growth. Scenic Influence areas may be managed on a 200-300 year rotation to provide further habitat.

2. Creation of old growth groves, as explained and carried out in the Willamette Plan. These take up a total acreage of 2,387 acres. These groves are in the "deferred" category. The criteria for their selection was as follows:

- a. An outstanding example of old growth (350-400+ years) in terms of size and/or overall volume per acre;
- b. reasonably accessible for young and old alike, generally within an easy 1 mile hike, including not only what is accessible today, but what will be accessible during the next decade;

- c. be of sufficient size to provide for dispersed type of a variety of recreational opportunities, natural environment and relatively invulnerable to windthrow, etc.;
- d. about 40 acres minimum size, but down to 10 acres acceptable providing the stand has demonstrated stability (wind firmness, etc.) and can provide dispersed recreation experience;
- e. motorized access controlled consistent with objectives (e.g., motorized access may be necessary for handicapped persons);
- f. stands in natural or near natural condition (dead, down, rot, etc.);
- g. emphasis on Douglas fir stands, but include other species as appropriate;
- h. consider opportunities to include groves within otherwise constrained land use allocations--especially the Scenic Influence I and II designations--but also the perimeter (for reasonable access) of Special Interest or Undeveloped Roadless Recreation areas where compatible.

The old growth groves are to be managed as follows: "No regulated timber yield will be assigned. Cutting of individual trees for recreational or safety purposes may be necessary at times... Any cutting must be approved by the Forest Supervisor." The purpose of the groves is "...primarily for the education, use and enjoyment of the public." (Willamette Plan, p. 424).

3. Full timber management on the remaining acreage of old growth on the Forest. "Commercial thinning" includes regeneration harvest, normal reforestation and commercial thinning. "Full stocking level control" includes commercial thinning with backlog, interplanting, brush release, and precommercial thinning.

## DISCUSSION

The most critical problem facing the Willamette at the moment on the old growth question is the lack of a definition. This makes it extraordinarily difficult to incorporate old growth management into land use planning. The problem with using timber typing as a definition is one of characteristics: many characteristics of old growth communities occur before, say, D4.

This lack of a definition stems directly from the attitude concerning old growth that prevails on the Willamette. It is regarded not as a resource of its own, but as a part of the timber resource,

vegetative stage. Therefore, considerations pertaining to it directly are few and far between. It also means that the criteria for selection of old growth areas tends to be somewhat skewed.

For example, the primary selection criterion for the old growth groves was public accessibility. No attention was paid to critical wildlife habitat or other old growth characteristics. There were 30-40 areas identified which could not qualify because they did not meet the accessibility criterion.

The lack of a complete inventory is another real problem, which hampered the objectivity of decisions concerning old growth. For example, in the selection of old growth groves, district rangers were asked to identify areas they happened to know. No field checking was done, no double checking with TRI. Since there was no inventory at the time, not even of spotted owl habitat, only areas people happened to know personally were recommended.

It must be noted that even the inventory that currently exists is inaccurate, not only for the above mentioned reasons, but also because spotted owl habitat is not identical to old growth forest. There are areas which spotted owls will not inhabit due to some limiting factor such as food or elevation.

The other thing that might conceivably alter the selection criteria for old growth areas for spotted owls is the outcome of RARE II. The Willamette's position on this is that if all, or even a large percentage of the identified roadless areas went into Wilderness, there would be no need to set aside other areas outside them because the 100 pair of spotted owls allocated to the Forest would already be provided for. All of the Districts on the Willamette contain large amounts of old growth; in fact, the Willamette contains more old growth than any other Oregon forest. They therefore feel that they are not presently strapped to maintain the majority of it, and have made no move to do so.



## UMPQUA NATIONAL FOREST

The Umpqua National Forest lies in the Umpqua Valley and is headquartered in Roseburg. It lies mostly in Douglas County, and the northern portion is in Lane County, near Oakridge. South, it has its boundaries near Myrtle Creek. The Umpqua is 1,033,707 acres in size, including 45,558 acres of private land.

Overstory species on the Umpqua may be Douglas fir, true fir and ponderosa pine, or lodgepole pine. Douglas fir, however, is by far the most common. Understory plants include salal, vine maple and Oregon grape.

The Umpqua has no working definition of old growth. When it becomes necessary to define terms, the forest uses a timber definition of "trees past the rotation age." The only attempt at defining old growth has been in terms of habitat needs for the spotted owl. The old growth community itself goes undefined on the Umpqua, in relation to land use planning and other decision making.

An inventory of old growth on the forest has not been completed, but various fragments are in the process of being compiled. There are the old timber type maps of 1961, which are based on a plot sampling method, and had field checking done concurrently, in 1958-59. In 1968-69 a new timber type inventory was done. In preparation for the 1978-79 inventory, the forest has gone through all the old aerial photos and retyped them, with concurrent fieldchecking. This was done in 1976. The accuracy is only partial, however, for several reasons. The first is that the 1968-69 inventory was also based on plot sampling, with a plot every 1,800 acres. The second is that the recent retyping eliminates stocking level, on the grounds that it is unnecessary information. Within a year or so, this inventory will be transferred to the Total Resource Inventory (TRI), and the Districts will transfer it to 4 inches equal 1 mile maps by compartment, of which there are 151 on the Umpqua. These will then be available to the Districts for their planning efforts.

In response to the Regional Forester's memo to all forests west of the Cascades to map spotted owl habitat, the Umpqua completed a computer map and sent it to the Regional Office, where it will be transcribed to grid maps.

Because none of the information concerning old growth has been compiled yet, it is not exactly known how much old growth there is by District. However, Virgil Wilson, Forest Silviculturalist, estimated it as follows for 1978. 1970 figures come from the publication Inventory Statistics for the Umpqua National Forest.

District	1970	1978
Cottage Grove	48,587	42,827
Tiller	203,346	187,986
Diamond Lake	172,753	161,713
Steamboat	105,372	102,692
Glide	92,575	84,415

Essentially, though not primarily, because of the lack of an adequate inventory, no specific decisions have been taken concerning old growth management or preservation. Quite intentionally the opposite, occasionally, According to Virgil Wilson, the forest is desirous of managing for "balanced age classes," of which older forest is one. There are several components to this. The following decisions have been taken:

1. The Management Team, which consists of the Supervisor, the staff and the District Rangers, made a decision during planning for the Final Umpqua Land Management Plan not to manage for old growth on the managed part of the forest, which restricts old growth management to special acres and roadless areas.

2. The Umpqua Plan makes no provision for old growth specifically. However, there are three land allocations which do preserve old growth:

Nonforest and unproductive	89,000 acres
productive reserved	7,000 acres
unregulated	70,000 acres

There are minimal amounts of timber in the first category, some of which may qualify as old growth habitat. Productive reserved areas include historical, paleontological, geological and botanical areas (1,670 acres total) Limpy Rock proposed RNA (1,060 acres) and Cougar Butte proposed RNA (520 acres). Diamond Lake Recreation Area (16,770 acres), Rogue Umpqua Divide scenic area (11,300 acres), Unroaded Dispersed Recreation areas and various developed recreation sites.

In the Nonforest and unregulated areas, there is no planned harvest except in the event of catastrophe or insect blight. There is no harvest at all allowed in reserved areas.

3. According to the Umpqua Plan, the acreage in the "special" category will be managed on various conversion and rotation ages to preserve scenic and streamside qualities. These categories and their conversion ages are as follows:

#### Streamside Management Units

Class I and II: 23,163 acres. One half chain of no cutting next to the stream, and one and one half chains of 300 year rotation.

Class III: 3,575 acres. One quarter chain of no cutting. No modified cutting zone.

#### Visual Management Units

Retention: 27,297 acres. These areas will be on a 200 year rotation period.

Partial Retention: 37,928 acres. They will be on a 125 acre rotation.

Critical soils: 16,663 acres. To be managed on a 200 year rotation.

Cottage Grove Municipal Watershed: 33,780 acres. To be managed on a 160 year rotation period.

This does not mean that the acres presented will be on a rotation age of that length, but that it will take 200 rather than 80 years (which is the normal rotation age) to convert the area to a managed forest.

4. In the Spotted Owl Management Plan, the Umpqua is allocated a minimum of 40 pairs of spotted owls. Because of the constraints posed by the Management Team, the figure of 40 for the Umpqua was arrived at by calculating where potential habitat might be found outside the managed part of the forest. The criteria for spotted owl habitat, while not synonymous with old growth, are fairly comprehensive:

1. Areas must be within mixed conifer or western hemlock zones.
2. Management practices must not preclude the development of an understory of hardwoods or conifers.
3. Management practices must be capable of producing densely wooded, deeply shaded areas with a crown closure in excess of 40 percent.
4. Management must allow the development of groves of mature timber.
5. Management practices must be capable of producing nest trees (a tree capable of supporting a nest at a height of 100 feet off the ground).
6. The area must have north, west or northwest aspects.
7. Water must be well distributed (streams or springs one half mile apart).
8. Deep ravines should be present.

## DISCUSSION

The attitude of the Umpqua towards old growth may be best summarized by a quotation from the Land Management Plan: "The general statement that uniform areas of mature or old growth timber support little in the way of wild animals applies well to most of the area." (p.7). It is not regarded as a resource of its own, nor an important wildlife habitat; its primary importance is as a part of the timber resource. Indeed, according to Virgil Wilson, from a purely timber standpoint, the most decadent--that is, the oldest--timber should be cut first, and would be, if it were not for other constraints, such as stream habitat and visual management.

The Umpqua has a large amount of old growth, and is almost entirely composed of it; with 90 percent accuracy, according to Virgil Wilson, the clearcuts could be colored in on a District map, and the remainder would be old growth. The decision not to have old growth on the managed part of the forest after the conversion period, stems directly from the attitudes just expressed. However, it has serious effects upon old growth dependent forms of wildlife, such as the spotted owl, because it essentially means that there will be no habitat for the owl once the forest is converted save in the special, nonforest, unregulated and reserved areas. Many of the special areas, such as the Visual Retention areas, will be located along highways, where disturbance might be too great for spotted owls. And at any given time no more than one twentieth of the total acreage of the special acres will be in old growth.

RARE II had almost no effect on the areas chosen as potential spotted owl habitat, because the wildlife biologist chose these areas from the land allocations as described in the Umpqua Plan, and in that plan all but three of the Umpqua's 19 roadless areas are allocated to general forest. Of the three left in RARE II, only Boulder Creek was considered to supply habitat, because the wildlife biologist thought that if it were not allocated to wilderness, it could still supply habitat.

In a more indirect way, however, RARE II has effected the old growth on the forest: as a result of the deferred status of all 19 roadless area, the Umpqua has overcut outside the roadless areas to make up the deficit.

## SISKIYOU NATIONAL FOREST



Redwood old growth, often mixed with Douglas fir.

The Siskiyou National Forest is located in southwestern Oregon, stretching from the northwestern part of Del Norte county in California to Port Orford in the north. It lies mostly in Josephine and Curry counties, with a portion of the northern part in Coos county. The headquarters are located in Grants Pass. The Siskiyou is often noted for the Kalmiopsis Wilderness and the Rogue Wild and Scenic River.

The Siskiyou is a very heterogeneous forest in its vegetation. There are at least fourteen major forest types found on the Siskiyou. While the most common canopy species is Douglas fir, ponderosa pine is also common, along with white pine and Shasta red fir. Topography is typically steep and rugged.

The Siskiyou has no definition of old growth other than "timber past the rotation age," which is

90 years on high site lands, and 160 years on low site lands.

There are no figures available that show the amount of old growth currently found on the Districts, or even forest-wide. The most up-to-date information comes from Inventory Statistics for the Siskiyou, published in 1970. This lists the acres containing sawtimber trees that are 100+ years of age. While this is an estimate of the amount of old growth at the time, the timber age is young for an ecological definition of old growth. It must also be remembered that big trees do not necessarily equal an old growth stand. Following is a list of the Districts,



their acreages, and the amount of older forest present in 1970, using the timber definition:

	acreage	old growth, 1970
Chetco	231,309	31,693
Galice	191,057	63,387
Gold Beach	224,493	126,775
Illinois Valley	303,730	87,622
Powers	139,908	46,609

The old growth inventory is heavily reliant on the old timber type maps. In 1958-59 the entire forest was surveyed with aerial photography, and later updated to 1966 to show clearcuts. It was used primarily as a planning tool, and no acreages were taken. The 1968-69 inventory updated the earlier inventory through the plot sampling method, with one plot per 1,864 acres. Each plot was approximately one acre in size. All the plots were photographed aeriaily. This update did not inventory the stocking levels. The purpose was to estimate the standing timber volume on the forest, which was done to an accuracy of five percent. The method is inaccurate, however, at the individual plot level.

The 1978-79 inventory will survey the entire forest through aerial photography a second time, mapping other resources as well as timber. The information will be put in the TRI system. Photographs for the Gold Beach and Powers Districts have been completed.

The current problem is that nobody knows where the old growth is on the ground. There has been virtually no fieldchecking since the original timber inventory in 1958. Current estimates give the following tentative acreages by land class:

Standard.....	239,000 acres
Marginal.....	50,000 acres
Special.....	120,000 acres

These figures do include areas that are currently under study for RARE II.

Pursuant to the Regional Forester's memo of May 19, 1977, the wildlife biologist mapped Douglas fir old growth on timber type maps, using the following categories:

1. D5, single bar stocking level.
2. D5, double and triple bar stocking level.
3. D4, single bar stocking level.
4. D4, double and triple bar stocking level.

These are terms that refer to the age of the Douglas fir and the number of trees per acre. The map shows clearcuts up through 1974. It has not been fieldchecked on the ground.



The following land management decisions have been taken concerning old growth:

1. With the Wilderness areas, the Wild River corridor, deferred areas in the Mt. Butler/Dry Creek planning unit, marginal areas and areas in the special category, such as visual and stream-side management units, which will be managed on a two hundred year rotation to retain the appearance of old growth, the Siskiyou has decided that there is currently enough old growth to meet the needs of other resources besides timber. There is no need to manage specifically for old growth at the current time because the old growth inventory is large enough on the forest that more may be allocated if needed later on.

2. The Draft EIS for the Siskiyou Timber Management Plan states that there will be no cutting in marginal areas. Marginal areas are those which it is currently infeasible to cut, or on which regeneration would take longer than five years. The 50,000 acres of old growth in these areas is therefore preserved until such time as logging methods become more sophisticated.

3. The Siskiyou uses the indicator species approach to old growth. In the Spotted Owl Management Plan the Siskiyou was allotted 32 pairs of spotted owls. In a January 31, 1978 memo, the Forest Supervisor stated:

Twenty-eight owl pairs can be maintained in existing or proposed Wilderness areas, RNA's, and other areas where timber harvesting is prohibited or heavily restricted. Four pairs need to be maintained in areas where existing land management plans will have to be altered to accomodate the owl's special needs.

A list of the areas under consideration follows:

1. Kalmiopsis Wilderness--southeast.....3 pair
2. Kalmiopsis Wilderness--north.....4 pair
3. Proposed addition to Kalmiopsis Wilderness--  
Illinois Canyon.....6 pair
4. Proposed Wild Rogue Wilderness.....8 pair
5. Mt. Butler/Dry Creek planning unit--fisheries/  
wildlife and fisheries/recreation areas.....5 pair
6. Coquille River Falls and Port Orford Cedar  
RNA's, plus Intervening CFL (some in special  
category--visual restrictions).....3 pair
7. Adams Prairie on the Rogue River.....3 pair  
Most of the land in this area is in the special  
category (visual restrictions) or within the  
"Rogue Wild and Scenic River" corridor.

When this Spotted Owl Management Plan is implemented, the annual allowable harvest will fall approximately one tenth of one percent.

4. The Siskiyou is currently considering the idea of putting 5 percent of the Commercial Forest Land in each TRI compartment (of which there are 201 on the Siskiyou) into old growth management. These lands would be on a 200-300 year rotation. But no decisions have been taken yet.

#### DISCUSSION

The large inventory of old growth on the Siskiyou has obviously influenced the land management decisions that have been taken. However, the old growth is being rapidly liquidated as a result of the RARE II areas, which are in the allowable cut base, but currently unavailable for harvest.

Heavy cutting is being done in the managed part of the forest to make up the deficit, and while overcutting has not yet occurred to the point of damaging other resources, it will begin to soon, and fisheries, watershed and old growth, will suffer. With this current trend it will become difficult to create an old growth system on the Siskiyou. For example, the Galice District has had to cut back from an annual allowable cut of 26 mmbf. to 17 mmbf. because of the RARE II areas.

The lack of inventory on the Siskiyou is a major problem. The forest has taken the stand that there is sufficient old growth for both current and future needs, yet the amount existing on the forest is not known. The question of the distribution of the old growth across the managed part of the forest has not been addressed.

## ROGUE RIVER NATIONAL FOREST



Old growth Shasta red fir.

The Rogue River National Forest is located in southwestern Oregon and northwestern California. The majority of the Rogue is in Jackson county, with smaller portions in Douglas, Josephine and Klamath counties, and 53,280 acres in Siskiyou county, California. Total acreage of the forest is 638,075 acres. Small private in-holdings and industrial timberland compose 56,000 acres of this. The forest stretches from north of Crater Lake to below the California border. The Supervisor's Office is located in Medford.

The Rogue River is a very heterogeneous forest in the canopy species that compose the older forest. This ranges from Douglas fir on the west side of the forest up to about 4,000 ft. to noble fir and mountain hemlock at higher elevations, interspersed with other true firs. On the east side of the Cascades ponderosa pine is the main species, mixed with Shasta red fir and white fir at lower elevations.

In February, 1978, a Rogue River supplement was added to Title 2400 of the Forest Service Manual, giving a definition of old growth. This is as follows:

Undisturbed old growth coniferous forest, characterized by uneven-aged, multi-layered canopies. Composite canopy closures vary in densities up to 90 percent but average about 75 percent. Stands are usually dominated by Douglas fir associated with other coniferous species. Understories consist of uneven-age conifers often mixed with hardwoods. Stands are also characterized by a moderate to high incidence of diseased or parasitized trees, snags, down trees and trees with broken tops.

But because of an inadequate inventory, it is not known what acreages of old growth there are currently on the forest. From the Final EIS of the Rogue River Timber Management Plan comes an approximation of the old growth left by timber class:

Standard.....	151,736 acres
Special.....	15,290 acres
Marginal.....	23,425 acres
Unregulated.....	13,370 acres

There are no figures of the amount of old growth left on the Ranger Districts, neither by age nor species.

The old growth inventory on the Rogue River is currently in a state of limbo. The baseline for information is the 1958-59 timber type inventory, which surveyed the entire forest through aerial photography. In 1968-69 this inventory was updated through use of statistical plot sampling. The 1978-79 resource inventory will survey the forest with aerial photographs and concurrent fieldchecking, but this has yet to be done, and it is unknown just where the old growth is since the original inventory twenty years ago.

Pursuant to the Regional Forester's memo of May 17, 1977, the wildlife biologist has mapped potential spotted owl habitat of the forest. This shows D4 and D5 stands of the heaviest

stocking level (triple bar) or over, whether it be a single or a double storied stand. Through the use of aerial photographs, the amount of this particular habitat has been updated to current levels, although it has not been fieldchecked. For the purpose of identifying the best spotted owl habitat the areas that seemed best were identified, and they are currently being fieldchecked.

Begun, but yet unfinished, are timber type maps that show areas of old growth of canopy species other than Douglas fir, with stocking levels at double bar or greater. Currently this map needs to be doublechecked with the use of the aerial photos. Both maps will be fieldchecked concurrent with the 1978-79 timber inventory. Meanwhile, they will serve as fairly accurate indicators of where the old growth remains. Both of these maps are done on base timber type maps on a one inch equals one mile scale.

Two major decisions have been taken on the Rogue River concerning old growth. These are:

1. The February, 1978 supplement of the Forest Service Manual says the following: "...District Rangers are directed to manage 5 percent of each TRI compartment for old growth, well-distributed throughout the compartment." There are 107 TRI compartments on the Rogue River National Forest. The determination of which 5 percent per compartment has not yet been made; this is a current project that is to be finished this year. Nor has a specific management plan been written for the old growth.\*
2. The Rogue River is using the indicator species approach to old growth as well, although this is mostly separate from the decision to manage for 5 percent old growth per TRI compartment. The Spotted Owl Management Plan allocated 35 pair of spotted owls to the Rogue River, and sites are currently being checked. Sites eventually being chosen will not be a part of the 5 percent. The spotted owl areas will total approximately 10,500 acres. Spotted owl nest sites will be saved in areas scheduled for timber sale after 1977.
3. In the lands in the special category, Streamside Management Areas and Visual Management Units efforts to retain old growth characteristics are proposed. Working sheets for management of both exist, but a final decision has not been made as to the actual mechanics of management.

\* The annual allowable harvest falldown resulting from implementation of this plan has not been calculated.



## DISCUSSION

The Rogue River regards old growth as a resource of its own apart from the timber resource; a resource that is fast disappearing. According to the Wildlife Staff Officer, the decision to manage for 5 percent old growth per TRI compartment reflects this concern and is a beginning. The phrase "well-distributed" is of critical importance in that decision; it will prevent large blocks of old growth being left at one end of the Forest while other parts have none, or in the more unreachable upper parts of drainages.

All decisions on old growth reflect the definition in the Rogue River Supplement of the Forest Service Manual. According to Wildlife staff, it is notable in two ways: first, it is as descriptive as possible so as to prevent the use of management practices that might manage for big trees of a certain diameter at breast height, without managing for the characteristics of old growth communities. Second, the definition concentrates on the Douglas fir type because that is the type disappearing most rapidly. Other types are at higher elevations, not as commercially valuable, or currently protected in RARE II. On the west side of the Butte Falls district the forest is already well logged, and in that portion the standards for old growth had to be lowered in order to include any old growth at all. Areas that had been once entered for a shelterwood cut could be included, for example. The assumption of the management decision on old growth is that in areas where 5 percent does not currently exist, it will have to be managed for. It is the lower two-thirds of Butte Falls that is most in danger of losing its components of diversity, being low elevation Douglas fir with no reserved areas.

The spotted owl areas being chosen reflect the same concern for the Douglas fir type. According to the wildlife biologist, the effort of the spotted owl plan is directed at preserving nest sites in the commercial forest land base.

Because of the topography of the forest, RARE II has had little influence on the decisions concerning old growth. None of the 12 roadless areas have much low elevation Douglas fir type, being mainly forested with lodgepole pine, mountain hemlock, ponderosa pine and true firs. However, in an effort to avoid conflicts with timber sales, 18 of the 35 habitat areas for spotted owls are tentatively located in roadless areas, as follows:

Kangaroo (Red Buttes) . . .	6 definite (2 additional possible)
Little Grayback . . . . .	2
(Ashland Watershed) . . . . .	3
Bitter Lick . . . . .	5

These have been fieldchecked and are final based on approval from the Ranger Districts. If these areas are given wilderness status in RARE II, more areas in the managed part of the forest will not be chosen. If these areas are not preserved in RARE II, other types of old growth may become scarcer also.



## EASTSIDE FORESTS: INTRODUCTION

The forests east of the Cascade crest are the Winema, Fremont, Deschutes, Ochoco, Malheur, Umatilla and Wallowa-Whitman. Because of the drier sites, the old growth is much less lush than on the westside of the Cascades; it consists of ponderosa pine, lodgepole and mixed conifer.

Ecological research on the attributes of old growth is lacking on the east side. There is almost no work on the function of old growth in the forest ecosystem. However, the eastside forests are characterized by having a greater amount of project-oriented research dealing with different successional stages as wildlife habitat. This has led to greater uniformity among the National Forests in their definitions of old growth and their land use decisions--all essentially variations on the same theme.

The research which has been done on the role of old growth as wildlife habitat shows its extreme importance:

A large number of birds use old growth stands, the degree of dependency is unknown for most species... of 118 bird species occurring in commercial forest types of the Blue Mountains of eastern Oregon and Washington, 69 percent reproduce in old growth forest and 80 percent forage there... Old growth is a specialized habitat; consequently those species associated primarily with it have become adapted to it.<sup>1</sup>

Some research has been done on the effects of losing this habitat through timber harvest, although the results are mostly hypothetical because of lack of study:

Elimination of mature and old growth forests is, potentially, a more serious problem. These multi-storied habitats provide niches for feeding and nesting for many species, several of which are presently considered extremely specialized and well adapted only to those environments.<sup>2</sup>

The primary work dealing with wildlife habitat is The Guidelines for Maintaining and Enhancing Wildlife Habitat in Forest Management in the Blue Mountains of Oregon and Washington. This work <sup>3</sup> is currently unpublished, but likely to be available to the public in spring or summer 1979.

It was developed in response to a perceived weak link in the land use planning process: the inability to predict effects, over time, on wildlife populations. Members of the Washington Department of Game,

the Oregon Department of Fish and Wildlife, USDA Forest Service, USDI Bureau of Land Management and Oregon State University, assembled to allow, among other things, consideration of all vertebrates in the planning process. The work is shaped around the assumptions it was based on. These are:

1. Timber management is the dominant land management activity in the area.
2. Any wildlife management of large scope will be the result, planned or unplanned, of the manipulation of forest habitats primarily for wood production.
3. Purposeful results in terms of wildlife can be obtained through well-coordinated management of timber.
4. Timber management is wildlife management and the job is to insure that everyone, the public and the land managers, know and understand it.

The work is therefore oriented towards pointing out the relationship between timber management activities and wildlife occurrence and welfare. The relationships are divided into three sections. The first shows the relationship of all resident vertebrates to forest communities and the different successional stages. For this purpose, all the vertebrates known to occur in the Blue Mountains were divided into lifeforms. A lifeform is a grouping of species based on similarities of reproductive sites and feeding habitat. Sixteen lifeforms were developed for the Blue Mountains. The second section shows how a particular species can be emphasized in such relationships. The third section deals with unique and special habitats: riparian, snags, edges, cliffs, talus and caves. Although they occupy a small percentage of the land base, they concentrate the use of dependent wildlife into small areas.

The way the work is set up the response of both lifeforms and individual species to community and successional stage can be gauged. It is also possible to tell how adaptable a species is--the greater the number of communities used by the species, the more adaptable it is. The number of a species from a given lifeform occurring in a successional stage, the more important that stage is to the lifeform. Vulnerability of the species to habitat change is also measurable: the fewer the number of plant communities and successional stages used by a species, the more vulnerable it is to habitat manipulation. In this index, reproductive habitat is considered more restrictive than feeding habitat and is given double weight. The work does not offer prescriptions. Rather, it is a guide, the approach being, "If you do this, then this will happen..."

While there is not enough research to indicate the response of all species and lifeforms to successional stages, it was sufficient to begin. This sort of information is so useful to land managers that a supplement to it, called Wildlife Habitat Relationships of South Central Oregon was developed for area 4. (Now area 5; Ochoco not included).

Neither of the above two works relate directly to old growth, although they deal with old growth as one of the successional stages. The lifeforms associated with it and the probable effects on them with its liquidation, are available. But the work that has been most directly influential in affecting land-use planning decisions relating to old growth is a prescriptive work done for Area 3 and the Ochoco (now Areas 3 and 4) in 1976. It is called: 'Minimum Wildlife Habitat Guidelines.' It is found in its entirety in the appendix. However, it is pertinent to summarize it here.

Many species depend on old growth, including: fisher, lynx, marten, pileated woodpecker, flying squirrel, Townsend's warbler, Vaux's swift, goshawk, white-headed woodpecker, Longeared bat, and Silver haired bat.<sup>4</sup> This is a partial list for ponderosa pine/mixed conifer forests in northeastern Oregon only. Recognizing this dependence, the Guidelines intended that 5 percent of each major commercial and available timber type (mixed conifer, ponderosa pine, lodgepole) remain in each of the five successional stages: 1) grass-forb-seedling; 2) shrub-sapling; 3) young sawlogs, 40-120 years for ponderosa pine and mixed conifer, and 40-80 years for lodgepole; 4) mature, 120 plus years for ponderosa pine and mixed conifer, and 80 years for lodgepole; 5) old growth. The 5 percent is to be determined by TRI compartment. These are predetermined units of land for which resource data is available. Most follow natural boundaries, and, in Area 3, are 5000-6000 acres in size.

Two other objectives deal directly with old growth. The first states that where the old growth is in a parcel 20 acres or less in size, special plans will be needed to maintain it. The second states that stands should preferably be greater than 100 acres in size and greater than 200 feet across, located in a variety of plant communities. The emphasis on old growth is intentional.<sup>5</sup>

The definition of old growth developed for this work was originally applied only to Area 3 and Ochoco. However, because it is the only descriptive, ecological definition in use, it has been adopted by all the forests east of the Cascades. This is the definition used for all of them unless otherwise noted in the individual forest write-ups. The definitions is as follows:

1. At least 15 of the largest overstory trees per acre should exceed 20 DBH in all stands except lodgepole pine (6 inch in lodgepole).
2. High level of standing and down, dead and rotting woody material:  
An average of more than three snags per acre greater than 20 DBH in mixed conifer.  
An average of more than 1.5 snags per acre greater than 20 DBH in ponderosa pine.

3. Two or more levels in tree canopy with total crown closure exceeding 70 percent in mixed conifer and lodgepole and 50 percent in ponderosa pine.
4. Evidence of all or most of the following which would indicate a relatively higher degree of decadence:
  - a. Heart rot in trees
  - b. Mistletoe
  - c. Dead or broken top trees
  - d. Lichen

Similarly, the old growth objectives of the Guidelines have been adopted, with variations, by all eastside forests. The range varies from 15 percent to 3 percent. The key question on all the eastside forests is whether or not to provide replacement stands for existing old growth, or to manage it continually on the same acres. Use of replacement acres provides "even flow" of old growth, but it also requires greater acreage. Continuous management on the same acres allows for a large falldown in old growth when some of the stands are in younger successional stages.

The other key issue is the percentage of land to be in old growth management. The "Minimum Wildlife Habitat Guidelines" offer a suggestion, but only that: the percentage is not backed by research. There is no research indicating what the proper percentage is that will provide for self-sustaining populations of the wildlife populations dependent on it

Individual forest write-ups follow this section.

#### Footnotes

1. Bull, Evelyn: "Specialized Habitat Requirements of Birds: Snag Management, Old Growth and Riparian Habitat" in Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p. 78
2. Edgerton, Paul J. and Jack Ward Thomas: "Silvicultural Options and Habitat Values In Coniferous Forests" in IBID, p. 63
3. Thomas, Jack Ward, Rodney Miller, Hugh Black, Jon Rodiek and Chris Maser: "The Guidelines for Maintaining and Enhancing Wildlife Habitat in Forest Management in the Blue Mountains of Oregon and Washington." A synopsis of the work is provided in: Transactions of the Forty-first North American Wildlife and Natural Resources Conference, 1976
4. Miller, Rod: "Guidelines for Wildlife Management Western Coniferous Forests" in Proceedings of the Workshop on Nongame Bird Habitat Management in Coniferous Forests of the Western United States, p. 72
5. Ibid.



## WINEMA NATIONAL FOREST

The Winema is located in Klamath County, and lies on the east slope of the Cascades. It is headquartered in Klamath Falls. There are 1,250,148 acres of land. On the east and north sides it bounds Crater Lake National Park. The western boundary is near Aspen Butte, and the southern boundary runs along Upper Klamath Lake just south of the Mountain Lakes Wilderness Area.

The Winema has diverse flora. There are large stands of pure lodgepole pine with little understory, both in the valleys and at higher elevations. Klamath Ranger District, the southernmost, is unlike the other two, having large stands of mixed conifer. Pine associated stands are often found interspersed with stands of pure ponderosa pine.

The definition of old growth used by the Winema is taken from the "Minimum Wildlife Habitat Guidelines" for Area 3, and used on the Winema because of similarities with northeastern Oregon where the work was done.

Following is a table of older forest by District, arranged by ecotype:

	Chemult	Chiloquin	Klamath
ponderosa pine	85,075	80,839	219
pine-associated	27,976	38,597	---
mixed conifer	---	---	10,599
lodgepole pine	189,896	42,927	4,783

These acreages are current as of 1975; harvest areas have not been subtracted since then.

The entire forest is mapped by ecotype. This was completed in 1976. The two publications which explain the ecotypes are Plant Communities of the Central Oregon Pumice Zone, and Plant Communities of Klamath and South Chiloquin Ranger Districts. The maps show the climax potential of a site, not the current or past activities occurring on the site. The mapping is done on 1 inch to the mile Transportation Map B District maps.

There are also maps that deal specifically with old growth, consisting of overlays on a blank District map. The first overlay shows all areas meeting the criteria for old growth in the definition, for each of the four main ecoclasses. For simplicity's sake the plant associations of an ecotype are not shown on these maps. For example, all plant associations in the ponderosa pine ecotype are lumped together as "ponderosa pine ecotype." Areas not meeting the old growth criteria as of 1976 are not shown. The second overlay delineates old growth that is already classified through land use plan designations or Wilderness. It shows riparian areas, visual and streamside management units and managed old growth areas, Sky Lakes (a RARE II area recently recommended for Wilderness) and Wilderness. With the exception of Sky Lakes and Wilderness (Mountain Lakes), it includes only those areas in the commercial forest land base.



The old growth maps have been fieldchecked on the ground. Chiloquin and Klamath Ranger Districts have also completed in-place mapping through the TRI system and are managing the old growth on the ground.

Based on this complete old growth inventory, the following decisions have been taken:

1. The timber management interim Implementation document states:

Old growth stands will be represented in all plant communities. Up to 3% of the commercial forest land base would be provided to meet this intent. The objective is to provide habitat capable of sustaining minimum populations of existing wildlife species...This means that providing 3% of old growth habitat throughout the entire forest will require up to 9% of the land base.

This decision reflects the current management decision for the entire forest, an interim policy, as it were, because only one planning unit has been completed: the Chemult. The allocations made in the Final EIS are being implemented. The Final EIS for the McCloughlin-Klamath (joint with the Rogue River) is due winter of 1979. The Draft EIS for the Chiloquin planning unit is due winter of 1979 also. The Panhandle unit EIS is not being worked on until RARE II is done because it contains portions of roadless areas that lie also on the Umpqua and Deschutes, and the difficulties of co-planning are too great.

2. The timber management plan (Klamath Basin Working Circle Draft EIS) reflects the interim policy:

In old growth for wildlife areas, some old growth will be represented in each of the plant communities...In Klamath Ranger District mixed conifer areas...9% will be set aside for old growth and partial yields will be allowed. In associated species...9% will be managed for old growth and partial yields allowed...In ponderosa pine and lodgepole pine 9% will be managed for old growth...Special emphasis will be given to providing such habitat along streams, ridge tops and next to meadows and springs.

3. The McCloughlin-Klamath Final EIS contains several decisions on old growth:

Between 5 and 10 percent of the commercial forest land in each major timber type will be distributed in successional stages...using existing silvicultural methods and careful scheduling of timber harvest.

In addition, 400 acres of old growth adjacent to Upper Klamath Refuge are to be managed as old growth habitat, with no programmed harvest. 543 acres of additions (proposed) to Sky Lakes are not considered to be good additions, and will be managed as spotted owl habitat replacement areas, under old growth management.

4. The implementation document for the Chemult planning unit has two decisions on old growth:

Approximately 700 acres near Yamsay Mountain is allocated to old growth wildlife habitat. The objective of management in this area is to manage for old growth pine, with a thrifty bitterbrush understory. Silvicultural treatments will discriminate against white fir.

Approximately 9% of the unit's commercial forest land base will be allocated to old growth management...Adjust TM components as necessary as old growth areas are identified.

5. Under the Spotted Owl Management Plan, the Winema is allocated 16 pairs of owls to manage for. Currently there are 19 known pair. The Spotted Owl Management Plan for the Winema is currently in draft form, and will be an addendum to the McCloughlin-Klamath Final EIS and the Timber Management EIS, as well as a management unit for the Winema. There will be four management situations:

1. W-5A: timber stands having resident spotted owls in which existing or scheduled harvest has or will reduce the suitable old growth habitat to less than 300 acres. The nest site will be monitored before and after harvest, and no further harvest will be scheduled in these stands during the 10-year operating plan.

2. W-5B: timber stands to be managed as units to provide sustained habitat for existing resident spotted owls. Management units will consist of three or more adjacent stands averaging 300 acres apiece. Timber management activities will be designed to always maintain one stand in each of three age classes.

3. W-5C: These stands are known spotted owl territories averaging 300 acres in size which are within or adjacent to Wilderness, Wilderness Study or roadless areas. Management direction will be to maintain habitat for 6 pair of owls. If more pairs are located wholly in Wilderness, Wilderness Study or adjacent National Park areas, they will become part of the 6 pairs managed for, replacing a peripheral or adjacent area.

4. W-5D: These stands will be managed as units to provide sustained nesting and rearing habitat for accipiter hawks or other resident wildlife species dependent on old growth habitats. Management strategy will be the same as W-5B except that management units will be 40 acres in size, and wildlife species being managed for will determine age class direction.

#### DISCUSSION

The objective of having 9% of the CFL in each ecotype managed as old growth can be partially met through the use of streamside and visual management units and spotted owl and accipiter nest sites. The goal of visual and streamside management units is to maintain the appearance

of old growth, and there are separate management prescriptions for each ecotype.

Through the use of extended rotations, five age groups will be represented on the Winema. One of these age classes is old growth. The basic silvicultural prescription for old growth is as follows: entry of the stands with a shelterwood harvest at age 235 for mixed conifer and ponderosa pine, and age 110 for lodgepole. 15-18 trees per acre will be left for the first five years while the understory is being established. Planting of this understory will be at 700 trees per acre, which will be precommercially thinned at age 15. The first commercial thinning will be made at age 40, and six more thinnings will be made at 20 year intervals until the stand reaches 120 years of age (80 in lodgepole). For 115 years thereafter the stand will not be given stocking level control--i.e., it will be left undisturbed. A regeneration harvest will be initiated again when the stand is 235 years old.

The management is basically the same for all ecotypes, although the years differ because of the lifespan of the trees. The reason for the century or so of no stocking level control is to allow the stand to assume old growth characteristics and to create wildlife habitat for old growth dependent species. The total annual allowable harvest falldown due to the old growth plan is 3.38 mmbf.

Old growth is considered to be a habitat type of its own, with many species dependent on it. In order to best distribute this critical resource, the basic management units for old growth, the TRI compartments, will not always be used precisely. Boundaries will not be followed specifically, as the old growth distribution is more based on species requirements, critical wildlife habitat and ecotype representation. Use of the indicator species through the spotted owl has, of course, meant setting aside those blocks of old growth already in use, with few areas set aside for future habitat needs.

The enclosed charts show the acreages needed for the 9% goal, and acres that can substitute--that is, acres which can be used for more than one purpose, such as the streamside management areas. The figures are mathematically derived for planning purposes, and are very rough.

# WINEMA NATIONAL FOREST

	<u>ponderosa pine</u>	<u>mixed conifer</u>	<u>pine associated</u>	<u>lodgepole pine</u>
acres needed for 9%	26,675	9,434	9,141	18,718
substitute acres	300	4,595	5,802	9,261
balance	26,375	4,839	3,339	9,457

## KLAMATH RANGER DISTRICT: 192,469 acres

	<u>ponderosa pine</u>	<u>mixed conifer</u>	<u>lodgepole pine</u>
acres needed for 9%	none	9,434	303
substitute acres	none	4,595	none
balance	none	4,839	none

## CHEMULT RANGER DISTRICT: 316, 192 acres

	<u>ponderosa pine</u>	<u>pine associated</u>	<u>lodgepole pine</u>
acres needed for 9%	11,710	1,369	6,109
substitute acres	N.A.	N.A.	N.A.
balance	N.A.	N.A.	N.A.

## CHILOQUIN RANGER DISTRICT: 534,188 acres

	<u>ponderosa pine</u>	<u>mixed conifer/ pine associated</u>	<u>lodgepole pine</u>
acres needed for 9%	6,901	6,613	4,948
substitute acres	2,950	530	795
balance	3,951	6,083	4,143

N.A. = not available.

## FREMONT NATIONAL FOREST



Old growth ponderosa pine near Deadhorse Rim.

life Habitat Guidelines" for Area 3. However, according to the wildlife biologist, the definition is inadequate and needs to be revised to better fit the Fremont. Under this definition, many stands on the forest qualify as old growth, including many that have partially cut. Some of those areas that qualify are not considered to be good old growth habitat.

The amount of old growth on the Fremont is known only very roughly, and acreage estimates are at least a year old. They are calculated for the

The Fremont National Forest consists of 1,194,000 acres of land in southcentral Oregon. The headquarters are in Lakeview. It is divided into two parts on the extreme east side of the Cascades. One area includes the Warner Mountains from Abert Rim to the California line. The other comprises the mountains between Lakeview and Klamath Falls, bounded by the California-Oregon line to the south, the Deschutes on the north, and the Winema on the west. Two-thirds of the forest lie in Lake county, and the remainder in Klamath County.

In vegetation the Fremont is similar to the Winema. Large acreages of mixed conifer (ponderosa pine, white fir, incense cedar, sugar pine) dominate at lower elevations, changing to ponderosa pine/white fir, and then to pure ponderosa pine. At higher elevations lodgepole pine, often mixed with white fir, dominates.

The Fremont has been using the definition of old growth from the "Minimum Wild-





The Lakeview FSYU EIS contains a similar statement. Streamside and visual areas will also be managed to retain old growth characteristics, and in the case of an acre doing "double duty" as old growth and, say, visual management, the more restrictive prescription will apply. This decision is being implemented on an interim basis now.

3. Accipiter nesting groves will be maintained at 40 acres on a 250 year rotation.

#### DISCUSSION

The Fremont is approaching the old growth issue in two ways: the ecosystem approach and indicator species. Both are still new to the Fremont, and a certain amount of experimentation is occurring, to see what works best.

The ecosystem approach is reflected in the decision to manage for 3% old growth. The specific management plans have not yet been written; however, the Fremont is unlikely to go the route of the "Minimum Wildlife Habitat Guidelines" in distributing the old growth by TRI compartment. This is because the wildlife biologist feels that it may be biologically unwise to distribute a small percentage too widely. In a clumped distribution, it is felt that there are greater benefits to wildlife, and more ecosystem representation. For example, the decision to manage for 3% old growth reduces the total old growth acreage present in the Lakeview FSYU from 95,000 acres to 9,000 (plus Wilderness and special interest areas). This is sufficient for minimum viable populations of some species, but little else. Although clumped distribution increases the likelihood of a catastrophic occurrence destroying the entire area, it is felt that this distribution better meets the needs of many wildlife species, which have large territories and need large acreages of undisturbed land. The accipiter nest sites will aid in meeting the 3% objective.

The Fremont has not yet decided on a species that can serve as the indicator for old growth. The forest has been called for spotted owls, but none have been located, which rules out the use of it as the indicator. Currently either the pileated woodpecker or the pine marten is being considered for the old growth indicator. The one that had the most restrictive habitat requirements would be chosen. Use of an indicator species simplifies the identification of optimum habitat areas in old growth.

The old growth allocations are affected by the outcome of RARE II. If RARE II areas containing old growth are selected for Wilderness, then the old growth in them would be counted towards the 3% objective. This would be especially true if the old growth met specific habitat objectives. Old growth in the managed part of the forest would be reduced by the amount of old growth in the RARE II area.

Annual allowable harvest falldowns resulting from implementation of the old growth plan have been calculated for the Fremont portion of the Klamath Basin WC and the Lakeview FSYU. The calculation of falldown is from biological potential, which is a theoretical state whereby maximum timber harvest is realized because there are no constraints imposed for

the protection of other resources. In reality, biological potential is never reached, and is a high figure. The calculations are done for three levels of intensive management. The low level includes only the replanting of cutover areas and backlog. The middle level includes precommercial thinning also. The top level includes planting with genetically improved trees. All three levels include reforestation. Falldowns are calculated in totality resulting from the old growth allocations.

#### Lakeview FSYU

low level intensive mgt.....	1.17 mmbf./yr.
med. level intensive mgt.....	2.21 mmbf./yr.
high level intensive mgt.....	2.26 mmbf./yr.

#### Klamath Basin WC

low level intensive mgt.....	2.1 mmbf./yr.
med. level intensive mgt.....	2.84 mmbf./yr.
high level intensive mgt.....	3.12 mmbf./yr.

The reason that the allowable harvest falldown is greater with increasing intensive management is due to the allowable cut effect--credit is being taken currently for growth gains to be made in the future, so the allowable cut is increased in the present.

## DESCHUTES NATIONAL FOREST



Old growth ponderosa pine in parklike stands.

Headquartered in Bend, the Deschutes lies on the east slope of the Cascades in central Oregon. The forest lies mostly in Deschutes county, but extends into Jefferson county in the north and Klamath and Lake counties in the south. All along the western boundary, from north to south, are the Mt. Jefferson Wilderness, the Mt. Washington Wilderness, Three Sisters Wilderness, and Diamond Peak Wilderness. The Deschutes is 1.6 million acres in size.

The Deschutes is in Area 4 ecologically, which also includes the Fremont, Winema and Ochoco. Ponderosa pine occupies a majority of the forest at mid-elevation zones, along with mixed conifer stands. A lodgepole pine climax is found in varying places on the forest. There are 38 forested ecoclasses on the forest, divided into five canopy associations:

ponderosa pine; mixed conifer; lodgepole pine; mountain hemlock; and Englemann spruce.

The definition of old growth was originally taken from the "Minimum Wildlife Habitat Guidelines" for Area 3, and used on the Deschutes in conjunction with Habitat Relationships of South Central Oregon. However, because of the large amount of habitat disturbance on the Deschutes, a supplementary definition has been devised to permit areas that have been lightly harvested to qualify as old growth. The definition of Class II old growth is:

Class 2 - Limited Disturbance Old-growth.

1. At least 8 to 10 of the largest overstory trees per acre should exceed 20" DBH in all stands except lodgepole pine (6" in lodgepole).
2. Moderate level of standing and down, dead and rotting, woody material. An average of more than one half snag per acre in mixed conifer and ponderosa pine.
3. Two or more levels in tree canopy with total crown closure meeting or exceeding in ponderosa pine. The old growth component should make up 20 to 40 percent of the crown closure.
4. There is a moderate degree of decadence which is indicated by heart rot, mistletoe, dead or broken tree tops, and lichen.

The amount of old growth on the forest is roughly known by District, and is broken down into Classes 1 and 2. It has also been broken down by ecoclass, but that is not shown here:

	Class 1	Class 2
Bend	125,405	42,485
Crescent	95,320	4,623
Fort Rock	55,256	23,957
Sisters	26,380	1,305

Old growth is a new subject of controversy, and the resulting inventory was also somewhat hurried as a result. On Oct. 17, 1977, a memo went out from the Supervisor's Office to the Ranger Districts: "...each District will need to inventory all old-growth stands on 2-inch scale base maps by December 15...Four items are desired in the mapping process: 1) ecoclass identification, 2) stand numbers, 3) homogeneous stand size, and 4) old growth class." As a result of this each District, using aerial photos and Rangers' personal knowledge of the ground, mapped the old growth stands. No fieldchecking was done. These maps are the ones used in all land use planning allocations.

The following land management decisions have been made:

1. to set aside 3% of the commercial forest land base for old growth in

each vegetative community. The allocations have been located on the ground, and are available on the map that is sent with the Deschutes Land Use Plan Final EIS. The acreage of land allocated to old growth Forestwide and by planning unit:

Forestwide.....	26.6	(thousands of acres)
Metolius planning unit.....	4.3	(thousands of acres)
Bachelor planning unit.....	5.2	(thousands of acres)
Odell planning unit.....	4.4	(thousands of acres)
Newberry planning unit.....	12.7	(thousands of acres)

Approximately 48,000 acres of old growth are needed to fill the 3% goal. The 26,000 acres forestwide will be that old growth actually found in the old growth management option as it is detailed in the Land Use Plan. The remaining 21,500 acres needed will be found in Research Natural Areas and other land allocations which guarantee undisturbed vegetation. The figures above do not include Wilderness.

The Deschutes uses wildlife species to gauge whether its old growth allocations are serving the purpose of providing enough habitat to ensure survival of old growth dependent species. The Deschutes does not use one wildlife species as an indicator; rather, they use a group of species that have been determined to be dependent on old growth. There are three levels of these species: natural old growth dependent species, which must have undisturbed old growth for survival. This includes the northern spotted owl and the goshawk. Next is limited management tolerant old growth species: these can tolerate some management activities if the old growth is left mostly undisturbed. This group includes the great grey owl, the fisher and the lynx. Third are moderate management tolerant old growth species. These include the screech owl and raven.

According to the Land Use Plan, the old growth allocations under the preferred alternative will maintain the overall population level for natural old growth dependent species (11 species) at 31% of population potential; of limited management tolerant old growth dependent species (20 species) at 62% of population potential; and of moderate management dependent species (14 species) at 69% of population potential. Below is a more detailed breakdown by planning unit of the same evaluation:

	Metolius	Bachelor	Odell	Newberry
natural old growth	36.9%	35.8%	36.1%	21.5%
limited old growth	64.3%	64.1%	68.1%	55.9%
tolerant old growth	72.0%	70.2%	73.9%	63.9%

In the process there was some underallocating of plant communities, because of a shortage of old growth in that particular ecoclass. After having allocated all possible acres that are currently old growth to the old growth allocation, the forest still came up short in some plant communities. In that case, areas not currently in old growth will have to be set aside and "grown" to old growth. Below is a table showing which plant communities fall under this category, and how many acres will have to be allocated from non-old growth:



1. ponderosa/bitterbrush-manzanita/fescue.....	1,559
2. ponderosa/bitterbrush/needlegrass (pumice soil).....	909
3. ponderosa/sedge-fescue-peavice.....	69
4. mixed conifer/snowbrush-chinkapin/brakenfern.....	64
5. mixed conifer/snowbrush-chinkapin/pinegrass.....	87
6. mixed conifer/sedge-brakenfern.....	345
7. mixed conifer/snowberry/twinflower flatland.....	91
8. mixed conifer/snowbrush/sedge-brakenfern.....	178

2. Spotted owls and other cavity-nesting and/or unique and raptorial birds are covered in the Deschutes Supplement to Title 2600 (Wildlife Management) of the Forest Service Manual. Nest sites of spotted owls and great grey owls and Peregrine falcons will have 30-chain radius of limited management area, and a five-chain radius will apply to the nest sites of bald and golden eagles, ospreys, prairie falcons, goshawks, sandhill cranes and great blue heron rookeries. Three to five old growth trees of low risk are to be left as potential nest and roost trees within a 20-chain radius surrounding the nest site.

The Spotted Owl Management Plan allocated 10 pair of the owls to the Deschutes. The forest was not able to call for spotted owls this past year because of a lack of funding. There is a possibility that it may be done in the field season of 1979 if enough priority is put on it.

#### DISCUSSION

According to the wildlife biologist, there was an effort made to incorporate the spotted owl nest site (300 acres of old growth) into the old growth objective, but this has generally not worked out because the nest sites vary too widely. For this exact reason the Deschutes is not using the spotted owl as the indicator for old growth forest. The Deschutes has not settled on an indicator species for old growth.

Criteria for old growth allocations across the forest were not tied to any one species. Rather, the goal was to obtain a wide level of diversity and a mix of plant communities. As a result, the old growth is not all in the most productive wildlife habitat, but somewhat more scattered. However, use of the wildlife species evaluation (explained earlier) shows that under the preferred alternative for the Deschutes Land Use Plan, those species that can tolerate more management will be favored over those that cannot. This could conceivably cause problems, since the old growth areas are so widely scattered across plant communities.

It is the management of the old growth allocations which is the biggest question. Like many other forests, the Deschutes has allocated old growth, but not decided on its management. The Deschutes has allocated 3% of its CFL to old growth, but that acreage does not include replacement acres. That is, land that will be supporting stands of lesser age which will grow into old growth by the time that the first stand is harvested, were not allocated. The rationale for not allocating replacement acres is twofold: that there is sufficient mature forest on the Deschutes so that, if needed, it can be allocated later; and that the old growth will be managed continually on the same acres, and not on a rotation basis.



Current thinking is to write individual prescriptions for each stand on the amount of management activity allowed. The amount will be contingent on whether the forest is to manage for the current or potential species level in the stand, and the best known way of "perpetuating" the old growth age class. Prescription burning, for example, may be allowed in ponderosa pine stands, where historically fires clean out the underbrush, but not in lodgepole, where fires can become intensely hot. Or again, to perpetuate the stand, cutting may be permitted, such as in aspen. When working with such limited acreage, management must be able to retain the old growth age class for as long a time as possible in its best condition.

Management of the old growth areas is unlikely to be affected much by the outcome of RARE II. Regardless of the outcome, the same amount of old growth would be allocated on the Forest because of the need to represent all ecoclasses.

## OCHOCO NATIONAL FOREST

The Ochoco National Forest lies in the center of Oregon, in three separate pieces at the western end of the Blue Mountains. The northernmost piece is just north of Prineville; then the Maury Mountains, east of Prineville Reservoir; and a southern unit that adjoins the Malheur National Forest. There are 845,855 acres in the Ochoco, and the headquarters are in Prineville. The Forest lies in Wheeler, Crook and Grant counties.

Although it is classified in Area 4 with the Winema, Fremont and Deschutes, the Ochoco is actually more similar ecologically to the forests of northeastern Oregon that lie in the Blue Mountains. There are four major ecoclasses: ponderosa pine; pine associated (which contains ponderosa pine, Douglas fir and a small amount of white fir); associated (which contains white fir, western larch and Douglas fir); and lodgepole.

The definition of old growth on the Ochoco is taken out of the "Minimum Wildlife Habitat Guidelines" for Area 3, with no modifications at the present time. At least 75% of the Ochoco has trees older than 160 years, but this does not necessarily constitute old growth habitat because many of those acres have been shelterwood cut or salvage logged, and all the dead material is gone. The Ochoco does have the amount of old growth remaining broken down by Ranger District. The figures do not include roadless areas.

### ACRES OF OLD GROWTH BY RANGER DISTRICT

Big Summit.....	13,560
Paulina.....	18,870
Prineville	
a. 50-300 acres in size.....	6,310
b. 300+ acres in size.....	4,441
Snow Mountain	
a. old growth habitat.....	45,358
b. 80% sure old growth habitat.....	16,286

During the work on the Draft Timber Management Plan in the summer of 1977, it was discovered that the amount of old growth on the Forest was practically unknown, as a result of both lack of concern and lack of funding. As a result, the Ranger Districts were requested to map the old growth from knowledge of the ground and aerial photographs. According to the forest silviculturalist, the accuracy of these maps varied with the newness of the District personnel. They were not formally fieldchecked. Each map shows slightly different things:

- Big Summit: 1) old growth areas; 2) old growth in roadless areas.  
1976 Fireman's map, 1 inch to the mile.
- Paulina: 1) old growth in planned timber sale areas; 2) old growth outside of planned timber sale areas. 1976 Fireman's map, 2 inches to the mile.
- Prineville: 1) old growth areas 50-300 acres in size; 2) old growth areas 300+ acres in size. 1976 Fireman's map, 2 inches to the mile.
- Snow Mtn.: 1) old growth areas; 2) 80% sure old growth areas. photos of Total Resource Inventory (TRI) microfiche, 4 inches to the mile.

The following management decisions have been taken:

1. The objectives in the "Minimum Wildlife Habitat Guidelines" relating to old growth have become an interim policy for the Ochoco until final land management allocations are made in the land use plans.

The Ochoco is covered by three planning units: the Ochoco-Crooked River; Silvies-Malheur, which is mostly on the Malheur, but contains the Snow Mountain District of the Ochoco; and the South Fork planning unit, which is also mostly on the Malheur, but contains a small portion of the Paulina District. Because the final acreages for old growth allocations will become official through the Final EIS's of these planning units, it is important to know the planning deadlines. They are:

Ochoco-Crooked River: Final EIS available to the public winter/spring, 1979.

Silvies-Malheur: Final EIS available to the public fall, 1978.

South Fork: Final EIS available to the public spring, 1978.

The current EIS's make the following allocations to old growth:

2. Ochoco-Crooked River Final EIS: 5% of the commercial forest land is to be maintained in old growth at all times, for the purpose of retaining habitat for non-adaptive wildlife. Ponderosa pine and pine-associated ecoclasses can be managed for old growth indefinitely on the same acres, but acres in the associated ecoclass will degenerate and must be replaced. So, 15% of the CFL in this ecoclass will be put into old growth management. About 57 parcels of 300 acres each are planned, with one allocation for lodgepole. Total proposed acreage is 29,690 acres. 15,480 acres of this would be in streamside management units (SMU's). The current amount of old growth on the planning unit is 130,000 acres. Implementation of the old growth objective will cause an annual allowable harvest falldown on the planning unit of 1.7 mmbf, in designated CFL areas.

3. South Fork planning unit: Decision letter concerning implementation of the Final EIS states:

In the Resource Management with Wildlife Emphasis allocation type at least ten percent of each major commercial and available timber type will be retained in an old growth (wildlife definition) condition.

In Resource Management with Timber and Range Emphasis at least five percent of each major commercial and available timber type will be retained in an old growth (wildlife definition) condition.

Implementation of the old growth objective will cause an annual allowable harvest falldown of .357 mmbf. on designated CFL areas. The effective date of implementation is Oct. 1, 1978.

4. Silvies-Malheur Final EIS states:

Resource Management with Wildlife Emphasis

...Forest management will maintain five stages of forest growth succession. At least 10% of each major commercial and

available timber type will be maintained in an old growth (for wildlife, definition) condition...

Resource Management with Timber and Range Emphasis

At least 5% of each major commercial and available timber type will be retained in an old growth (for wildlife, definition) condition.

Implementation of this decision will cause an annual allowable harvest falldown of 1.56 mmbf. on designated CFL in the planning unit.

#### DISCUSSION

These goals for old growth management have become the management plan for the Ochoco. The actual allocations of specific parcels of land has not been made yet. That is a task for the winter of 1980, once an on-the-ground inventory of old growth is completed in the summer of 1979.

In the process of allocating areas to old growth, the indicator species approach was not formally used. This is because there is no one species known which has restrictive enough habitat requirements that its needs if fulfilled would also fill the needs of other old growth dependent species. Current research may change that. The size of the pileated woodpecker territory (300 acres) was used in the decision of the size of the allocations, but the actual decision to allocate 5% of the CFL to old growth was not based on the needs of any one species; rather, it was to provide for non-adaptive species in general.

The old growth percentages were scattered throughout the forest in order to provide maximum diversity. In the Ochoco-Crooked River, for example, the old growth is distributed among the ecoclasses. Most of it will probably be in the pine-associated community because of the richness of the wildlife habitat there, according to the wildlife biologist. The actual percentages have not yet been broken up, however. Because there is a large inventory of old growth on the forest--although the exact amount is not known--specific interim measures are not being taken to protect key old growth areas during the planning process.

One of the most serious questions that needs to be raised is that of old growth management. According to the Ochoco-Crooked River Final EIS, the ponderosa pine and pine-associated ecoclasses can be managed for old growth continually on the same acres, so that no replacement acres are needed. If the assumption is to always maintain 5% old growth, it is questionable if this sort of management will work, because all acres cannot all be old growth at the same time--some will die or be harvested, and be in a younger stage of growth. An "even flow" of old growth means that there would be no falldown.

Currently, RARE II does not in any way affect the old growth allocations. No old growth allocations were made in the roadless areas, and the old growth in them will add to the allocations.

## MALHEUR NATIONAL FOREST

The Malheur National Forest lies in eastcentral Oregon, and is headquartered in John Day. The gross acreage is 1,540,423 acres, of which 1,458,055 acres is national forest. A small portion of the forest is in Malheur county; the majority lies in Grant, Harney and Baker counties. The west side of the forest is bounded by the Ochoco, the east side by the Wallowa-Whitman, and the north by the Umatilla. Open grass and sageland extends from much of the southern boundary and portions of the northern and western.

The Malheur is ecologically in Area 3, the Blue Mountains, along with the Umatilla and the Wallowa-Whitman. The majority of the forest is ponderosa pine or associated, mixed with white fir types. There is very little pure lodgepole. At the higher elevations one finds subalpine fir associations.

The definition for old growth is from the "Minimum Wildlife Habitat Guidelines" for Area 3.

The Malheur has done only a cursory inventory of old growth, and has no acreage figures available, either by District or by planning unit. In 1978 the wildlife biologist requested the Ranger Districts to make maps showing areas of old growth. Two Districts out of the four complied. The two available maps actually show the unlogged areas, which could contain old growth. They have not been fieldchecked on the ground. The inventory situation is as follows:

Long Creek RD: Old growth areas:

1. sales not sold but marked
  2. private land
- 1976 Fireman's map, 2 inches to the mile.

Prairie City RD: Uncut areas.

1976 Fireman's map, 2 inches to the mile.

Bear Valley RD: no map.

Burns RD: no map.

The timber type inventory of 1970 identified areas of timber that qualified as old growth using the timber definition of "trees past the rotation age." However, this definition is inaccurate for wildlife purposes because it lacks habitat descriptions. The 1970 inventory is further inaccurate because it is eight years old, and because it was done from plot sample blow-ups, which become increasingly inaccurate at small acreages. In Fiscal year 1979, beginning in October, 1979, an in-place mapping of the entire forest will be done with the aid of aerial photography. There will be concurrent fieldchecking. In this inventory the old growth will also be delineated, although the exact definition to be used in that evaluation has not been decided on yet.

The following land management decisions have been taken:

1. For the Silvies-Malheur and the South Fork planning units, the



decisions on old growth are those explained in the Ochoco section. The same acreages and allocations apply, because those two planning units are shared between the two forests.

2. Final EIS for the Timber Resource Plan: the decisions concerning old growth in this plan concur with those made in the South Fork and Silvies-Malheur EIS's (10% old growth in Resource Management with Wildlife Emphasis; 5% old growth in Resource Management with Timber and Range Emphasis). The Timber Resource Plan states:

Within the portion of the Forest allocated to resource management...with the LMP classification of timber and range emphasis, 5 percent of the allocated commercial forest land acres will be retained in an "old-growth" condition at any one time. This does not mean that these acres will not be entered for timber harvest but rather that these areas will be managed under an "old-growth" rotation. In order to assure that 5 percent of these specified CFL acres are existing as old growth, approximately 15 percent of the CFL (Standard) acres were reallocated and programmed under a 260-year rotation to maintain 10 percent in an old growth condition at any one time.

The Forest wide acreages of old growth that will be allocated under Resource Management with Wildlife Emphasis--10% old growth, and 30% old growth management--and Resource Management with Timber and Range Emphasis--5% old growth and 15% old growth management--are shown below. The figures are approximate.

#### WILDLIFE EMPHASIS

Total acreage.....	53,747
Old growth (10%).....	5,341
Old growth management (30%).....	16,124

#### TIMBER AND RANGE EMPHASIS

Total acreage.....	647,465
Old growth(5%).....	30,760
Old growth management (15%).....	192,018

3. The old growth policy elaborated in the South Fork and Silvies-Malheur EIS's has been codified in a Malheur Supplement to the Forest Service Manual (FSM Title 2600, Malheur Supplement No. 6, Nov. 15, 1978). The policy states:

Minimum self-sustaining populations of existing species of wildlife can be best, perhaps only, assured by providing a certain level of habitat diversity.

To provide this diversity in relation to old growth, the policy has the following provisions:



- 1) no substitutions for the old growth acreages from other allocations.
- 2) a need for proper stocking level control in order to accelerate the age at which a stand acquires old growth characteristics.
- 3) cessation of all silvicultural treatments in lands allocated to old growth after the last commercial thinning at age 80. The rotation age for old growth areas will be 260 years.
- 4) as in the "Minimum Wildlife Habitat Guidelines" for Area 3, old growth stands should be at least 20 acres, with preference for stands greater than 100 acres, which will hold species with large home territories.

### DISCUSSION

Old growth management is in its infancy on the Malheur; the on-the-ground people have only begun to hear of it in the past few months. With the completion of the land use plans, the Timber Resource Plan and the Malheur Supplement to the Forest Service Manual, the old growth policy is official. Until complete inventories are done, and the stands allocated, interim measures to protect the old growth resource are few. The main one lies in designating the preferred alternative for timber sales in the Environmental Assessment Reports (EARs) so that timber sales do not fragment key old growth areas. For current sales, however, few changes can be made.

The most significant aspect of the Malheur's decision on old growth is that the old growth objective contains no substitute acres. Although streamside management units, visual management units, roadless areas and Wilderness (Strawberry Mountain) contribute to the amount of old growth on the forest, as they are either on extended rotation or preserved, they are not part of the old growth percentages. This, according to the wildlife staff officer, is because the Malheur recognized that the percentages in the "Minimum Wildlife Habitat Guidelines" were minimums only, and that having the old growth allocations plus the other areas left a margin of error in case that it is later found that 15% is not enough. This margin of error is especially critical because the Malheur does not use the indicator species approach to old growth.

The old growth allocations will be identified by Ecological Land Unit (ELU). The three main ones that will be affected by the old growth allocations are: 1) white fir types; 2) successional pine types (mixed fir/pine); 3) climax pine types. Currently the Forest is not considering breaking down its old growth allocations by specific plant communities within an ELU.

## WALLOWA-WHITMAN NATIONAL FOREST



Scattering of old growth ponderosa pine in the draws (Joseph Canyon).

The Wallowa-Whitman National Forest lies in the north-eastern corner of Oregon, and comprises 2,246,913 acres of land. The northern half borders Idaho along the stretch of Hells Canyon. The southern half stretches from west of La Grande to west of John Day in the south, and borders on the Umatilla to the west and Malheur to the south. The headquarters are in Baker.

The Wallowa-Whitman lies in the Blue Mountains, and is classified in Area 3 with the Umatilla and Malheur. There are large stands of ponderosa pine and associated, where white fir and western larch are mixed in. Subalpine spruce grows at higher elevations. There are extensive stands of pure lodgepole pine.

The definition currently being used for old growth runs along

the lines of that found in the glossary of the Grande Ronde Final EIS. Slight differences may be found in the wording of the definition in the Wallowa Valley Final EIS and the Burnt Powder Final EIS. The definition is as follows:

Old Growth Habitat - An environmental condition of a timbered area that includes trees in varying conditions of age and decay. Trees with heart rot and witches' brooms, standing dead trees, and frequent windfalls are components of this environment. Usually includes a high degree of solitude in a relatively undisturbed environment. Often will provide habitat for maximum potential populations of snag dependent wildlife.

Currently, this is the definition used in all land use planning decisions. However, the Supervisor has asked the wildlife biologist to see what can be done about changing the definition to that used in the "Minimum Wildlife Habitat Guidelines" for Area 3. Because it is more specific in defining what is and is not old growth, the Wallowa-Whitman hopes to adopt that definition formally. This is spoken of again in the Discussion.

There are no acreage figures available for the amount of old growth currently existing on the Wallowa-Whitman. Only figures showing the acreages allocated in the land use plan are available. In other words, without an old growth inventory, the Wallowa-Whitman has allocated old growth through the land use planning process.

For the original decisions to be made in the land use plans, only a very cursory inventory was done, enough, basically, for areas to be allocated. The inventory was never checked on the ground, and there was no in-place mapping of plant communities. Now both a wildlife habitat inventory and an in-place mapping of ecoclasses across the forest are being done by TRI compartment. The ecoclass mapping was begun in the spring of 1978. Within a year and a half the forest should be ecoclass mapped both by community climax and the actual successional stages occupying the land currently.

The wildlife habitat inventory was begun in the summer of 1975, and has been steadily improved since then. The cards currently being used to do the inventory were initiated only this summer, so therefore perhaps 50 of the forest's 301 TRI compartments (outside of Wilderness) have been inventoried. The schedule as it currently stands of finishing the inventory is as follows:

Wallowa Valley planning unit: Fiscal Year 1978  
Grande Ronde planning unit: Fiscal Year 1979  
Burnt Powder planning unit: Fiscal Year 1980

However, funding will be lacking in the next Fiscal Year, so these timelines may well be moved into the future. Both the ecoclass mapping and the wildlife habitat inventory are being done on 4 inches to the mile TRI photographs with overlays.

Once the wildlife habitat inventory is done, the biologist will write a Wildlife Habitat Resource Plan for each planning unit, which will indicate the planning unit's ability to provide habitat for every species on the forest, including those dependent on old growth. The timelines for the Wildlife Habitat Resource Plans are as follows:

Wallowa Valley planning unit: Fiscal Year 1979  
Grande Ronde planning unit: Fiscal Year 1980  
Burnt Powder planning unit: Fiscal Year 1981

In the meantime, the wildlife habitat inventory serves to correct the boundaries on the old growth allocations that turn out to be way off base because of the lack of mapping at the time the allocations were made.

In the unit plans, the acreages for the old growth allocations were made by land type, not ecoclass. Land types are broad geographical divisions. In order to understand the allocations in perspective, a brief description of each land type affected by the old growth decision follows.

G2: flat basalt plateaus, over 70% timbered, and generally found below 6,000 ft. Historically has been high timber harvest priority because of ease of logging. Species: ponderosa pine, Douglas fir, white fir, western larch and lodgepole pine.

G3: gentle topography with marginal timber lands: scabs and grassland, 50%; timbered, 50%. Species: ponderosa pine, Douglas fir and white fir.

G4: flat grasslands on basalt plateaus. Timber limited to stringers, comprising 30%. Species: Douglas fir and ponderosa pine.

G5: basalt and granite plateaus over 70% timbered, found between 5400 and 7000 ft. Upper forest association dominates overstory: spruce, Douglas fir, white fir, western larch and lodgepole pine.

G6: toe area of massive landslide amphitheater; slope less than 35% lying below landslide headwall. Species: Douglas fir, white fir, western larch, lodgepole pine, spruce.

S2: high elevation, steeply timbered slopes. Ranks high in visual quality and steepness, which limits commodity production. Species: subalpine fir, lodgepole pine, white fir, aspen.

S3: steep, over 35% slope, continuously timbered, generally north-facing. Douglas fir and white fir predominate; other species include: western larch, ponderosa pine, alder.

S4: steep, slopes over 35%, heavily timbered: 50% grassland, 50% timber. Species: Douglas fir, ponderosa pine, western larch, white fir, aspen, Rocky Mtn. maple.

S5: steep slopes, over 35%, mostly grassland. Timber or brush on north and east aspects (less than 30%). Species: Douglas fir, ponderosa pine.

S6: headwall of massive landslide amphitheater. Steep, with vertical rock walls. Well vegetated apart from rock outcroppings. Species: Douglas fir, western larch, white fir, lodgepole pine.

S7: steep, timbered south-facing slopes, sensitive to management activities. Ponderosa pine dominates the overstory as climax at lower elevations and fire climax at higher elevations, where Douglas fir and white fir are successional. Occasional rock outcrops.

In the land use plans, the following decisions have been made:

1. Wallowa Valley Final EIS (implemented): 4% of the CFL in the planning unit is allocated to old growth management at 80% capacity. The actual allocation is 25,490 acres of the S3 landtype. The stands will be allowed to develop naturally until about age 300.

2. Grande Ronde Final EIS (implemented): 4% of the CFL is allocated to old growth management at 80% capacity. As far as management goes, the EIS states:

Cutting would occur on an unscheduled basis in areas that have "gone beyond" desired conditions or are surplus. No specific rotation age is prescribed. (A 250 year average rotation was used for predicting timber yield. However, a longer average rotation may be necessary to achieve 80% of the allocation in old growth).

The acreages by land type are as follows:

G2=3,125 acres.	S2=385 acres.
G3=160 acres.	S3=9,454 acres.
G4=220 acres.	S4=2,575 acres.
G5=390 acres.	S5=50 acres.
G6=655 acres.	S6=1,000 acres.

TOTAL: 18,014 acres.

3. Burnt Powder Final EIS: 3% of the CFL is put into old growth management, at 50% capacity (half the allotted acreage will be in old growth at any one time.) The total amount in old growth management is 21,527 acres, but the planning unit will provide for 25% old growth through other management strategies as well. The allocations by land type are:

G2=1,862 acres.	S3=8,034 acres.
G3=653 acres.	S4=5,818 acres.
G4=610 acres.	S5=1,085 acres.
G5=500 acres.	S6=695 acres.
G6=930 acres.	S7=1,582 acres.

TOTAL: 21,527 acres.

#### DISCUSSION

There are several problems that need to be ironed out of the Wallowa-Whitman's old growth allocations. One is the change in the definition; a second is the boundaries of the allocations as the wildlife inventory is done; a third is the problem of doing old growth allocations by land type rather than by ecoclass; a fourth is the rotation age needed to give 80% capacity. A fifth is Hells Canyon National Recreation Area.

The definition of old growth currently in use could be changed by order of the Supervisor, and may well be in the near future. The key is whether the change would alter any of the land allocations made to date. Up to now, the Wallowa-Whitman has not had to worry whether allocations met an



old growth definition or not, for the simple reason that the allocations preceded the use of a specific definition. Because the Area 3 definition is so measurable and specific, it may well result in a large amount of change in the allocations that do not meet it--many of the old growth allocations do not meet it.

A second problem relating to boundary adjustments is the the wildlife habitat inventory. As it is fieldchecked, many adjustments in boundaries of the old growth allocations are being made, including substitutions of one area for a better one. Because the wildlife inventory is more advanced than the ecoclass mapping, these changes are being made without the benefit of knowing the ecoclass or, sometimes more important, the location of the area in terms of ecoclass. Changing entire allocations is difficult, as the proposal must be run through the District Ranger, so this problem will probably be ignored except in critical cases.

Thirdly, the allocations were done by land type and not ecoclass, reflecting in part the fact that there was and is not an in-place mapping of plant communities of the forest. This may well lead to some ecoclasses being poorly represented, especially those that have been heavily used for commodity production. As yet, no effort has been made to allocate new areas to old growth in those ecoclasses lacking representation.

The fourth problem is management direction. Currently, no management prescription has been written specifically for old growth. Right now the general drift is to take no action until some decisions have been made concerning management direction, probably within two to five years. The percentages given in the EIS's for old growth is actually for old growth management. In the Wallowa Valley and Grande Ronde Final EIS's, it is stated that 80% of the allocation can be in old growth at any one time; in the Burnt Powder Final EIS the figure is 50%. Both the Grande Ronde and the Burnt Powder use the same rotation age--250 years--to arrive at different percentages. This conflict needs resolution.

Approximate annual allowable harvest falldowns have been calculated for the 39,102 acres that will be in old growth. Yield at biological potential, with no constraints, is 9.86 mmbf. annually. The reduction in biological potential for old growth is 4.44 mmbf. annually, leaving a potential yield of 5.42 mmbf. In actuality, there are constraints for the protection of other resources, and this reduces timber yield, so the biological potential figure is too high.

Another problem from the management standpoint is the lodgepole pine. Although the old growth allocations included lodgepole, there is a severe outbreak of mountain pine beetle in the lodgepole, which is attacking principally the largest and oldest trees. Because of this, the wildlife biologist is trying to switch as many old growth allocations in lodgepole as possible to pine or fir. The rationale is that the lodgepole stands left after the outbreak will take a very long time to reach old growth proportions.

A final problem is the Hells Canyon National Recreation Area (NRA), which the Wallowa-Whitman shares with the Payette and NezPerce National Forests in Idaho. The Act creating the NRA was specifically amended to allow timber harvest, outside of the Wilderness. The portions of the

NRA not in Wilderness or Wilderness study, are managed for timber, among other things. The Comprehensive Management Plan for the NRA is to be done in 1980, and it will make the final allocations and management decisions for the NRA. Meantime, the Regional Office has not allowed for a falldown in allowable harvest as a result of creation of the NRA, so timber harvest in the NRA is often excessive. Old growth in certain areas, such as brushy draws, is not being given consideration for special allocation.

## UMATILLA NATIONAL FOREST

The Umatilla is located in northeastern Oregon and southeastern Washington, and is headquartered in Pendleton. Southern boundaries are shared with the Wallowa-Whitman and the Malheur. It lies in Union, Umatilla, Grant, Wheeler and Morrow counties.

The Umatilla is in Area 3 along with the Wallowa-Whitman and Malheur, and is ecologically similar to other forests in the Blue Mountains. There are large stands of pure ponderosa pine and mixed conifer, which includes white fir, western larch and Douglas fir. There are also large stands of pure lodgepole pine. At higher elevations there are mixtures of Englemann spruce and alpine fir.

The definition of old growth used by the Umatilla is very close to that found in the "Minimum Wildlife Habitat Guidelines" for Area 3. The definition quoted below comes from the Desolation planning unit Draft EIS:

- (1) At least 15 of the largest overstory trees per acre should exceed 20" d.b.h. in all stands except lodgepole (6" in lodgepole).
- (2) A high level of standing and down, dead and rotting woody material in snags greater than 20 d.b.h.: 3 snags per acre in mixed conifer stands and 1.5 snags in ponderosa pine stands.
- (3) Two or more levels in tree canopy with total crown closure exceeding 70% in mixed conifer and lodgepole and 50% in ponderosa pine.
- (4) Water within 1/4 mile.

There are no acreage figures of old growth currently in existence using the wildlife definition just quoted, although such an inventory is underway. Decisions concerning old growth in the land use planning process were made without the benefit of an inventory.

Following the suggestions made in the "Minimum Wildlife Habitat Guidelines" for Area 3, the following land management decisions have been taken:

1. Oregon Butte Final EIS: The goshawk was used as the indicator species for old growth, and all decisions relating to old growth were made with the goshawk's presumed needs in mind, under the heading RESOURCE PRODUCTION-Goshawk. The objective concept for this management is:

To manage the commercial timber resource to its potential yield while providing optimum forage for domestic livestock and wildlife grazing, with other constraints of SMU use, Visual Quality Objectives, and provision for optimum old growth habitat with the goshawk as the wildlife indicator species.

The decision was made that 20 pair of goshawks would constitute a minimum viable population. To meet this objective it was necessary to set aside 180 acres of old growth habitat in addition to all other areas

that would supply old growth habitat, such as Wilderness and streamside and visual management units. The old growth habitat supplied was to suffice for old growth-dependent species. In general, besides the goshawk.

2. Elgin Final EIS: In this planning unit the use of the goshawk as the indicator species for old growth habitat was discontinued because of the difficulty in assessing if the habitat needs of one species sufficed to cover the habitat needs of other old growth-dependent species. Instead, 5% of the timbered lands were set aside for old growth, both for goshawk and other species: "Optimum goshawk habitat (old growth stands) provided with habitat provision for other wildlife..." (emphasis added).

In order that 5% of the land may be old growth, 15% was allocated to old growth management on long rotation. A total of 1,170 acres was allocated to old growth. Size of the old growth patches is to be about 30 acres, though it may vary from 5 to 100 acres.

3. Desolation Draft EIS: 5% of the non-deferred commercial forest land is to be allocated to old growth in 30-100 acre blocks. 12,515 acres will be required to meet this allocation. A total of 15% of the acreage of non-deferred CFL will be in old growth management: "...each old growth block will have two other blocks in close proximity (within one mile) to provide continuity." This will provide for 30 acres per square mile in an old growth condition. The rotation age will be approximately 300 years. This allocation is to provide for 75% of pileated woodpecker territory. The pileated is a bird whose optimum habitat is to be found in old growth stands.

4. Heppner Draft EIS: The decision on old growth is the same as that for the Desolation. No indicator species are used; 5% of the CFL is to be in an old growth successional state, with 15% of the total CFL in old growth management to provide for replacement. A block of old growth is to be harvested and regenerated within the 240-360 year old stage.

In addition, the Timber Management Plan for the Umatilla, the draft of which is currently being written, will reflect all the constraints concerning old growth that are elucidated in the land use plans, and use the same objectives and guidelines. As currently calculated, the falldown in annual allowable harvest on the Umatilla as a result of the old growth allocation is 9 1/2 mmbf. The falldown is a result of two factors: 1) the slower conversion period in old growth stands; 2) an approximately 45% falldown in Mean Annual Increment (MAI) as a result of allowing the trees to grow to old growth proportions.

#### DISCUSSION

According to the Timber Management planner, a mixture of site classes was chosen to supply the old growth allocations. This prevented only the poorer site classes from being chosen as wildlife habitat.

However, currently all phases of the old growth allocations on the Umatilla are in a planning stage only. The land use planning process is conceived as giving only overall, general management direction and goals, not the specifics of management. Specific direction for



old growth management, and the actual sites of the allocations, will come with the old growth management plan.

As a first step in this process, an inventory of the old growth is being done. It began in August, 1978. It consists of looking at aerial photos, a new set of which was done for the forest in 1977, and fieldchecking the most likely areas on the ground. The first priority to map and allocate will be those areas under threat of immediate timber harvest. The inventory is to be completed in the summer of 1979.

Although the 'Minimum Wildlife Habitat Guidelines' state that there should be 5% per every two adjacent TRI compartments on the Umatilla, the old growth allocations are not going to be distributed in that manner, because TRI compartment boundaries are not the same as project boundaries. Rather, the 5% will be programmed by timber sale. That is, there will be 5% old growth per timber sale within the sale boundary--not within the boundaries of the individual cutting units. Areas not scheduled for timber harvest in the next 5 years have less priority; areas already cutover will require special analysis.

The old growth management plan will cover the following things: 1) a functional plan for wildlife; 2) an analysis of the old growth, in terms of both present acreages and future needs. The old growth plan will incorporate the general guidelines on old growth management found in the 'Minimum Wildlife Habitat Guidelines'.

There are three questions that need to be addressed in the Umatilla's old growth management plan. The first is the amount of old growth needed. Second is the size of the blocks. Third is the distribution of the old growth by ecotype.

The 'Minimum Wildlife Habitat Guidelines' identify 5% old growth as a minimum amount for maintaining self-sustaining populations of old growth dependent species. But the Umatilla plans to reduce its old growth to 5% exactly in the managed part of the forest by first calculating the substitute acres that will provide old growth, such as streamside units, and then allocating the remainder needed to make 5%. This does not leave a large margin for error.

The Umatilla has decided that the optimum size for an old growth block is between 30 and 100 acres in size, although the 'Minimum Wildlife Habitat Guidelines' use 100 acres or above as the preferred size. According to the wildlife biologist, this difference is because of the need to distribute small acreages strategically throughout the forest. Having a few large clumps is likely to increase the fire hazard. It is felt that most old growth-dependent species can survive with 30-100 acres of habitat.

The old growth plan needs to address the question of distribution by ecoclass to insure that all plant communities are represented. There is danger that the plant communities that have been heavily used for commodity production--timber harvest--will end up being underrepresented or not represented at all. So far, distribution is principally on the basis of timber sales. The Desolation and Heppner EIS's state that 3% of the 5% is explicitly set aside for distribution



purposes, even if the number of contributing acres equals or exceeds the number of old growth acres required. This was necessary because so many of the old growth allocations came from substitute acres, which have already been distributed across the forest in a certain pattern. While this will help the problem, it still does not address the question of plant community representation.

## WASHINGTON NATIONAL FORESTS

In order to give a better perspective on the old growth problem in the Pacific Northwest, a brief synopsis of the activities of the National Forests in Washington is given here. The synopsis was not intended to be as in depth as the study of Oregon National Forests, so the information will not be as detailed. It might be said, however, that the public awareness in Oregon is greater than it is in Washington, and that the Washington National Forests therefore have less attention focused on them, and have done less in creating solutions to the problem.

### COLVILLE NATIONAL FOREST

The Colville is in the far northeastern corner of Washington, bordering on Canada. At the present the Colville has no definition of old growth, save that of "timber past the rotation age." Eventually they hope to define the habitat in terms of the species dependent on it. For this purpose, three indicator species have been chosen:

- barred owl-for low elevation old growth
- goshawk-for mid elevation old growth
- pine marten-for high elevation old growth

There is some question about the goshawk's dependence on old growth, but there is only minimal research on all three species. The Colville has notified its Ranger Districts to report all sightings of these species.

In Fiscal Year 1979, the Colville will be working on location of suitable habitat for the barred owl and the goshawk, and of the habitat needs of these birds. An interim plan, to be included in the Forest Plan, would include both the areas currently used by these species, and the management needed to retain the old growth characteristics. However, there is no inventory of old growth on the forest. Two of the Ranger Districts are working on drawing up such maps, but the other Districts are not. They need to be done before the old growth plan can be completed.

The basic approach to management on the Colville is featured species management. With sophistication, this may turn into management of the essential qualities of the habitat, without necessarily needing the entire habitat intact.

### OKANOGAN NATIONAL FOREST

The Okanogan is in northcentral Washington, and includes a portion of the

Pasayten Wilderness. It also borders on Canada.

There is at present no definition of old growth, excepting the timber definition of "timber past the rotation age." The new wildlife biologist on the Okanogan has made it a first priority to come up with a descriptive definition of old growth, which will include the habitat components needed by old growth dependent species. A second priority is to determine what old growth will be retained for wildlife. Of principal concern is the low-elevation old growth, for it is being liquidated more rapidly. This old growth policy is to be written and approved in winter/spring 1979.

Currently, the only guidelines in existence are in a work called Okanogan National Forest: Habitat Requirements and Management Guidelines. This work suggests that 5% of each TRI compartment be managed as old growth, with each stand being at least 30 acres in size. All different timber types on the forest found in a given compartment should be represented by at least one old growth stand in that compartment. A designated old growth stand should not be logged until an alternate stand of the same timber type becomes available. When logging an area, 3 old growth trees per acre should be left as an old growth component.

The mapping of the old growth will be completed one or two years after the old growth policy is completed because the Okanogan did not get its aerial photos for the timber survey update taken this summer, from which the location of old growth stands would have been interpreted and fieldchecked.

Some areas are already on a 250 year rotation, such as visual areas and some lands in the Special category in the Timber Management Plan.

#### WENATCHEE NATIONAL FOREST

South of the Okanogan and just east of the Cascade crest is the Wenatchee. The definition for old growth used by the Wenatchee is similar to that found in the "Minimum Wildlife Habitat Guidelines" for Area 3. The following definition is taken from the Final EIS for the Kittitas planning unit:

The timber stand characteristics necessary to provide old growth habitat will include mature tree species that are at least 21 inches d.b.h. and contain 35 or more stems per acre. In addition, the stand condition will show evidence of heart rot or other signs of decay including an abundance of down logs and standing snags. At least two snags per acre of the 21 d.b.h. class should be present. The combined over-story and understory canopy should reflect a 70 percent crown closure.

Apart from the Cougar Lakes Wilderness Study Draft EIS, which is in

limbo until the completion of RARE II, the Wenatchee has only produced the Kittitas Final EIS. It does address old growth allocations in three out of six alternatives, allocating from 1% to 2% of the commercial forest land base to old growth, with extra acreage needed to provide for replacement as the stand dies or is harvested. The EIS estimates that the amount of old growth necessary to optimize wildlife habitat on the planning unit is 5%, both in managed old growth and other land allocations, such as riparian areas and visual units. The preferred alternative, however, does not allocate any area to old growth management, although some old growth is found in other allocations.

Forestwide, there is a possibility of instituting a policy for 5% of the CFL to be old growth, with a total of 15% in old growth management. This would hopefully provide both for species richness and fulfill the needs of the indicator species for old growth, the pileated woodpecker and other woodpeckers.

The Wenatchee has completed its ecoclass mapping. Each District has all of its land mapped by ecoclass and the age of the stand. Current successional stage occupying the site is also noted. The Area Ecologist is working to refine the broad categories of the ecoclasses into specific plant associations.

#### MT. BAKER-SNOQUALMIE NATIONAL FOREST

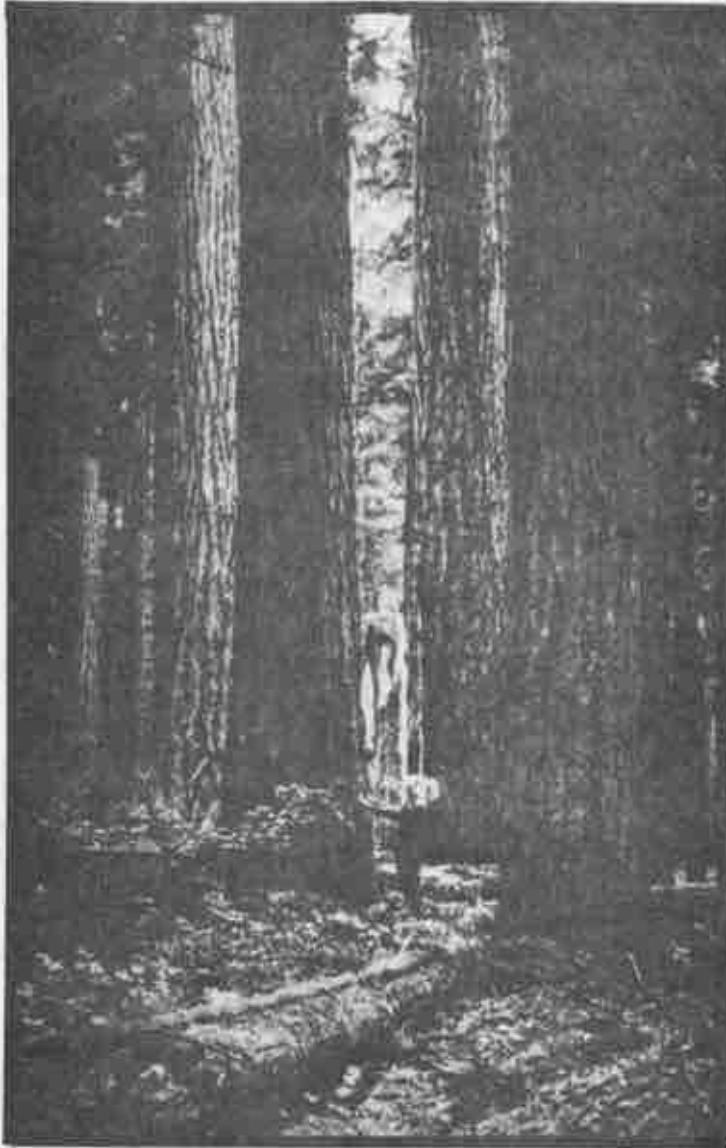
The Mt. Baker-Snoqualmie lies in central Washington, stretching along the western side of the Cascades from the Canadian border southwards.

There is no wildlife or descriptive definition of old growth; only a silvicultural definition. Because of a shortage of manpower and funding, the Mt. Baker-Snoqualmie has done very little work on old growth. One District is conducting a study of cavity-nesting birds after the fashion of the studies done for Habitat Relationships of the Blue Mountains.

The Mt. Baker-Snoqualmie is one of the forests covered by the Spotted Owl Management Plan. The Darrington District is doing an inventory and habitat study of the spotted owl. Within 13 months the study should be done. It will then form a part of the forest's policy on habitat diversity.

However, according to the wildlife biologist, the spotted owl is not the only indicator for old growth. There are other equally important species, but the spotted owl is a good beginning for getting a handle on the issue. Unofficially, the forest recognizes that old growth is a component of habitat diversity, but the feeling is that a thing as serious as policy-making on old growth management or preservation cannot be done without studies that base the policy in fact and show the need. These studies are ongoing. Mapping of old growth has received low priority because of lack of funding.

## GIFFORD PINCHOT NATIONAL FOREST



Old growth Douglas fir dominating the canopy.

The Gifford Pinchot National Forest lies west of the Cascade crest and just north of the Columbia River. It is the nearest Washington forest to Oregon.

The definition used on the GP for old growth stands is that the stand must be composed of trees 21 inches d.b.h. or greater. There is no definition which addresses the components of the old growth ecosystem.

There are no separate maps and inventory of the old growth. The TRI system contains stand exam information by ecoclass and age class. It shows the stocking level, and the overstory and understory species composition. This information is updated every year. There are overlay maps for each planning unit which show the current successional stages. These maps are made with aerial photos, followed by spot field checking.

The Forest Land Use Plan contains an old growth policy, which states the following things: 1) 5% of the mature or old growth



shall be preserved per planning unit; 2) each patch shall be 200 acres or greater in size; 3) half of this 5% will be above 3,000 ft., and half below 3,000 ft.; 4) the policy applies both to potential and actual Commercial Forest Land.

This policy is now coming under increasing attack because it has not been backed up by policies that were thought to be forthcoming from the Regional Office.

Several possible problems exist with the current policy. First, both potential and actual CFL are included. Potential CFL includes that which is withdrawn from timber harvest, such as Wilderness and Research Natural Areas. On many of the GP's planning units, the 5% allocation is made wholly or partly in Wilderness or RNA's. This can lead to having large blocks of old growth in already-protected areas, leaving little protection for the large amounts of old growth in the managed parts of the forest. On some planning units, such as the Yacholt, there are no Wilderness proposals and actual land allocations must be made if the 5% objective is to be met.

Second, using the definition of old growth or mature forest is too broad. Old growth is a specialized age class, generally considered to be older than mature forest by at least 100 years. It is the old growth, not the mature forest, which is being liquidated so rapidly.

Separate from the Forest policy is the spotted owl inventory. In the summer of 1978, the GP conducted a spotted owl survey with the objective of sampling different habitat types in order to gain information on the habitat requirements of the bird, and an index of the population. Calling at night yielded 20 positive responses. Currently, the data are being analyzed; however, it may be difficult to make statements about specific nesting requirements since no nests were discovered. Once the information is analyzed, it will be extrapolated to determine the amount of potential habitat available on the forest. From that will be determined the number of spotted owl pairs the GP can support.

There is no written policy on preserving old growth for spotted owls at this point. The one nest site found during a timber sale was preserved with a 45 acre primary buffer and a 94 acre secondary buffer in which selected timber harvest activities could take place during certain seasons.

#### OLYMPIC NATIONAL FOREST

The Olympic is on the Olympic Peninsula in far northwestern Washington. Most of it is taken up with Olympic National Park.

The definition of old growth on the Olympic is: trees that have passed the culmination of MAI--are older than 160 years. This definition is to

be changed in 1983 when the Final EIS for the Forest land use plan is done.

The old growth inventory is a spinoff of the timber inventory. However, inventories of spotted owl habitat are being completed. The Ranger Districts have sent maps into the Supervisor's Office showing potential and actual spotted owl habitat extrapolated from TRI photos. While these are not too accurate, they are all that has been done to date. 20-25% of potential spotted owl habitat has been surveyed. Highest concentrations of owls were on the Quinalt and Soleduck Ranger Districts (12 pair each). Eight pair were located on the Quilcene, 5 on the Hoodspout, and one on the Shelton.

At this time there have been no land use decisions concerning old growth, excepting that the spotted owl is used as the indicator species. In the summer of 1979 the spotted owl plan is to be written for the Olympic, and some old growth areas set aside for its use.

## CONCLUSIONS

The conclusions in this section are based on the surveys done in Oregon and Washington, the interviews, and other background research.

1. The lack of a Regional old growth policy is causing several major problems.

(a) Without a Region-wide look at the old growth resource, old growth planning is going to have mostly a local focus. For example, the Willamette National Forest contains more old growth than any other forest in Oregon. It also has the highest allowable cut. Apart from an inadequate mapping of potential spotted owl habitat which has not been fieldchecked, the Willamette has no old growth inventory showing old growth not used by spotted owls; nor is it required to have one. Yet it is making major land use decisions that affect the supply of this resource: out of approximately 480,000 acres of old growth, 2,000 acres have been set aside as old growth groves. Without a complete inventory and a Regional policy, there is no way of judging the adequacy of this amount. One thing which ought to come into play in this example is that the Willamette is the major reservoir of old growth in Oregon.

(b) Without a Regional policy, it is impossible to develop to the maximum the approach of Integration of Techniques, except on some local levels. This approach, so critical to the integrity of an old growth system, is not currently practiced to any appreciable degree. A Regional look at the resource would give planners the perspective needed to develop such a system.

(c) Inventories of old growth in Oregon (and Washington) are completely unstandardized at the moment; no two depict the same thing. A Regional policy would remedy this problem by requiring standardized inventories, and thereby setting the stage for evaluation of the resource.

(d) Definitions of old growth are a major problem. Of course there cannot be a Regional definition; there are too many kinds of old growth. But some guidelines on development of a definition, would reduce the current confusion. Some forests, like those in the old Area 3, have developed ecologically-based definitions; others, like those in the old Area 6, have not. This lack of standardization in an Area sometimes causes an inappropriate definition to be the basis for resource allocation, as on the Mt. Hood and Willamette National Forests, where the only definitions are timber-oriented. Lack of an ecological definition will beg

the question of allocation of old growth for ecosystem function, as a timber definition deals principally with rotation age--not old growth characteristics.

(e) Public input is not given the proper focus. If an individual were interested in finding out what was happening to the old growth Region-wide, s/he would have to read all land use plans. Within the plans, the individual would have to evaluate all land allocations for their effect on old growth management. Even if someone were tenacious enough to do that, there still is no forum for really addressing the issue Region-wide.

2. Integration of techniques is not being used appreciably by land managers.

This term means using the different tools available to land managers to create an old growth system. The emphasis on National Forests in Oregon ~~currently~~ is long rotation. Every forest in Oregon with an old growth strategy uses long rotation as the cornerstone of the policy, with the exception of the Willamette. Preservation is a valuable management tool which is being under-used; there is violent opposition in some segments of the public for further Wilderness designation, or other preservation options, of Commercial Forest Land containing old growth. In fact, retention of such areas is important to long-term productivity of the forest.

The emphasis on substitute acres is too great. Use of substitute acres involves, for example, using a stream buffer, which is a required land allocation, to also provide old growth, and subtracting the number of acres in the buffer from the total acreage allocated to old growth retention in other parts of the forest. This "crowding" has a detrimental effect on the creation of an integrated system in two ways. First, while there is old growth in many of these substitute acres, if they alone are used the distribution of old growth throughout the forest will be poor. In most cases, the substitute acres are narrow corridors along streams and roads. Relying on them to provide the needed old growth results in a patchy distribution, whereby the majority of the developed forest contains no old growth allocation. Second, use of the substitute acres leaves little margin for error. Little is known about the actual amounts of old growth needed on a forest. Under the circumstances, use of old growth allocations plus the old growth in other allocations, such as the Malheur has done, provides for future adjustments, if needed, and also a more flexible old growth system. The use of Integration of Techniques relies on large enough acreages to connect areas providing habitat for species with large territory requirements.

Old growth areas are frequently isolated from surrounding areas by poor timber sale layout or land use planning. This results in "islands" of old growth that lack communication with other "islands". It is exactly this problem that Integration of Techniques was designed to avoid.

Provision for old growth corridors in riparian areas is not receiving enough attention, given the research showing their importance. Currently, stream buffers are designed principally to protect the stream, not to maintain riparian habitat. Riparian corridors are major links in an old growth system.

3. There is a general lack of research on old growth, both at the theoretical and practical levels.

Allocation of land to a certain resource emphasis does not happen without a rationale showing the benefits of doing so. Research of the sort that Jerry Franklin, Glenn Juday and others have spearheaded provides an overview of the ecological importance of old growth and some suggestions for management. On another level, works such as Wildlife Habitat Relationships of the Blue Mountains provide concrete tradeoff formulae which facilitate planning: witness the enormous influence of that work in eastern Oregon on old growth planning. Use of wildlife species to evaluate tradeoffs has been done in a flexible manner, through the use of lifeforms. This allows land managers to evaluate the effect of an option on both individual species and groupings of similar species, with the effect that habitat complexity is better understood. Use of lifeforms eliminates the problems associated with featured species management (see next Conclusion).

4. The Spotted Owl Management Plan has in effect become a master plan for old growth.

Only one forest west of the Cascade crest that is covered under the Spotted Owl Management Plan also has an old growth policy--the Rogue River. The Siuslaw comes closest to having one, because of the Interim Policy. In the case of the Siuslaw, where most of the old growth is of the type used by spotted owls, use of the owl as indicator species causes fewer problems. The Willamette has provided for a small number of old growth groves, whose principal function is to preserve the appearance of old growth trees for the public.

In this vacuum, allocations for spotted owls have frequently become an old growth plan, as on the Siuslaw. Use of the spotted owl as the indicator species is an unnecessarily limiting strategy, because there are many things the Plan does not take into account, such as types of old growth not used by the spotted owl; retention of old growth above and beyond the quotas allocated in the Plan; and the use of Integration of Techniques.

5. There are several laws in effect which point to the Forest Service's mandate to manage for old growth. These directives are being violated.

Multiple use is still, after all the work on it, a somewhat fuzzy term. The Forest Service has frequently interpreted it to mean that all or many uses should be crowded into a given acre, although this is not the intent of multiple use management. Multiple use does, however, include maintaining the productivity



of the land. To reach this end, old growth must be retained, as old growth is itself multiple use. Furthermore, the National Forest Management Act of 1976 requires habitat diversity in National Forest management. Carving out small tracts of land for old growth, which is the current trend, violates both of these directives.

6. There are several areas of concern.

The central Oregon forests (Fremont, Deschutes, Ochoco, Malheur) are of particular concern because, being mainly on the flatlands, they were easily accessed. Very little untouched old growth is left. Even areas that were first selectively cut are now being shelterwood cut, eliminating all possibility of old growth for the foreseeable future.

Of concern also are the Willamette, Mt. Hood and Umpqua. These three are the major reservoirs of old growth left in Oregon, but they also have the highest resource conflicts. Liquidation of the remaining stocks is occurring rapidly, which increases the isolation of remaining stands. Without old growth plans, this will continue unchecked.

The Siuslaw is of major interest because it has less old growth than any other forest in Oregon. The remnants of Sitka spruce old growth that inhabited the fog belt along the coast are also found here.

RARE II has also identified many areas of critical concern for old growth retention. (For a listing of these, see Recommendations). There are several roadless areas with appreciable amounts of old growth in them. This old growth surrounded by undisturbed forest of younger age classes is valuable wildlife habitat, and of great importance as a natural baseline against which changes can be measured.

#### FOOTNOTES

1. Wilson, Carl: "Land Management Planning Process of the Forest Service" in Environmental Law, 8:2, p. 469

## RECOMMENDATIONS

Recommendations to the Forest Service center around improving the land use planning process so that old growth is adequately considered. It is through the land use planning process that the Forest Service takes into account the public's needs and desires. This is highly important. But there are flaws in the process which occasionally do not bring public issues to light. Resources not provided through the marketplace are frequently given a short hand. Longterm planning should take into account the need for amenities that must be currently provided if they are to be available in the future. It should also take into account the increasing knowledge there is about the complexity of the forest. It is these characteristics which old growth planning currently lacks.

Specific recommendations follow, divided into two sections, Land Use Planning, and Management Implementation. The recommendations under the first category deal specifically with improvements in the process, so that the resource is given fairer treatment and public participation improved. The second category deals with actual on-the-ground changes that should be made.

### LAND USE PLANNING

1. A Regional policy on old growth is needed, which will modify the land use planning process to include the following things:
  - (a) A specific statement on the importance of maintaining the ecological integrity of the National Forests through maintenance of all plant communities and age classes. This provides the framework for true multiple use management.
  - (b) A provision mandating all resource plans to contain an old growth plan. This would include an analysis of the resource availability on the unit, both currently and in the future; and an exploration of the silvicultural options available for old growth retention, and the desirability of each under certain circumstances.
  - (c) A requirement that each Area, as a top priority, develop a descriptive definition of old growth based on ecological criteria, such as that done for the old Area 3.
  - (d) A directive stressing the necessity of a thorough inventory using standardized methods and guidelines. This is crucial to good decision-making.

(e) A statement on the importance of using Integration of Techniques to provide a viable old growth system. The stress should be on preservation of key areas and corridors.

2. An Interagency Environmental Impact Statement is required on the Spotted Owl Management Plan.

As currently conceived, the Spotted Owl Management Plan is in effect a master plan for the low-elevation Douglas fir old growth left in the western Cascades and Coast Range. The indications are that old growth is important to the forest ecosystem and the productivity of the land. The administrative decisions, made without public review, to arbitrarily reduce the amount of old growth and the size of the patches, on the basis of one species' habitat requirements, is a major federal action significantly affecting the quality of the human environment. There is no other way that the Forest Service, and the other agencies, can use to explain the magnitude of the decisions being taken through the Spotted Owl Management Plan. While individual forests will be explaining their allocations in their unit plans, this approach will fragment the public perception of the issue.

3. Funds should be allocated for increased research on old growth.

Facts to back up decisions provide the roots of sound land management. Without them all debates are subjective. Research should concentrate on the function of old growth in the forest system and the effects of management. Possible priorities (not ranked in order of importance) include:

(a) A comparative census of wildlife species in old growth and younger successional stages.

(b) Foraging and breeding requirements of wildlife in old growth. This research should concentrate on types of old growth disappearing most rapidly, such as ponderosa pine.

(c) Ecological interrelationships and habitat niches of Pacific silver fir old growth.

(d) Ecological interrelationships and habitat niches of ponderosa pine old growth.

(e) Factors relating to the establishment of a climax, old growth lodgepole pine stand.

(f) Studies of small mammal roles in the Douglas fir/western hemlock zone old growth.

(g) Effects of long rotation management on the forest ecosystem.

(h) Changes in soil composition and productivity over time with removal of the old growth forest.

Research into the first two topics will provide the baseline information needed to do more ecological studies that look at the old growth characteristics in greater depth. Censuses also form the base for works such as the research done in the Blue Mountains on wildlife habitat relationships.

4. The Forest Service should commission works patterned after the work Wildlife Habitat Relationships of the Blue Mountains, so that the entire Region will be covered.

There should be one study for each Area, or some other discrete ecological area for which the plant and animal communities are similar. A blanket work that covers the Northwest that merely lists species and their habitat orientation would be wholly inadequate. Each study should be a working document, allowing land managers to estimate impacts on the wildlife resource as a result of other resource activities, and estimate species adaptability.

5. The Region should use the species grouping "lifeform" in all resource plans dealing with wildlife.

This recommendation is similar to the one above. Use of lifeforms would eliminate the problems associated with featured species management and provide a good index as to the effects of habitat manipulation on wildlife.

## MANAGEMENT IMPLEMENTATION

1. The most critical areas in RARE II should be made Wilderness.

In order to give maximum protection to those few large areas containing old growth, a Wilderness designation is necessary. Those areas important for old growth retention are:

- (a) Hidden (Mt. Hood/Willamette National Forests)
- (b) Badger/Jordan (Mt. Hood N.F.)
- (c) Many Rivers (Mt. Hood N.F.)<sup>1</sup>
- (d) Columbia Gorge (Eagle Creek) (Mt. Hood N.F.)<sup>1</sup>
- (e) Middle Santiam (Willamette N.F.)
- (f) Old Cascades (Willamette N.F.)<sup>1</sup>
- (g) Sisters Additions (Willamette/Deschutes N.F.s)<sup>1</sup>
- (h) Drift Creek (Siuslaw N.F.)
- (i) Coast Creeks (Siuslaw N.F.)<sup>1</sup>
- (j) Boulder Creek (Umpqua N.F.)
- (k) Rogue-Umpqua Divide (Umpqua/Rogue River N.F.s)
- (l) Kalmiopsis Additions (Siskiyou N.F.)
- (m) Fremont Rims (Fremont N.F.)<sup>1</sup>
- (n) Metolius Breaks (Deschutes N.F.)



- (o) Mill Creek (Ochoco N.F.)
- (p) Glacier Mtn.-Monument Rock (Malheur N.F.)<sup>1</sup>
- (q) Dixie Butte (Malheur N.F.)
- (r) North Fork John Day Complex (Malheur/Wallowa-Whitman/Umatilla N.F.s)<sup>1</sup>

Addition of these areas to the Wilderness system would provide a good representation of nearly all the old growth types found in Oregon, including all the altitude variations along the Cascades and low-elevation ponderosa pine.

2. The Regional Policy on riparian areas should include a provision for wide buffer strips along stream classes 2, 3 and 4 that flow through old growth forests.

Water quality, both for humans and anadromous fish, is most often highest from streams flowing through old growth forest. The contribution of plentiful water is critical to the seasonal flow of rivers. There should be a land use policy that allows for a buffer wide enough to include the first several old growth coniferous trees along streambanks. Further, the buffer should be wide enough to prevent the ecologically damaging factor of windthrow, while allowing for old dead trees to fall across the stream and play their part in providing stream habitat and reducing the channel-cutting ability of the stream. The biological stability of a stream is greatly changed by leaving only the hardwoods to provide shade.<sup>2</sup>

3. The emphasis in old growth allocations should be on preservation instead of lengthened timber management.

There is no research documenting the effects of extended rotation management areas; will they actually provide old growth characteristics? The proof will be a long time in coming. We do not know the effects the proposal to manage for old growth characteristics will have, or the effects of cutting all old growth between the ages of 250-300, as proposed for long rotations. Preserved areas will be, among other things, a baseline to measure these effects.

While it is sound management for the Forest Service to set aside replacement acres that will contain old growth when the original stand has disintegrated, it is unwise to make great use of substitute acres. The consequences of reducing the majority of old growth to visual and streamside units, and a few other small patches, are unknown but potentially severe. Old growth allocations should be calculated independently of substitute acres, both to improve the distribution and to leave a margin for error.

4. Special attention is needed to preserve the old growth in the Coast Range and the central Oregon forests.

In both places, the amount of untouched old growth is so small that a critical point has been reached. There should be an immediate

moratorium on continued cutting of old growth in these areas, until proper land use planning procedures can be designed to deal with the problem.

Also, resource planning on the Mt. Hood and Willamette for old growth needs to be implemented now, while there is still flexibility of management options.

5. Attention needs to be given to the isolation of old growth tracts.

Currently, many old growth areas are isolated from one another because of poor planning. One example would be a clearcut placed in the middle of a sizable patch of old growth, such as on the Foxy timber sale on the Deschutes. A second example is the Wilderness protected at one end of a District, with few other old growth allocations nearby, such as French Pete on the Willamette. There need to be corridors to protect these islands, and better timber planning to prevent the problem. Cutting units can be placed in ways that require fewer roads, for example.

## FOOTNOTES

1. In The Oregon Alternative, a statewide plan for roadless area allocations composed by the Oregon Wilderness Coalition, each of these areas is a single Wilderness proposal, though each proposal has several units. For greater detail, see The Oregon Alternative, Oregon Wilderness Coalition, September, 1978.

2. Cummins, Kenneth: "Structure and Function of Stream Ecosystems" in Bioscience 24:631-641.

## GLOSSARY

Allowable cut effect: the use of presumed increased forest growth rates resulting from the use of intensive management in the future to increase timber harvest today. Use of the allowable cut effect does not technically violate even-flow.

Annual allowable cut: the amount of timber which can be harvested from an area of timber land given certain constraints. Constraints on public land usually include even flow and restrictions on harvesting in certain land allocations.

Area Ecology Program: a concept begun in 1963 that groups the National Forests of Region 6 into 8 units and attempts to provide information to the land manager on the capabilities of the land for management from an ecological perspective.

Biological potential: the capability of a piece of land for timber-growing with no multiple-use constraints.

Commercial Forest Land (CFL): land capable of growing more than 20 cubic feet per acre per year of wood. Such lands are available for commercial timber harvest.

Conversion period: the length of time it takes to convert the virgin forest to a managed forest.

Diameter at breast height: the diameter of a tree measured four feet six inches from the ground level.

Ecosystem: a complete, interacting system of organisms considered together with their environment, both biotic (living) and abiotic (nonliving), and the physical environment, so that a flow of energy leads to clearly defined food and feeding relationships operating as an integrated system.

Endangered Species Task Force: an interagency committee formed in 1973 to deal with problems of potential and actual threatened and endangered wildlife and their habitats. Members are from state and federal agencies in Oregon and Washington.

Environmental Assessment Report (EAR): a short document prepared by the Forest Service (and other agencies) to discuss a small, specific action such as a timber sale or mining proposal. Generally not as detailed as an Environment Impact Statement.

Environmental Impact Statement (EIS): a document that must be prepared by all federal agencies for any "action significantly affecting the quality of the human environment" under the National Environmental Policy Act of 1969. It must detail alternatives to the proposed action and environmental effects and impacts of implementation.

Even flow: the cutting of timber at a rate sustainable without a falldown for several generations.

Extended rotation: lengthening the period of time between one harvest and the next, generally to 250-300 years, to provide old growth habitat.

Featured species management: concentrating management efforts towards the fulfillment of the needs of a particular wildlife species.

Gene Pool: the total number of genes available to a population of a given species. Changes in the gene pool occur from changes in environment, which dictate the need to adapt.

Indicator species: use of a particular wildlife species to represent a habitat type, and, by gauging its needs, gauge the quantity and quality of the habitat needed by all other species dependent on it.

Intensive management: management of the forest to increase growth rates in the future. Intensive management techniques include: reforestation, thinning, genetic improvement and fertilization.

Lifeform: grouping of species based on similarities of reproductive sites and feeding habitat.

Mean annual increment: the average growth rate of a stand of trees over its lifetime.

Nitrogen fixation: the property of some plants to take nitrogen from the air and convert it to a form usable by plants that cannot "fix" it.

Oregon and California Railroad Lands: alternate sections of land given by Congress to the Oregon and California Railroad and later taken back when the terms of the grant were violated. Lands now managed principally by the BLM under a complex tax formula whereby 50 percent of the timber sale receipts is returned to the counties.

Policy: a management decision, later implemented by specific actions.

Preservation: maintenance of a resource through protection of it in its natural state; management for other purposes is disallowed. Preservation allows ecological change to occur at its natural rate.



RARE II: Roadless Area Review and Evaluation, a nationwide Forest Service study of all roadless lands on National Forests, and their suitability as Wilderness.

Region 6: the National Forest system of the Forest Service in Oregon and Washington.

Retention: the maintenance of a resource either through preservation or management.

Riparian zone: the area bordering along streams, generally considered to be that vegetation directly influenced by water from the stream.

Rotation age: the period of time between one final harvest of timber and the next final harvest.

Silviculture: the science of forest management based on a knowledge of the life history of the trees.

Snag: standing dead tree.

Spotted owl: a nocturnal owl living in coniferous forests. In Oregon and Washington it nests and feeds principally in old growth Douglas fir forests.

Spotted Owl Management Plan: a management plan developed by the Endangered Species Task Force for perpetuation of the northern spotted owl on public lands in Oregon and Washington.

Stability: (ecologic) all habitat niches are fully occupied by appropriate species; no species becomes extinct and no species reaches plague proportions for long enough to allow other species to go extinct. Stability is not static, but fluctuates with changing conditions.

TRI System: (Total Resource Inventory) a computer-based storage and retrieval system developed by the Forest Service.

Watershed: the entire region drained by a waterway.



## Appendix A

### "Old Growth and the National Forest Management Act"

# chec

Cascade Holistic Economic Consultants  
1604 N.E. 48th, Portland,  
Oregon 97213 (503) 287-8333



Forestry in the  
Public Interest  
send reply to:

P.O. Box 3066  
Eugene, Ore. 97403

Nov. 21, 1978

## Resource Bulletin Number Fifteen

### OLD GROWTH AND THE NATIONAL FOREST MANAGEMENT ACT

By Cameron La Follette

The National Forest Management Act of 1976, designed to answer some of the controversies over National Forest management, opens the door to consideration of previously ignored resources critical to forest productivity. One of these is old growth. The draft regulations, which will implement the Act, were published by the Forest Service on August 31, 1978. In many ways, they are weaker than originally anticipated. In this Bulletin they are explored as they relate to old growth. Final regulations will be published in 1979 after the public comment period, which ends Dec. 16, 1978.

#### DIVERSITY

Previous attempts at wildlife management in the National Forests have concentrated variously on "sustained-yield" of wildlife populations, and the integration of wildlife into timber management. More recently, there have been attempts to provide for a percentage of all age classes on the forest.

The National Forest Management Act takes a completely different approach: that of ecosystem management. This approach is basically one of insuring the integrity of the forest system by providing all the components needed to keep it stable. Chief among the breakthroughs is the realization of the importance of plant and animal diversity. The Act states this unequivocally, by providing that the National Forests shall:

(specify) guidelines for land management plans developed to achieve the goals of the Program which--

... (B) provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and... provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.

This section would seem to provide for diversity not only for the forest in entirety, but also for cutover areas. Already the Region 6 (Oregon and Washington) Office of the Forest Service has responded to the new direction with a memo, dated May 17, 1977, stating that "Plant diversity, without question, includes extended-rotation "old growth" components."

The proposed regulations expand on the question of diversity in National Forest management. In some ways, however, including the definition, they are weak. The definition is:

The number of different plant and animal species and each species' abundance, plus the distribution and abundance of different natural plant and animal communities within the area covered by a land and resource management plan. A large number of species and a variety of of natural biological communities in an area is described as a high level or degree of ecological diversity.

Because the concern over diversity arose from controversies over conversion of eastern hardwood forests to pine, the proposed definition concentrates on number of different species and abundance of communities. Old growth is dealt with only indirectly. Although old growth is one of the richest communities in birdlife and plants, the proposed definition could lead to arguments that the diversity found in old growth is not different or unique from that found in, say, mature forest. Second, "diversity" is not quantifiable. An old growth area, for example, could be quite poor in numbers of plants and animals, and yet be quite unique and essential to the forest. Third, the definition should not concentrate on plant and animal diversity. A better definition would be type diversity, of which plants and animals are a part in varying communities. Such a definition would include age diversity.

#### LAND USE PLANNING

A second landmark in the National Forest Management Act is the changes in the land-use planning process. Public comment periods are lengthened--the public will have 30 days to respond to developments associated with national and regional plans, and 15 days for forest plans. The review period for a Draft Environmental Impact Statement is extended from 30 to 90 days, and all plans must be revised every 15 years, or whenever the Supervisor deems that conditions in the area or public demand have changed.

The important provision of the land use planning process is in providing the public with a mechanism for giving input early into the process, while inventory data is being collected and ideas are being exchanged. In order to integrate old growth into land use planning so that it receives full attention, it is critical to enter the process at these early stages.

The new process calls for all plans to be written by interdisciplinary teams, with provisions for gathering information in several different areas, including, in the draft regulations, "habitat conditions for selected vertebrate species." Further, one alternative must be formulated to resolve major public issues and management concerns. Environmental effects must be thoroughly evaluated both in terms of the diversity currently existing on the unit being planned, and a baseline of the diversity that would be expected to occur if there were no human disturbance. This baseline is highly significant, as it allows exact calculations of the exact amount of old growth liquidation occurring.

Several major flaws exist with the proposed regulations, however. First, the definition of "interdisciplinary teams" is quite weak. The team is to be composed of Forest Service personnel who collectively represent two or more areas of technical knowledge about resource management. This is a very simple loophole and could easily lead to an unrepresentative crossection of disciplines in the planning process. Second, the actual

hierarchy of the land use planning process is going to be very difficult to work with, as the lowest level of planning is to be forest-wide, according to the proposed regulations. The Act itself does not specify that. Such a plan, covering as much area as it does, is likely to be unwieldy and vague. The best unit plans done to date have become quite specific in their data analysis. It is upon this sort of accuracy that old growth planning depends, as there must be a good inventory in order to make specific decisions, especially about critical areas. Forest-wide plans often fail to take into account special, localized problems, such as a small patch of old growth white fir in a predominantly mixed conifer forest, as on the Winema.

#### INDICATOR SPECIES

In connection with fish and wildlife, the proposed regulations for the Act provide for the use of indicator species. The stated purpose is to indicate the effects of management activities on other species using the same sort of habitat as the indicator. This approach has been used by the Forest Service many times. In Oregon the best example is probably the northern spotted owl, used as the indicator for old growth west of the Cascades. If the population of spotted owls is stable, it is presumed that there is sufficient habitat for other species also dependent on old growth. The regulations call for one set of indicators to be selected because of special habitat needs that may be significantly influenced by management programs. The indicators for old growth would fall under this category.

The fallacy of indicator species lies in the emphasis on wildlife. The emphasis should be on the ecosystem and the complex mosaic of habitats that wildlife depends on. Since no two species have the same habitat requirements, use of indicator species narrows the complexity, often to the detriment of the forest. Again, the spotted owl serves as the example: old growth not identified as key spotted owl habitat is not considered for retention. Nor would it be, under a system of indicator species, unless other species were chosen as indicators for types of old growth not inhabited by spotted owls.

Although indicator species do not have to be used to the extent that they have been in the example of the spotted owl, it is very easy to oversimplify wildlife management with this technique. Used alone, the indicator species approach is a weak management tool. If used at all, it should be only one of the barometers that determines the stability of the forest.

#### CONCLUSION

The National Forest Management Act is potentially an excellent tool for giving more equitable treatment in the planning process to previously ignored resources. Many resources, of which old growth is one, can be taken fully into account under the Act if the regulations are strengthened in the appropriate places.





Appendix B

Regional Office Memo of May 17, 1977

1151 112

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

Region 6

P.O. Box 3623, Portland, Oregon 97208



5/25/77

REPLY TO: 2630 Habitat  
2400 Timber

May 17, 1977

d/s Rogue  
Hudson  
GFL

SUBJECT: Westside Habitat for Indicator Species Spotted Owl and  
Associated Species

TO: Forest Supervisors, Mt. Baker-Snoqualmie, Olympic, Mt. Hood,  
Gifford Pinchot, Willamette, Siuslaw, Rogue River, Siskiyou,  
Umpqua



REPLY DUE JUNE 2

I am enclosing a copy of my May 17 letter to the chairman of the Oregon  
Endangered Species Task Force in which I concur that habitat for spotted  
owls known to occupy National Forest lands will be protected. By  
January 15, 1978, or earlier, the Task Force chairman will offer a  
State-wide spotted owl management plan for public land administrators  
to consider for implementation.

I have reviewed the activities of the Task Force and am convinced that  
if this group had not been keeping abreast of research and management  
practices associated with spotted owl habitat, the owl would have been  
recommended for at least threatened status on the National list before  
now. We have no intention of, knowingly, allowing our management practices  
to contribute to an animal being placed on the threatened or endangered  
species lists.

Habitat requirements recommended by the Task Force are: Spotted owls  
are associated with undisturbed old-growth coniferous forest (250-600 years  
old) characterized by uneven-aged, multi-layered canopies. Composite  
canopy closure varies in densities up to 90% but averages about 75%.  
Stands are usually dominated by Douglas-fir associated with other conifer  
species. Understories consist of uneven-aged conifers often mixed with  
hardwoods. Stands are also characterized by a moderate to high incidence  
of diseased or parasitized trees, snags, down trees and trees with broken  
tops. Nests were located primarily in old-growth Douglas-fir with broken  
tops. Nest trees are found below the canopy--500 feet from openings,  
generally on north or easterly aspects in rugged headwater drainages. A  
permanent water source is usually to be found within 1/4 mile.

We all are aware of the desirability of diversified vegetation in our  
overall management of National Forests. This concept is now legislatively  
directed in the National Forest Management Act. Plant diversity, without  
question, includes extended rotation "old-growth" components. The direction  
to be resolved is not "if," but "how much" and "where." Our position on  
westside diversity of stands is clarified in the May 16 letter, copy  
enclosed.

In order to develop a management strategy proposal, the Task Force members must know the location and extent of D-5 stands. Do you have the capability to have D-5 stands to the elevation listed below identified on 1/2-inch-scale Forest maps by October 1, 1977? If you cannot meet this schedule, what portion of the job can you accomplish?

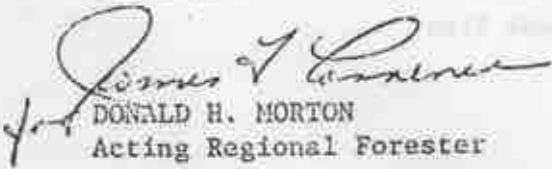
to 4,000 ft. el. Olympic  
Mt. Baker-Snoqualmie

to 4,400 Gifford Pinchot  
Mt. Hood  
Willamette  
Siuslaw

to 5,800 Rogue River  
Siskiyou  
Umpqua

In addition to mapping those stands which meet spotted owl habitat requirements, the location of owls and/or their nests will be a vital part of preparing a management proposal. I encourage you to stress these inventories and make all sightings, nest locations, and acres surveyed information available to the Division of Fish and Wildlife by July 1.

I am enclosing a copy of a May 6, 1977 letter from the committee of biologists assigned to develop a management strategy proposal. Though the Task Force has not had the opportunity to act on the suggestions contained in the letter, it is reasonable to assume that we soon will be receiving a request for action from the Task Force. We should do our best to be responsive.

  
DONALD H. MORTON  
Acting Regional Forester

Enclosures

TO: DIRECTOR, BUREAU OF LAND MANAGEMENT  
 FROM: [illegible]  
 SUBJECT: [illegible]  
 DATE: [illegible]



The purpose of this plan is to provide a framework for the management of spotted owl habitat. This plan will be used to guide the development of management plans for individual areas. The plan will be updated as more information becomes available.

This plan is intended to provide a framework for the management of spotted owl habitat. It is not intended to be a substitute for the development of management plans for individual areas. The plan will be updated as more information becomes available.

Appendix C

Spotted Owl Management Plan

## Spotted Owl Management Plan

Objective: To maintain a population of at least 400 breeding pairs of northern spotted owls distributed throughout the known range in Oregon.

1. Maintain habitat to support spotted owl population objective.
  11. Develop management area program.
    111. Establish management area parameters (Appendix A).
      1111. Size.
      1112. Description of habitat.
      1113. Number of pairs.
      1114. Proximity of pairs.
      1115. Distribution throughout known range.
    112. Determine location of management areas.
      1121. Inventory habitat.
      1122. Select location for management areas.
    113. Develop plan for each management area.
  12. Develop plan for isolated and peripheral pairs.
  13. Implement management programs and strategies identified in 11. and 12.
  14. Monitor management area populations.
2. Develop habitat management alternatives for the spotted owl.
  21. Refine knowledge of spotted owl habitat.
    211. Determine survival, productivity and recruitment in second growth.
    212. Examine habitat utilization in second growth areas.
    213. Continue surveys for spotted owls in potential habitat (i.e. old-growth forests).



22. Develop silvicultural practices compatible with maintaining spotted owl populations.

221. Monitor effect of experimental habitat manipulation on spotted owl populations.

2211. Determine survival rate.

2212. Determine productivity.

2213. Determine relationship to prey base.

2214. Evaluate potential of nest boxes, platforms and artificial cavities in second growth.

2215. Examine dispersal/interchange of owls between management areas.

222. Analyze results of 221 and provide management recommendations.

3. Management program administration.

31. Establish coordinator position.

32. Coordinate implementation of management and research program.

33. Information and education.

331. Keep agencies and cooperators informed.

332. Keep public informed.

333. Coordinate program with Washington, California and British Columbia.

## APPENDIX A

### Management Area Parameters

1. Size: A minimum of 1,200 contiguous acres per pair (i.e. one home range).
  2. Description of Habitat: For each pair there should be a core area of at least 300 acres of old-growth forest maintained to benefit the spotted owl. If 300 acres of old-growth does not exist, then maintain all remaining old-growth and enough of the oldest contiguous or closely adjacent second growth to total 300 acres. The remainder of the habitat to be managed to provide at least 50% of the acreage in stands of 30+ year forests. Old-growth forest must be at least 200 years old and contain an average of 8-10 old-growth overstory trees (a minimum of four) per acre, with a developed understory greater than 30 years of age.
  3. Number of Pairs: The management area should encompass the home ranges of a minimum of three pairs, with six pairs being ideal. Single pair enclaves are acceptable in peripheral situations, such as eastern Oregon, or where remnant habitat exists.
  4. Proximity of Pairs: Core areas for each pair should be separated by approximately one mile, center to center.
  5. Distribution Throughout Known Range:
    - a) As a goal management areas of 3 or more pairs should be 8 miles, not to exceed 12 miles apart. Single bird management areas should be 5 miles, not to exceed 8 miles, apart.
    - b) Distribution by agencies:

BLM	-	90 pairs		
(Suggested)	-	USFS	-	290 pairs
	-	Other*	-	20 pairs
- \* Others includes but not limited to State Lands (Forestry, Fish and Wildlife, and Parks) County lands, National Parks, and Private Forest lands.

AK 35  
Sm 26  
am 100  
U 90  
F 22  
P 22  
L 10/19/77

10/19/77

## Appendix D

### 'Minimum Wildlife Habitat Guidelines'

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

Wallowa-Whitman National Forest  
P.O. Box 907, Baker, Oregon 97814

REPLY TO 3100 Program Planning  
2600 Wildlife

March 16, 1976

SUBJECT Minimum Wildlife Habitat Objectives



TO Area Three and Ochoco District Rangers and  
Program Managers

The attached goal and objectives dealing with minimum habitat objectives are approved for these four National Forests. Along with the forthcoming "Wildlife Habitat Relationships for Northeast Oregon", this goal and the objectives to accomplish the goal should be used as a guide in all wildlife habitat coordination work. Although the attached should not be considered policy, or a constraint to any alternative shown in Land Use Plans you should have sound, justifiable reason for not meeting the objectives.

Funding of the indicated jobs to implement the objectives will be left to the programming, planning and budgeting process. For the remainder of FY 76, 300 and FY 77 you should use the objectives and the implementation procedures wherever you can work them into your program.

Only a portion of the goal and objectives have been reflected in the Ochoco and Area 3 10-year Timber Management Planning Process. The decision as to whether or not, how and when to completely reflect the objectives in these plans will be made at a later time.

*H. B. Rasmussen*

Forest Supervisor, Umatilla N. F.

2-18-75  
Date

*R. J. Dand*

Forest Supervisor, Wallowa-Whitman N. F.

2/19/76  
Date

*Don E. Williams*

Forest Supervisor, Malheur N. F.

3-1-76  
Date

*Steve E. Smith*

Forest Supervisor, Ochoco N. F.

3/9/76  
Date

CC 20 Regional Forester for Information  
5 FNM Per & Range Exp. Station - La Grande  
10 O.D. F&W - La Grande  
5 O.D. F&W - Hines  
5 O.D. F&W - Bend

## I. INTRODUCTION

Objectives similar to those below were first proposed at an Area 3 Management Team meeting on July 23, 1975. Direction was given at that time to refine the objectives for approval - disapproval in December 1975. They are the result of concerns expressed by several biologists and line managers. See Appendix "A" for the list of people involved in the preparation of these objectives.

At the request of the Ochoa National Forest Supervisor these objectives have been expanded to also consider that Forest as a whole unit.

## II. THE PROBLEM -

There is a lack of specific Forest, Area 3, or Regional policy or direction which will result in the maintenance of habitat for at least minimum, self-sustaining populations of existing fish and wildlife on a designated maximum sized area. The lack of this direction has made it nearly impossible for biologists to provide meaningful wildlife habitat coordination recommendations to line managers.

## III. PROBLEM SOLUTION - ALTERNATIVES

- A. Prepare policy-goal for the four-Forest area in Northeast Oregon, which will specifically define that maximum sized area on which habitat will be maintained for at least self-sustaining populations of existing wildlife. Also define those basic habitat constraints needed within the maximum-sized area.
- B. Prepare and adopt a goal and objective which will not be a constraint on Land Use Plans nor a firm policy, but which must have sound, justifiable reasons for variance from them.
- C. Allow this policy and constraints to be developed through the Land Use Planning process.
- D. Do not develop any policy-goal relating to wildlife habitat at this time.
- E. The first alternative is recommended because it would immediately provide those basic constraints needed to maintain at least minimum self-sustaining wildlife populations. Without these constraints it is possible that certain wildlife species or groups of species may be lost from an area. It is important that the objectives be implemented as soon as possible into the 10 year, Area 3 Timber Management Plan and other plans so that they can begin to be applied on the ground.

Additional habitat resulting in greater than minimum self-sustaining wildlife populations should be an allocation left to the Land Use Planning process.

- F. Alternative B was the preferred alternative at a December 8, 1975 Area Supervisors Meeting.



#### IV. GOAL

"On each TRI-compartment on the four Forests, (each two adjacent compartments on Umatilla) outside of Wilderness or dedicated Roadless Areas, habitat for all existing species of wildlife will be retained in quantity and quality sufficient to maintain at least self-sustaining populations of each existing species."

A TRI-compartment is defined as any area of National Forest land with a ground identifiable boundary (roads, streams, ridgetop) which can be shown on a 4"/mile map no larger than 21" x 26 1/2".

Presently each of the four National Forests have the following number of TRI-compartment outside of Wilderness or Back Country:

Umatilla	- 467	Ave. size - 3,200 acres
Malheur	- 313	Ave. size - 4,800 acres
Wallowa-Whitman	- 301	Ave. size - 6,300 acres
Ochoco	- 193	Ave. size - 4,900 acres

See Appendix B for a listing of all TRI-compartment on the four Forests outside Wilderness or dedicated Roadless Areas.

#### V. MINIMUM WILDLIFE HABITAT OBJECTIVES REQUIRED TO MEET GOAL

Minimum self-sustaining populations of existing species of wildlife on any single compartment can be best, and perhaps only, assured by providing a certain level of habitat diversity. Based on existing information, the above goal will be realized by providing a level of diversity obtained through the following objectives:

##### Objective #1 -

On each TRI-Compartment (each two adjacent compartments on Umatilla), major commercial and available timber types (mixed conifer, ponderosa pine, lodgepole) will be identified and plans made for at least (five percent) of the total of each major timber type to be distributed in each of the following successional stages:

- a. Grass-Forb-Seeding - All timber stands 0-10 years old. This includes clear-cuts and shelterwood cuts. Symbol #1 1/ 10
- b. Shrub-Sapling - All timber stands 10-40 years old. Symbol #1 1/ 10
- c. Young Sawlogs - Mixed conifer and ponderosa pine - 40-120 years, Lodgepole Pine - 40-80 years. Includes Symbols #1, 2 and 3 1/ 10
- d. Mature-Ponderosa Pine and Mixed Conifer - 120+ years, Lodgepole Pine - 80 years. Symbol #4 1/ 10
- e. Old Growth (see definition below) - Ponderosa pine and Mixed Conifer - 160 years plus, Lodgepole Pine - 80 years plus. Symbol #5 1/ 10

Assumptions Relating to this Objective:

1. The Commercial Forest land acres required to meet wildlife constraints could come from Inside Wilderness Areas, Back-country or other administratively dedicated lands if the old growth is along the boundary. It then could be used to count for old growth in the TRI-compartment immediately contiguous to it, or could come from Special Areas, such as Streamside Zones or Visual Retention Areas provided these special areas meet the old growth criteria.
2. In some cases, there may be some substitution of prescribed amounts of a certain successional stage between adjoining TRI-compartments. The impacts of doing such should be evaluated on case-by-case basis.
3. A special fire management prescription will be developed for each stand, or groups of stands, of old growth which will essentially exclude the spread of fire.
4. Insect epidemics will be managed.
5. Emphasis will be given to providing for old growth on higher growth sites.
6. In stands allocated to old-growth, it is expected that there will be occasional unplanned loss of the stands due to fire, insects or disease. This is unfortunate for wildlife, but is likely unavoidable. Chances of this occurring will be decreased if areas of old growth are separated by at least one mile.
7. Existing silvicultural prescriptions and timber management activities over the next 20 years will be conducted which would generally provide the above prescribed diversity except the old growth.

Definition Relating to Objective #1

Old Growth - That stand of timber which has the following characteristics:

1. At least 15 of the largest overstory trees per acre should exceed 20" DBH in all stands except lodgepole pine (6" in lodgepole).
2. High level of standing and down, dead and rotting woody material:

An average of more than three snags per acre greater than 20" DBH in mixed conifer.

An average of more than 1.5 snags per acre greater than 20" DBH in ponderosa pine.

3. Two or more levels in tree canopy with total crown closure exceeding 70 percent in mixed conifer and lodgepole and 50 percent in ponderosa pine.
4. Evidence of all or most of the following which would indicate a relatively higher degree of decadance:
  - a. Heart rot in trees
  - b. Mistletoe
  - c. Dead or broken top trees
  - d. Lichen
5. Old growth conditions will generally begin to be acceptable when stands reach an age of 160 years for mixed conifer and ponderosa pine and 80 years for lodgepole pine, provided stocking level control has been maintained through the stand's last commercial thinning entry.

Acceptable old growth conditions will likely not be reached by these ages if a stand is not managed for proper stocking level control during the first 80 years in ponderosa pine and mixed conifer or 40 years in lodgepole pine (trees will not likely be of sufficient size).

After the last commercial thinning entry (about 80 years) all silvicultural management, in stands allocated for old growth, should cease.

6. Some of those species of wildlife that appear to be dependent upon habitat found most abundantly in old growth stands are:

#### Birds

Great Grey Owl	Pileated Woodpecker
Flammulated Owl	Northern Three-toed Woodpecker
Goshawk	Black-backed Three-toed Woodpecker
Townsend's Warbler	White-headed Woodpecker
Red Cross Bill	Northern Spotted Owl

#### Mammals

Marten	Red-backed Vole
Fisher	Lynx

#### ✓ Objective #2 -

On each TRI-Compartment where the mature or old successional stage of a certain timber type comprises 20 acres or less, special plans will be needed to maintain this key habitat (each two adjacent compartments on Umatilla).

Objective #3 -

Optimum  
size = 300 acres  
min. size = 100 acres

Old growth stands, managed as such, should be at least 20 acres in size and at least 200 feet across (in such cases as stringers along streams) with preference toward stands in excess of 100 acres. Within and between adjacent TRI-compartments the stands should be located on a variety of aspects, slopes, and plant communities.

Objective #4 -

"Wildlife Habitat Relationship for N.E. Oregon" will be employed to assure continued big game use at no less than 33% of 1975 level in each land type in order to meet minimum biological requirements of the animals or continued use of the impacted areas.

It is assumed that social demands will mandate big game use levels in excess of minimum biological requirements. Minimum big game use level to meet both biological and social requirements is estimated to be 66% of the 1975 level. Higher levels of use should be determined through the Land Use Planning Process.

Objective #5 -

"Wildlife Habitat Relationships for N.E. Oregon" will be employed to assure habitat for cavity-nesting birds by maintaining the primary excavators at 40% of their potential population on each Tri-Compartment (each two adjacent compartments on Umatilla).

In order to help maintain insect populations at endemic levels, it is recommended that habitat for the primary excavators be maintained at the 60% level.

Objective #6 -

In each Tri-Compartment there are certain unique habitats, such as riparian vegetation, cliffs or talus, bogs or meadows, etc. Special provisions must be made to maintain the intrinsic value of these habitats to provide at least self-sustaining wildlife populations.

Objective #7 -

"Wildlife Habitat Relationships for N.E. Oregon" will be employed to assure habitat for the 50% use level of wildlife dependent on down material.

VI. ESTIMATED IMPACTS OF THE GOAL AND OBJECTIVES

The following general statements regarding adverse or favorable impacts relate to the 1975 situation of resource management as a basis for comparison.

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