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Ecology, Wilderness Selection, and the Salmonhuckleberry Roadless Area

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ABSTRACT

An abstract of the thesis of Jason Scot Barker for the Master of Arts in History presented July 21, 1998.

Title: Ecology, Wilderness Selection, and the SalmonHuckleberry Roadless Area.

In the 1970s, the Forest Service used ecology in the process that led to the SalmonHuckleberry roadless area in the Mount Hood National Forest becoming a Congressionally designated Wilderness in 1984. This case study of the history of SalmonHuckleberry roadless area confirms the criticism made by environmentalists that noncommercial forest values have received much less priority than commercial uses in forest planning during the late 1960s and 1970s. This study of the area also reveals that the Forest Service's planning process was fundamentally flawed because Forest Service planners often lacked scientific data to support management decisions and downplayed the sigificnace of ecological factors which did not support logging.

In the planning process in the Mount Hood National Forest that preceded the creation of the SalmonHuckleberry Wilderness, the Forest

- Service used ecological theory to justify management practices such as - clearcutting and used the same theories to justify limiting the amount of wilderness in the National Forest system. In efforts to increase timber production, the Forest Service ignored or downplayed the role of wilderness and roadless lands in maintaining a functioning forest - ecosystem. On the national level, the Forest Service failed to create a meaningful way to incorporate ecological theory and knowledge into the wilderness selection process, which consisted of two Roadless Area Review and Evaluations (RARE 1 and 2). In both RARE 1 and 2, the Forest Service primary use of ecology in the decision-making was to create a system to ensure representation of ecosystem types in wilderness areas. The result of this process however, was an overly broad representation system which did not adequately represent the diversity of the ecosystems of the National Forests.

A common thread runs through local and national planning in the SalmonHuckleberry area. On both levels, the Forest Service largely downplayed the role of wilderness preservation in helping to maintain functioning forest ecosystems in order to achieve economic and ecological objectives which were deemed to be of greater importance.

ECOLOGY, WILDERNESS SELECTION, AND THE SALMONHUCKLEBERRY ROADLESS AREA

BY

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1. Introduction

Americans apply many different meanings to the idea of wilderness. Some backpackers, for instance, see wilderness as an escape from the hustle and decay of the cities. Some Native Americans see wilderness areas as land that was stolen from their ancestors and should be returned to the care of those who have lived upon the land the longest. In the eyes of an ecologist, a wilderness can become an important region in protecting ecosystems and individual species. The timber industry views wilderness as an impediment to rational resource management. Finally, the Forest Service views wilderness as one land classification among many.

My thesis centers on the how the Forest Service used ecology in the process that led to the SalmonHuckleberry roadless area becoming a Congressionally designated Wilderness. My case study of the history of SalmonHuckleberry roadless area confirms the criticism made by environmentalists that noncommercial forest values have received much less priority than commercial uses in forest planning during the late 1960s and 1970s. My study of the area reveals that the Forest Service's planning process was fundamentally flawed. The Forest Service planners lacked scientific data, both quantitative and qualitative, and

acted with a bias toward timber production. To a certain extent , the flaws in the planning process can be attributed to a lack of detailed long-term ecological studies. This lack of studies was due to the relatively young age of ecology, which became a recognized academic discipline in the first half of the twentieth century. However, the Forest Service did not always use existing data or collect raw data from the field. In the planning process in the Mount Hood National Forest that preceded the creation of the SalmonHuckleberry Wilderness, the Forest Service used ecological theory to justify management practices such as clearcutting and used the same theories to justify limiting the amount of wilderness in the National Forest system. In efforts to increase timber production, the Forest Service ignored or downplayed the role of wilderness and roadless lands in maintaining a functioning forest ecosystem. On the national level, the Forest Service failed to create a meaningful way to incorporate ecological theory and knowledge into the wilderness selection process, which consisted of two Roadless Area Review and Evaluations (RARE 1 and 2).

The 1964 Wilderness Act included selection criteria and processes to establish wilderness areas. Accordingly, all management decisions regarding possible wilderness areas had to meet the standards set by the Act . It stated: " A wilderness, in contrast with those areas where man

has dominated the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." [1] Although only Congress had the authority to create wilderness areas, the actions of the Forest Service in managing a particular area determined whether it would meet the criteria of the Wilderness Act and it could recommend to Congress areas to become wildernesses. The language of the act was not ecological. It was aesthetic and spoke to non-ecological social values. The preservation of an " untrammeled" landscape was less an attempt to save species or ecosystems than an attempt to preserve a place where people could experience wilderness. Nevertheless, the Wilderness Act had certain ecological implications for managers of wilderness and potential wilderness areas. A major portion of the focus of this thesis is on how the Forest Service translated the language of the Wilderness Act into their framework of scientific management and multiple-use agenda.

Congress did not designate the SalmonHuckleberry a wilderness until 1984, when it passed the Oregon Wilderness Act. The Salmon - Huckleberry wilderness could have been much smaller if the Forest Service had been allowed to proceed with its plans made in the 1970s to log and construct roads in most of the SalmonHuckleberry roadless area. For economic and ecological reasons, the local Forest Service

planners decided that roadless areas, and the associated ecological and recreational values, were largely expendable. On the national level, the Forest Services decided to recommend to Congress that only a small portion of the SalmonHuckleberry become wilderness. Congress had the final say over whether the SalmonHuckleberry roadless area would become a wilderness, but national and local Forest Service planners made decisions that could have resulted in a much smaller area becoming a wilderness because they created management plans which called for road construction and logging of much of the SalmonHuckleberry roadless area. Such activity would have precluded wilderness designation. The Forest Service used ecological theory and economic gain to justify the extension of management activities into the roadless area.

Before describing the current day wilderness, I will briefly outline the history of the National Forest in which it is located. The Mount Hood National Forest's (MHNF) oldest ancestor is the Bull Run Forest Reserve which was created by Congress in 1892 to protect the city of Portland's water supply. In 1893, Congress established the Cascade Range Forest Reserve which set aside portions of the Cascade Mountain Range stretching from the Columbia River to the California stateline. The Cascade Range Forest Reserve included most of the area presently in

the MHNF. In 1908, Congress spilt up Cascade Reserve and it merged the Bull Run Reserve with the northern section of the Cascade Forest Reserve to form the Oregon National Forest . In 1924 the Oregon National Forest became the MHNF. Through most of its history, the Forest Service managed the MHNF to provide a variety of uses: timber, watershed protection, recreation, and grazing. Currently the MHNF has more than 1 million acres in its jurisdiction. [2]

The present day SalmonHuckleberry wilderness consists of 44,560 acres and is 55 miles southeast of Portland, Oregon. The entire wilderness is within the MHNF. The SalmonHuckleberry Wilderness lies within three different ranger districts. Most of the wilderness lies in the Zigzag Ranger District with two small slivers lying in the Estacada and Bear Springs Districts. Before Euro-American settlers, Native Americans periodically used the area to hunt and pick berries and they continue to use the area for berry picking. Before designation as wilderness, human activity in the area consisted of logging, road construction, and mining, occurred in some parts of the area. There never were no rehabilitation efforts by the Forest Service and the affected areas have been allowed to grow back on their own following these disturbances.[3]

The SalmonHuckleberry supports a variety of tree stand ages, dominated by Western Hemlock and Pacific Silver Fir. In the east and

west ends of the wilderness, there are old-growth stands of Douglas-Fir and Hemlock(200 years or older) along the Salmon and Eagle rivers surrounded by a variety of younger tree stand ages. Currently, the lands surrounding the wilderness area are partially or heavily fragmented with corridors of mature forest that branch out and connect with other intact mature areas; however, these corridors are eventually severed by roads. In other words, there is no unbroken corridor which links MHNF roadless areas and wilderness areas together. The historic fire regime of the area was that of high intensity stand-replacing fires every one hundred to three hundred years. The Forest Service's fire suppression policy has potentially altered the ability of these fires to occur. The role of Native Americans in the fire history is not well understood for the area, but it probably included light burnings to increase forage for deer and to allow for the growth of edible berry plants which require sunlight, such as huckleberries.[4]

According to the Forest Service, the SalmonHuckleberry Wilderness [SHW] offers high quality wildlife habitat. The SHW provides or has the capacity to provide habitat for important species that face local habitat loss or outright extinction, such as the northern spotted owl, California wolverine, peregrine falcons, primary cavity nesters (such as the pileated woodpecker) and some neotropical birds. The SHW also helps to

support deer, elk, black bears, bobcats, and coyotes. Amphibians also find habitat in the wilderness, including the Cascade frog, Olympic salamander, Pacific giant salamander, and the red-legged frog. The rivers and streams of the wilderness provide habitat for salmon and trout.[5]

The SHW is in many ways an average site for the Western side of the Oregon Cascades. The area differs little in species, geological, and vegetative composition from the rest of the Western Cascades. What makes the area relatively uncommon as compared to the rest of the National Forest holdings in the western side of the Cascades is its undeveloped and roadless state. The Forest Service does not consider the wilderness as having any rare ecosystems for the western slope of the Cascade range, but it does recognize the ecological value of wilderness. This lack of relative uniqueness is all the more reason to examine the history of the management of the area because the Forest Service has historically placed a higher emphasis on the ecologically unique and rare ecosystems and species leaving other areas neglected, areas like the SalmonHuckleberry Wilderness. The land within and surrounding the wilderness has the same mixed bag of human impacts as much of the MHNF. The Forest Service almost succeeded in developing what planners consider an important area for providing

animal and plant habitat.

2. Multiple-use and the Environment

During the 1960s and 1970s, environmental groups, such as the Sierra Club, the Natural Resources Defense Council and a variety of grassroots groups, began to question the assumptions of the traditional forestry methods practiced by the Forest Service. Environmentalists attacked the Forest Service's use of the science of forestry to produce endless economic growth and maximum production of commodities as destructive to the physical environment as well as to aesthetic and spiritual values of the land. To environmentalist groups, the National Forests were more than just organic machines churning out wood fiber but places where one could experience through recreational activities the aesthetic, ecological, and spiritual values of America. This attitude contributed to an increase in outdoor recreation in the National Forests. Demand for recreation sites was also generated by the general post World-War Two economic boom because many consumers had more money and time to spend on leisure. The Forest Service attempted to meet the demand for recreation but did little to address the philosophical and ecological challenges to Forest Service management practices . Forest Service priorities were in the production of marketable commodities at the highest rate that science and technology would

allow.[6] The Forest Service faced a real dilemma in trying to meet the needs of recreationists who preferred wilderness conditions, because such recreation was in direct conflict with maximizing production of forest resources such as timber production. The Forest Service valued the commodity of timber the most and its production was clearly the highest priority in planning and funding. The timber bias of the Forest Service arose from the fact felt it could obtain economic and ecological benefits from logging.The agency would accommodate wilderness only so long as it did not significantly infringe on commodities production.

The pressure from environmentalists and other members of the public to accommodate non-commodity values in forest planning grew progressively stronger throughout the 1960s and 1970s, but the timber bias remained strong. The Congress's passage of the Multiple-Use-Sustained Yield Act in 1960 prompted the Forest Service to institute planning all the way down to the district level, the lowest Forest Service administrative unit, to achieve more efficiently desired multiple-use goals. The Forest Service created specific land classifications to address the concerns of recreation users who were afraid of being neglected by the Forest Service because of its timber bias. Forest Service leaders on the national level ordered the ten Forest Service region offices to create management direction to guide the individual National Forests. The

Forest Service based regional goals on inventories of local resources plus timber production goals handed down from the National Headquarters. From this information, regional planners set goals for the individual National Forests. The National Forests then created ranger district plans. District planning in Region 6 reflected the timber bias of the Forest Service with little consideration given to other values. The public and some Northwest politicians, including Oregon Senators Maurine Neuberger and Wayne Morse, complained about the lack of attention paid to recreation. As a result, the Pacific Northwest Regional Forester developed a policy called the High Mountain Policy in October 1961. The areas covered under this policy were previously considered marginal for timber production because the higher elevation meant a poorer quality timber than lower elevation sites. In contrast to the more productive lands, these higher elevation lands had been previously treated as custodial lands in which watershed protection, wildlife habitat , and primitive recreation were the dominant uses.[7]

The High Mountain Policy outlined the means by which local planners could assure the public that recreation was a priority. The Forest Service created a new type of land classification as part of the policy: the Landscape Management Zone. The Forest Service designed this designation to allow managers to protect areas which had high scenic

and recreational values, but the protection from development it afforded was limited. The thrust of the classification was that it called for a less intensive approach to logging: smaller clearcuts, creation of beauty strips, and more selective cutting. The policy was put fully into effect by 1962.[8]

The MHNF released the Zigzag Ranger District plan in 1969. Until 1969, the Forest managed the MHNF under the 1961 Timber Management plan which was mainly a calculation of how much timber should be cut on the MHNF. Since it was created well after 1961, the Zigzag plan incorporated the ideas contained in the "High Mountain Policy." The Zigzag plan was based upon the general multiple-use principle, but it emphasized recreation. MHNF planners designed the plan to supplement the 1961 Timber Management by providing provisions for protection of recreation activities. The Zigzag plan , however, covered only twenty percent of the District. The Forest Service's reason for using the Landscape Management Zone was that, as the Forest Service put it, the Zigzag Ranger District was "Portland's National Forest playground." The Forest Service estimated that the district received 1,302,600 visitor days. A visitor-day is a twelve hour period of recreation use by one person. This total represented twenty percent of all visits to the MHNF and eight percent of all visits to Region 6, which was

composed of all the National Forests in Oregon and Washington. A variety of recreation took place on the district, from downhill skiing to recreational residences to backcountry hiking. If the Forest Service wanted to keep good relations with the public, it clearly had to accommodate those needs. To meet the demand, the Forest Service planned on constructing new trails and camping facilities. It would use Landscape Management Zones to shield visitors from the visual impacts of clearcut logging. Environmental protection was not the motivating factor in the Forest Service's desire to establish Landscape Management Zones.[9]

As was mentioned previously, the High Mountain Policy did not spare Landscape Management Zones the effects of timber management. In fact, in the Zigzag District Plan, the Forest Service planned to conduct a "large portion" of timber harvesting in the district. The Zigzag plan stressed technological innovations which would allow for access to previously remote areas. On the other end of the process of turning timber into lumber, the Forest Service noted that sawmills were utilizing technology which would allow for the rapid and efficient handling of logs of smaller diameter trees.[10] The writers of the plan made no mention of the impact that harvesting activities would have on wilderness values. At the time of the writing of the plan, the MHNF planners were not

contemplating recommending to Congress that any new wilderness be designated in the Zigzag Ranger District.

The sections of the plan that dealt with watersheds and soils reveals the limited attention paid to environmental protection in the planning process. The Forest Service acknowledged the importance of maintaining high water quality but a large portion of the emphasis was on providing recreation developments with water, and in turn, protecting water quality from degradation by recreation users. The MHNF planners wanted to use vegetation manipulation to increase water flow to supply water consumers. They were also concerned with water quality in the Sandy River on which the State of Oregon maintained a fish hatchery. The Forest Service based its protection of water quality on regulations developed by the State of Oregon's Department of Environmental Quality, but it gave no further specifics on how it planned to protect the water quality of the Sandy. As for soil protection, the Forest Service mentioned that it possessed the Bull Run-Sandy Soil Management Report, which detailed the soil conditions of the District. The planners intended to use the Report to assess the impact of management activities on the soil. In the Zigzag plan, the Forest Service only hinted at negative environmental impacts of proposed logging in statements such as this statement which concerns the state fish hatchery on the Sandy: " .. and its

presence will be given special consideration in all management practices having a potential impact on this stream." The fact that the Forest Service felt it necessary to take special steps to protect the water quality for the hatchery implies that Forest Service activities could harm the hatchery, but this was acknowledged only in a roundabout way. The planners, however, did recognize problems caused by past management. The Forest Service observed that clearing debris from streams resulted in their becoming deficient in habitat for anadromous fish.[11]

One of the best examples that reveals Forest Service attitudes toward environmental protection can be seen in plans for the Mud Creek area, which currently borders the east side of the SalmonHuckleberry wilderness. Impacts on Mud Creek had the potential to affect water quality on the Salmon River because Mud Creek feeds into the Salmon. The Zigzag district plan described the area as having mostly gentle topography, shallow soils with a highly variable cover type, including stands of mature pure cedar as well as mixed coniferous species stands. In the Mud Creek drainage, the Forest Service managed approximately 3,700 acres specifically for timber harvest. Before the plan, timber sales were achieved through scattered block clearcuts. The Forest Service discovered that this led to regeneration problems on poorer sites. For

some areas, the solution was to modify logging practices to produce cutting patterns which allow for shading for species like cedar. Shading is necessary for species like cedar because it increases the likelihood of successful seed germination and subsequent growth. The highest priority of all was planting in older clearcuts which had failed to foster regeneration.[12] The Mud Creek example illustrates the failure of earlier planning efforts which amounted to little more than allowable timber cut calculations. While the Forest Service admitted the failure of earlier efforts in the Zigzag plan, it nevertheless continued to emphasize one management option: timber management. The only area permanently exempted from commercial harvest was the Mount Hood Wilderness, which was established in 1964 by the passage of the Wilderness Act. The Forest Service felt constrained to modify practices in certain places because of fragile soil conditions or to avoid negative visitor reactions to management activities. The MHNF planners never really explored the option of not pursuing timber management in the District plan in areas with wilderness potential or environmentally sensitive areas. The passage of the National Environmental Policy Act in 1969 would force the Forest Service to be much more forthcoming about its shortcomings.

Another aspect of the plan that directly affected area now in the SalmonHuckleberry Wilderness was the Shrear Burn area which was

used by Native Americans and recreationists for huckleberry picking. The Shrear Burn area lies in the Northeast corner of the wilderness and is partly inside the boundary of the present day wilderness and partly outside. A ridgetop area of approximately 1600 acres was the focal point of berry picking. The problem in the Shrear Burn was tree encroachment which was leading to a decline in the huckleberry populations by shading them out. The temporary solution to the problem was to sell Christmas trees on a commercial basis to clear trees from the meadows while a more permanent solution was researched. In order to find a permanent solution, the District was working with the Pacific Northwest Research Station to develop more sophisticated means of clearing trees. Why did the Forest Service choose not to pursue a more intensive management solution such as logging? The Forest Service reasoned that the severe and short growing season made commercial timber harvest virtually impossible, because these conditions made for a poor quality of tree from a commercial stand point. The plan also called for easier public access to the area as well as the development of new campsites in the area.[13] In this case, the Forest Service chose to acknowledge the limits imposed by the geography and climate of the site and not pursue intensive means to correct the problem at hand, but it did not choose to simply let the fields revert to forested conditions or change

the Forest Service policy of suppressing fires. The Forest Service decided that it had to act in some fashion to address the huckleberry problem and that nature could not be left to act alone.

Perhaps the most important feature of the plan for the future SalmonHuckleberry Wilderness was the planned extension of the district road system along with the accompanying logging in the Salmon River drainage. The goal was to link Highway 26 to Abbot Road in the South. The Forest Service argued that the roads would benefit more than loggers because they would allow for recreational access. At the same time, to protect the recreation resource from disruption due to future management activities in the area, the Forest Service made the Salmon River a Landscape Management Zone. The Zone started at the source of the Salmon and extended to the boundaries of the District. The planners decided to iron out the exact boundaries of the Landscape Management Zone later in the planning process. Additionally, a Landscape Management Zone was established at Plaza Lake, which would have eventually been connected to Highway 26 by a road up the South Fork of the Salmon River. The Landscape Management designation meant that the Forest Service would take steps to mitigate the visual effects of logging by leaving more standing trees in areas heavily used by recreationists. The designation did not prohibit logging.[14] If this road

system had been fully developed, the SalmonHuckleberry Wilderness of today would have been much smaller. The area that became the wilderness would have been spilt into two parts.

In Conspiracy of Optimism , Paul Hirt has argued that the Forest Service made attempts to accommodate " recreation groups" , which ranged from hiking clubs to more organized environmentalists like the Sierra Club. However, the Forest Service did not accommodate the views of some of these groups, such as the Sierra Club, because they were opposed to the centerpiece of Forest Service planning,high-yield timber farming. Instead, Hirt has observed that the Forest Service acted as if this group of "recreation users" were just another group of consumers who demanded products from the Forest. Hirt has argued that " by making demands for goods and services rather than environmental stewardship the primary management guide , it [Forest Service] encouraged user groups to think of the national forests as sort of a factory for generating products to meet their demands." [15] The Zigzag Ranger District Plan provides additional evidence for Hirt's conclusions. The managers of the district saw the demand for recreation and attempted to meet it, but it did not address environmentalist criticisms. In the Zigzag district, the Forest Service attempted to meet everyone's needs with the Landscape Management Zones. Recreation and resource extraction

were to blend into a seamless web. The unassuming recreationist would enjoy the forest without having to ever face the hard, weathered face of industrial logging, because the Forest Service would hide clearcuts by leaving more standing tree in recreation areas. The Forest Service assumed that roads and intensive logging could be extended further into the forest while somehow not threatening the plants and animals that depended on largely undeveloped land to survive. The scenario was more fantasy than reality and difficult choices were not far off. In developing more comprehensive plans for the SalmonHuckleberry area, the Forest Service itself had to acknowledge the impossibility of satisfying every user of the forest all in one area.

Congress's passage in 1969 and Forest Service implementation of National Environmental Policy Act (NEPA) would lead to the burying of the simplistic Zigzag Ranger plan in an eruption of scientific detail that was unheard of in Forest Service planning during the early 1960s. The eruption of detail and complexity continues to this day with an ever-increasing flow of technical jargon, ecological theory, and new management methods. Riding on the momentum of environmental consciousness that arose in the late sixties, Congress's purpose in passing NEPA was to help achieve a "productive and enjoyable harmony between man and his environment." To this end, Congress intended

NEPA to contribute to humanity's understanding of ecosystems and work toward eliminating or preventing damage to the environment. The goal of the act was to protect human health and promote social and economic growth without impairing the environment's ability to support such activity.

For the purpose of this thesis, the most important aspect of NEPA was the requirement that government agencies assess the environmental impact of "major Federal actions significantly affecting the quality of the human environment." Federal agencies were to create Environmental Impact Statements. The primary purpose of the statements was to detail the environmental impact of the proposed action, including adverse environmental impacts which could not be avoided if the proposed plan was implemented. The statements were also to include alternatives to the proposed action, an assessment concerning the relationship between the short-term human uses and long-term productivity of the land, and any irreversible and irretrievable commitments of resources involved in the proposed action.[17] In sum, NEPA required that government agencies produce a statement which assessed the environmental consequences of major government projects, but it did not require a list of environmentally sustainable and unsustainable actions. Furthermore, it did not require government agencies to take any action on alternatives to

the proposed action. This is an important point for examining Forest Service history, because often many of the alternatives presented in Environmental Impact Statements would have had less environmental impact than the proposed action.

To create Environmental Impact Statements, NEPA required that government agencies use a systematic, interdisciplinary approach that would incorporate the natural and social sciences as well as the environmental design arts, such as landscaping. NEPA also specifically called for the incorporation of ecological information into the planning and development of projects which involved natural resources.[18] These provisions forced the Forest Service to improve upon their prior planning process in major undertakings. The agency began to adopt interdisciplinary team planning on the national and local levels during the early 1970s. NEPA also provided a legal basis and impetus for using the science of ecology in planning. While it is probable the Forest Service would have used ecology more extensively in their planning processes without NEPA, the act provided a significant incentive through its requirement to utilize ecological data.

NEPA was also important because it gave a further legal basis to the employment of the environmental design arts, known in the Forest Service as landscape management. The goal of landscape management

was to use logging techniques to produce a visually pleasing forest environment. In trying to steer through public controversy about the aesthetic and ecological effects of management activities, particularly clearcutting, the Forest Service employed landscape management techniques to mitigate the unpleasant effects of industrial logging. On the national level, the Forest Service created a system of landscape management called the Visual Management System. The basic premise of Forest Service landscape management was that diversity on a landscape level was good from both an aesthetic and ecological point of view. Aesthetically, diversity relieved the viewer of having to gaze upon monotonous landscapes composed of one type of viewing object; for instance, a series of forest hillsides with no break in forest cover would not be considered a diverse landscape under Forest Service standards for landscape management. Although the Forest Service determined that visitors wanted to see a visually diverse landscape, they had little scientifically collected data on the users' preferences in the early 1970s to prove this assertion. Much of the decision making process in terms of visual management was left to local managers' assumptions and discretion. Ultimately, the visual attractions of the National Forests were like any other use of the forest : a product to be provided by management activities.[19]

The heart of applied landscape management was to protect existing visual landscape diversity and create it where it did not exist. Protecting existing diversity largely meant silvicultural cutting methods to preserve landscape diversity. For example, a meadow being invaded by trees might be burned or be selectively cut of trees to keep the meadow open. The Forest Service justified clearcutting partly on the grounds that it produced landscape variety. The Forest Service, however, had to walk a thin line because many forest users were displeased by the sights of geometric clearcuts. The agency in using landscape management had to create a balance between creating diversity and preserving the "natural" character that most users of the forest expected to see. A further problem was determining exactly what forest users wanted to see. [20] The Forest Service ideas concerning landscape diversity held great importance for wilderness selection in the MHNF because the Forest Service could list visual management as one of the benefits for developing a roadless area if the area did not contain visual variety in the landscape.

On the national level, there was the set of management directions which reinforced the purpose of NEPA and that were outlined in a pamphlet entitled "Framework for the Future" which the Forest Service issued to the public in 1970. Edward Cliff, then Chief of the Forest Service, wrote of the reason for issuing new management directions: "We

all know it is important to keep the Forest Service in tune with the changing world in which we live. Making sure that we are responsive and alert to the changing needs of a dynamic society requires a continuing evaluation of our basic policies and objectives." What were the changes in the needs of a dynamic society in 1970 that resulted in the "Framework for the Future" ? Part of the answer lies in the environmentalist challenge to the way the Forest Service practiced forestry. The Forest Service wanted to be perceived by the public as sensitive to environmental concerns and the environmental effects of management activities. As opposed to growing timber as a crop to be harvested (silviculture), Chief Cliff defined forestry's scope as encompassing everything from timber production to minerals to grasslands to forage and to wildlife habitat. Forestry also included more intangible values such as ,"...scenery, air and water quality,recreation, open space, environmental quality, economic strength, and social well being." [21]

As expressed in the "Framework", the Forest Service goal was to produce resources while protecting and even improving environmental quality. What exactly was meant by environmental quality was not stated, but it clearly had to do with a reduction in environmental impacts of Forest Service practices. The "Framework" provided some new directions for the Forest Service. It called for endangered and rare

species to be given special emphasis in planning, but not specifics were given in the "Framework". Important from an ecological point of view was the Forest Service's pledge to reduce offsite impacts on all forest owners from management activities. Chief Cliff called for wilderness and other special environments (sites generally not suitable for commercial timber harvests) to be scientifically managed and alternative land classifications to wilderness to be created to provide a variety of recreational experiences. The Chief also called for ways to provide the wilderness experience without the management constraints of congressionally designated wilderness.[22] The "Framework" was in some ways nothing new. New terms like environmental quality may have been employed but the Forest Service never had a mandate to destroy the forest or pollute the environment. The Forest Service had always viewed its multiple use management activities as improving the environment. The change was that the Forest Service felt forced to state more explicitly its commitment to environmental protection and to reassure the public that timber management activities would not be unduly dominate other forest uses in Forest Service planning .

In order to understand how Forest Service used ecology, one must first understand what ecology is as a science. Environmental historian Donald Worster has defined ecology as " The branch of biology that

deals with interrelationships." [23] Ecologists study interrelations between the abiotic and biotic as well as the interrelationships between biotic organisms. One of the most important ecological theories used by the Forest Service was plant succession. The Forest Service used heavily the work of two scientists : Fredric Clements and Arthur Tansley. Clements proposed his theory of vegetative change in the first part of the twentieth-century. His theory described three basic processes: association (climax), invasion (colonization), and succession (a series of invasions). Invasion was the movement of plants into a given area and their establishment into the area. Succession was a series of invasions by which the invading plant eventually gained dominance over the pre-existing vegetation. The various invasions in a succession were called seral stages. The process of invasion eventually lead to a plant association which, barring disturbance, would be a stable and self-perpetuating collection of plants which formed an organic whole. Clements believed that the transition from earlier stages to a climax was homologous to the development of an individual organism. From its very inception Clement's theories were attacked by those who viewed individuals as the a real unit of change in the environment and by those who viewed Clements's theories as more suited to mysticism than science. [24]

Arthur Tansley was one of Clements's strongest critics. Tansley believed that an organism and its inorganic environment were a single physical system, which he termed an ecosystem. He also believed that ecosystems tended toward a state of dynamic equilibrium. Succession led to dynamic equilibrium but for Tansley there was no inevitable climax nor a super-organism, which he thought was more of a religious concept than a scientific one.[25] Tansley, an Englishman, looked at Europe and saw few places that had not been disturbed by humans. He rejected the Clementsian notion that climax vegetation represented the apex of vegetative development because such a notion could lead one to the conclusion that human activity was inherently bad because it caused disturbances which prevented the reaching of the climax stage. [26]

Ecologist have used Tansley's and Clements's ideas in a variety of ways and even combined the two. On the national and local levels, the Forest Service used the ideas of both ecologists in the wilderness selection process. MHNF planners used plant succession to portray wilderness as static environments low in floral and faunal diversity while arguing that Forest Service managed lands created more early successional vegetation which were more diverse in flora and fauna than climax stages. They argued that the greater diversity of Forest Service managed lands was partial justification, in addition to economic gain, to

convert lands not actively managed for timber into production. On the national level, the Forest Service used the ecosystem concept in both Roadless Area Review and Evaluation (RARE) 1 and 2 to ensure that a variety of vegetation types were represented in wilderness areas. In terms of ecology and wilderness, RARE 1 ignored the environmental effects of developing wilderness ecosystems. RARE 2 acknowledged the ecological benefits of wilderness preservation for protecting ecosystems but also tried to minimize the significance of wilderness in environmental protection.

As for a broader ecological paradigm, the Forest Service's outlook was essentially that of the "New Ecology" which was developed by ecologists in the 1920s through the 1950s. Donald Worster has argued that "New Ecology" viewed nature as extension of the modern industrial economy and consequently described nature as being composed of consumers and producers, just like modern economies. Like the economy, they believed that management was necessary to achieve the highest and most efficient means of production. [27] Even before "New Ecology", the Forest Service was interested in efficient use of resources through the practice of silviculture and so the incorporation of the ideas created by "New Ecologists" was easy.

The other important trend in "New Ecology" was its incorporation of

concepts from physics, with an emphasis on energy and productivity. Tansley's ecosystem conception was an example of this trend. Productivity was the measure of how much living matter (biomass) of given area and how much caloric energy was needed to sustain the biomass. For the Forest Service, one of the most important findings about productivity was that it increases rapidly in the first stages of succession but then begins to decline in the mid-stages. As the succession begins to near climax, the productivity increased and then in climax productivity declines somewhat. [28] The fact that productivity slacked in the climax stage of succession had important implications for wilderness selection. On all levels of planning, the Forest Service would argue for maximum efficiency in tree growth for harvesting and the production of other biological commodities, such as deer,wherever possible in managing the National Forest system. Since unmanaged climax areas were not maximally efficient in producing biological commodities, the Forest Service often saw them as impediments to timber planning.

Chapter 3:RARE 1

Lack of faith in the Forest Service's ability to protect wilderness caused environmentalists to agitate for firm protection for undeveloped, roadless areas, and in response, Congress passed the Wilderness Act (1964). The act reflected the focus by environmentalists and lawmakers on aesthetics, recreation, and wilderness as a safe haven against the pressures of civilization. In the act, wilderness areas were defined as areas where humanity did not dominate the landscape and was untrammeled by human developments. [29] In writing the Wilderness Act, Congress explicitly stated that recreational use was one of the prime uses of wilderness areas. Solitude and primitive recreation opportunities were listed as two of the criteria for selecting areas. In terms of size, the Wilderness Act required either 5000 acres or a size sufficient to make the area preserved in unimpaired state. Finally, the Act allowed for ecological, scientific,educational, and cultural considerations in the selection process. [30] Scientific and ecological uses would be considered secondary to the main purpose of the act which was to preserve areas that are not totally dominated by human activity. It is important to keep in mind that Congress did not intend the wilderness to be primarily ecological preserves as some people think of them today. Congress was

not trying to address an ecological crisis with the Wilderness Act but a cultural one involving the meaning of wilderness to American culture.

The Forest Service convened a task force shortly after the passage of the Wilderness Act to create a wilderness selection policy based on the Wilderness Act. The group decided that consistency was a necessary component of any wilderness selection policy. The group interpreted Congress's intent in passing the bill to be that of protecting spectacular and pristine wild areas. They advocated what came to be known as the purity doctrine as a guiding principle for selecting wilderness areas. This meant that potential wilderness area should show very few signs of past activities, and at the very least, that the area should appear virtually untouched by human activity. Their reasoning was that if areas that were less than pristine were allowed in the wilderness system then there would be pressure to let in nonconforming uses and thus the intent of the act would be compromised. [31]

Many in the Forest Service viewed wilderness as an impediment to the agency's guiding multiple-use philosophy, viewing it as an expensive luxury. William Worf, a member of the task force formed to create the Forest Service Wilderness policy, asserted that wilderness was a nonrenewable resource. By this he meant that once an area had major signs of human use it could no longer be considered wilderness and

probably could never be again. Since the Forest Service emphasized the production of renewable resources, such as timber and water, wilderness did not fit in with the prevailing Forest Service resource management framework. From the bio-economical point of view, this meant wilderness was deficient from an economic and ecological point of view because wilderness could not produce commodities and was incapable of being biologically reproduced once eliminated from an area. The counterpoint against the purity argument, which was used by environmentalists, was that nature quite easily healed herself from the effects of human use. [33]

Even though ecology was not the focus of the Wilderness Act, the language of the act still had ecological implications, implying that the integrity of ecosystems should not be substantially affected by human activity and that evidence of human impact must not be conspicuous. David Cole in Wilderness Management has argued that the Wilderness Act should be interpreted as intended to prevent actions which seriously impact the function of the ecosystem in large areas or that threaten rare species.[34] One can easily see the problems that could arise from the wording of the Act. At what historical point do you judge the present integrity of the ecosystem? Is their some timeless, ahistorical standard for ecosystem health? As the wilderness selection process went forth, there

were and are no quick, easy answers to these questions.

Congress, in passing the Wilderness Act, made 54 areas totaling 9.1 million acres into "instant" wildernesses, including the Mount Hood and Jefferson wilderness areas in Oregon, but the act was silent on the subject of additional areas to the National Wilderness Preservation System (NWPS). In the early seventies, the Forest Service created a process for adding areas to the NWPS and soothing the concerns of those who feared the impact of wilderness designations on the nation's timber supply. It called the process Roadless Area Review and Evaluation (RARE 1). The USFS created RARE 1 to achieve the following goals: to compare wilderness values against uses that the designation would preclude, to disperse wilderness areas over the largest area possible, to represent the greatest variety of ecosystems possible for general education and scientific study, to obtain the greatest number of wilderness areas without seriously harming the nation's timber supply, and to locate areas that would serve population centers.[35] The end result of RARE 1 would be a list of areas that the Forest Service would further study for wilderness potential and ultimately produce a list of recommended areas for Congress to designate as a wilderness area. The great importance of becoming a wilderness study area was that it afforded essentially the same protection as wilderness while the area

was being studied and thereby increased the chance that the area would remain roadless long enough to be able to become a congressionally designated wilderness.

In the first step of RARE 1, the Forest Service inventoried roadless areas in each of the Forest Service's ten regions. The USFS identified roadless areas as those with 5000 acres or more without permanent roads and developments at the time of the inventory. RARE listed 1449 areas totaling 56 million acres. Each regional office was given a good deal of leeway in determining what would qualify as a roadless area. Developments which could be easily removed and not of long lasting duration were often overlooked by USFS field personnel.[36] The inventories also identified the ecosystem type and the presence of any unique features or endangered species. [37] The regional offices also asked the public to comment on whether or not the inventoried areas in the region should be designated as wildernesses.

Regional Foresters recommended areas which they thought were suitable for wilderness designation. The recommendations went to the USFS in Washington D.C. to be analyzed. Obtaining the physical inventory and public opinion were relatively easy tasks compared to the rest of the decision-making process. The USFS had to create a means to evaluate the value of wilderness compared to the values precluded by

such a designation. Economic analysis determined the highest use for society for each area in the inventory. The means of measuring the value of wilderness was the quality index. The quality index measured three aspects of a potential wilderness area: scenery, isolation, and variety of recreation experience. Field personnel rated each of these factors. The Forest Service considered these three factors to be of primary importance to the wilderness experience. It derived the three factors from its interpretation of the language of the Wilderness Act and its perception of public expectations gained through working with the public. The quality index number was the product of the three above factors multiplied together. The end result was a number from 0 to 200. [38] The quality index form used by USFS personnel was standardized but the use of such a small number of people to determine the index left it open to criticisms that it was too narrow a sample of people to meaningfully determine the wilderness qualities of an area.

The quality index was meant to assess the relative value of wilderness per acre. The RARE 1 planners created an effectiveness index to assess the total value of the product.[39] The planners calculated it by multiplying the quality index number by the total gross acres. Clearly, the effectiveness index favored the largest and highest quality indexed sites. The Forest Service decided that since larger wilderness areas

could accommodate more visitors than smaller areas that they were therefore more valuable. The RARE 1 planners also created other indices to use in comparing areas to one another: total opportunity costs, total allowable harvest, total gross acres, the number of areas, and number of areas recommended by Regional Foresters. The planners defined opportunity costs as the commodities values lost and management costs incurred when an area became a wilderness area. More specifically, opportunity costs consisted of budget costs of wilderness management, private land acquisitions, loss of special-use improvements such as cabins, mineral values, potential water development values, and timber values.[40]

The Forest Service's next step was to group the inventoried areas to facilitate the decision-making process. The Forest Service decided that dealing with groups of areas was easier than individually analyzing the 1449 areas. The first grouping was called the High Priority List. The planners added areas to this list if they met any of the following criteria: areas previously selected as study areas, areas with uncommon ecosystems, and areas with unique characteristics such as the presence of rare or endangered species. Areas recommended by Regional Foresters and meeting any of the following conditions also were added to this list: having general public support and a quality rating of over 155,

or having a contiguous boundary to an existing wilderness. In order to achieve its goal of adding quality wildernesses with undue foreclosure of commodity production, the Forest Service decided to eliminate some areas with lower quality ratings from the High Priority List. Additionally, several areas with unique ecosystems were eliminated because the USFS felt they would be better protected in other programs, such as the Research Natural Area (RNA) system which was dedicated solely to protecting ecosystems. None of these areas were in Region 6. [41]

The Forest Service decided that the best course for selecting the remaining areas was to weigh heavily the factors of the quality index, alongside public comments on whether inventoried areas should be made New Study Areas. Areas that had been recommended by the ten Regional Foresters to become New Wilderness Study Areas that were not included in the Most Desirable List were reassessed by the Chief and the Regional Foresters. If the Chief agreed to the earlier regional recommendation then the area was added to the list. This how the USFS added Zigzag Mountain, which was adjacent to the Mount Hood Wilderness. The RARE 1 planners then allowed areas into the final list if they met the following criteria: quality rating of 155 or greater and a effectiveness/cost rating of 100 or over, but if the area had public response against it becoming a wilderness, it was not added. The Forest

Service used the public comments gathered after the inventory was released. The effectiveness/cost rating was a combination of the effectiveness index rating and opportunity costs. From the ratio obtained by combining the two factors, the planners could obtain a single numerical rating to compare the relative values forgone to the areas wilderness qualities. The specific cutoff numbers established for the quality index and effectiveness/cost rating were arbitrary but they had the desired general effect of keeping the quality of the areas high while keeping the economic costs of wilderness selection at a level the Forest Service considered reasonable. The Forest Service estimated that if the list of New Study Areas went over 20 million acres then the opportunity costs began to rise at a much steeper rate than the relatively less steep rise between 9 and 20 million acres. The reason for this rise was that a list of more than 20 million acres had a larger number of areas with higher opportunity costs. The result of the selection process for the RARE 1 Draft Environmental Statement was 235 areas totaling 11 million acres. The figure of 11 million acres kept the opportunity costs low while allowing for adding high quality areas to the NWPS. In January 1973, the Draft was made available for public comment.[42]

The MHNF had a number of roadless areas inventoried for RARE 1. They included the three areas out which would be carved the

SalmonHuckleberry: Eagle-Huckleberry, and Salmon River. The others were Badger Creek, Eagle, Mount Hood [addition to the existing Mount Hood wilderness], Bull of the Woods, Roaring River and Zigzag Mountain. The planners selected only Mount Hood and Zigzag Mountain areas for further study in the draft phase. The Salmon and Eagle-Huckleberry, the two areas out of which the SalmonHuckleberry was created , received moderate to fairly high scores for quality index but very low scores under effectiveness/cost ratios because of the amount of commercial timber present in the areas. It is instructive to compare the results of the Mount Hood and Zigzag areas with the Salmon, and Eagle-Huckleberry. Salmon River with 38,000 acres had a quality rating of 151 a effectiveness/cost factor of 8.2 and a total allowable harvest of 10,900,000 board feet [b.f.]. The Eagle-Huckleberry with 21,300 acres had a quality rating of 103, an effectiveness/cost factor of 5.0 and an allowable harvest of 6,300,000 b.f. As for the selected areas, Zigzag Mountain with 17,990 acres had a quality rating of 135 and a effectiveness/cost factor of 6.2 and an allowable harvest of 5,000,000 b.f. The Mount Hood [addition] with 15,500 acres had a quality rating of 147, a cost effectiveness of 6.7, and an allowable harvest of 4,400,000 b.f.. As a point of comparison, the Forest Service determined that the allowable harvest for all RARE New Study Areas was 299 million board feet

[mmbf].[43] The primary difference between the Mount Hood [addition] and Zigzag Mountain and the SalmonHuckleberry areas was that Zigzag and Mount Hood [addition] were adjacent to the Mount Hood Wilderness, and the Forest Service gave preference to expanding existing wildernesses over creating new ones. This preference explains why these two areas were selected over Eagle-Huckleberry and Salmon River areas despite similar effectiveness/cost ratios.

In addition to giving preference to areas adjacent to wilderness areas, boundaries were important in because boundaries for study areas were drawn along existing administrative lines. This had the tendency to break up larger units which resulted in lower effectiveness index ratings because the calculation (quality index x gross acres) gave higher ratings to larger areas .[44] If the adjacent Salmon River and EagleHuckleberry areas had been combined, it would have had scored a higher effectiveness/cost rating.

The creation of the Final Environmental Statement was a three step process. The first step consisted of collection and analysis of comments on the Draft proposal. From this analysis, the Forest Service determined that there was sufficient public interest based on response to the RARE Draft Statement in 218 areas to warrant review of the Draft decision for inclusion or non-inclusion to the New Study Area List. This list of 218

areas was then broken into eight categories with specific criteria. For the MHNF, the category of most importance was the one consisting of areas with majority public support for becoming a New Study Area but were listed as non-wilderness study in the Draft Statement . Due to this public support, RARE 1 planners decided to review the earlier decision. They decided that these areas could be added to the New Study List if they had a quality rating greater than 145 or an effectiveness/cost ration over 100. With a quality rating of 151, the Salmon River area met this criteria. Nonetheless, the Forest Service explained that because MHNF planners who created the Draft Environmental Statement for the Salmon River Planning Unit had not selected the area for wilderness study it would not be made a New Study Area. The Forest Service decided to defer to the judgment of the local planners in this case. As for motivation for this deference, the Forest Service made it clear that by including areas that had low-cost effectiveness, such as the Zigzag area, it was paying a heavy price in other values forgone, principally timber sales. After the reassessment of the 218 areas, the RARE 1 planner's initial New Study Areas List was revised to 274 areas totaling more than 12 million acres. The planners retained Zigzag Mountain and Mount Hood [addition] in the final list.[45]

The last step was the creation of a list of environmental impacts along

with a range of alternatives. The environmental impacts section dealt with the effects of creating a New Study Area. The planners listed the favorable environmental effects of making an area a New Study Area: preservation of high water quality, clean air, protection of natural succession and associated wildlife, and protection of fisheries habitat. Despite these positive effects, the Forest Service did not incorporate them as factors in the decision-making process. These factors were ignored in large part because the Forest Service saw its own management practices as beneficial to the environment and that negative aspects of the practices could be contained within acceptable limits and therefore wilderness preservation had no special ecological value. As for the negative side of creating New Study Areas, the Forest Service asserted that wilderness areas were subject to natural disasters such as fire, insect infestations, floods, and earthquakes. The planners noted that, at worst, the potential effects of these disasters (such as disease,insect, or fire) could kill a species in an area or kill much of the vegetation and a large number of animals. The Forest Service did note that fire could be beneficial by causing the growth of early successional vegetation for animals to forage. In the New Study Areas, the Forest Service planned to take steps to control fire, insects and disease. The planners did not mention any mitigation efforts to control flooding or

earthquakes. The planners also asserted that uses not allowed in the New Study Areas, such as mass recreation development sites and logging, had the potential to become concentrated elsewhere, with negative environmental effects that were not specified. To the Forest Service, nature made wilderness with some beneficial characteristics but nature also had the ability to destroy such characteristics at any time. The benefit of Forest Service management of roadless areas was that it could help mitigate nature's destructive powers. A major flaw of the statement was its lack of discussion of environmental impacts of non-selection as a New Study Area, but the Forest Service would discuss the environmental impacts of wilderness versus non-wilderness designation in individual Environmental Impact Statements for planning units in each National Forest. The environmental effects of developing the SalmonHuckleberry area would have to wait for MHNF planners to create specific Environmental Impact Statements.[46]

The RARE 1 planners considered four alternatives to the list of 274 selected areas: select no New Study Areas, select all inventoried areas, let Congress pick New Study Areas, and adjust the decision criteria to select either more or less than 274 areas. The Forest Service rejected the first three alternatives because it felt that the list of 274 areas was a better balance between resource production and wilderness

preservation. The agency thought these three options leaned too far in direction of either excessive preservation or not enough. The agency rejected the fourth option arguing that New Study Areas could be added at any time and so there was no need to act on this option. Not surprisingly, the discussion of the alternatives had nothing to do with environmental impacts. In discussing the alternatives, the Forest Service was mainly concerned with administrative procedure, assuring a secure timber supply and asserting some control over wilderness selection rather than the effects the various alternatives might have had for the environment. [47]

The USFS made it plain in RARE 1 that ecological concerns could not be given primary consideration in the decision making process. The Forest Service did make representing ecosystem types one of the decision-making factors, but even here the Forest Service downplayed the role of wilderness in protecting ecosystems. The planners eliminated six areas that represented uncommon ecosystems and one area having great botanical diversity as New Study Areas because the Forest Service reasoned, " The Research Natural Area System [a land classification system designed to protect rare ecosystems or species] adequately achieves the purpose of representing undistributed ecosystems for scientific and education purposes. Research Natural Areas are preferred

because wilderness management does not insure protection from recreation uses." [48]

None of the areas in the MHNF inventoried for RARE 1 were singled out as unique ecosystems. RARE 1 used a vegetation classification system that utilized a combination of climax and potential vegetation types to define ecosystems. Under the RARE 1 system of ecosystem classification, the MHNF sites fell mainly into Douglas-Fir category. The Forest Service classified none of these types as rare on National Forest lands because of their abundant representation. The Forest Service listed only 40 ecosystem types and 3 subtypes in RARE 1 while RARE 2 listed 242 distinct ecosystems. In RARE 1, the Forest Service came nowhere near representing the diversity and complexity of ecosystem of America. The USFS used the ecosystem classification in such a way so that it became a fairly narrow criterion when combined with a national scope. For instance, a ecosystem uncommon in one National Forest would not have been considered in the RARE 1 decision-making and ecological classification processes unless the area was uncommon within the entire National Forest system. Despite the limited scope and attention paid to ecology, the planners achieved their goal of adding areas that increased the number of ecosystem types in the wilderness system. The New Study Area list contained fourteen areas with types of

ecosystems not previously represented in the National Forest wilderness system. [49]

The scientific weakness of the RARE 1 process was noticed by environmentalists and other government agencies, such as the Environmental Protection Agency(EPA) in their comments on the draft. Much of the criticism of the draft statement held for the final statement because little action was taken to address the heart and substance of the earlier criticisms. The EPA concluded that the process of analysis leading to the Draft Statement was " severely limited by its cursory nature. " The EPA contended that the short time frame of RARE did not allow for in-depth studies of unusual or rare ecosystems. The EPA also questioned the wisdom of separating wilderness potential from a full assessment of the environmental impact of selection and non-selection as a New Study Area. One of the greatest flaws from the E.P.A.'s point of view was the fact that the Forest Service virtually ignored the role of undisturbed watersheds in preserving air and water quality and wildlife habitat. Although the RARE 1 planners acknowledged that wilderness preservation helped to protect high water quality, they did not add this information to decision-making criteria. In the view of the E.P.A., more time should have been allowed for fuller scientific studies of the ecological characteristics of the potential areas. The E.P.A.

recommended that all areas which qualified under the Wilderness Act be studied for environmental as well as wilderness values before elimination as wilderness candidates on a national level; thus Congress would be able to make a truly informed decision about the area and there would be no need for a New Study Area separate from RARE. [50] Further evidence of the inadequacy of the evaluation was the short time allowed between the Draft and completion of the Final Statement - only eight months. There was little time for agency personnel and concerned citizens to conduct careful field reviews.[51]

RARE 1 continued the Forest Service's emphasis on purity in viewing wilderness selection. RARE 1 also further reinforced the agency's tendency to view wilderness as a recreation matter within the multiple-use framework and not as an ecological matter. As for the cursory nature of RARE 1, the explanation lies in the multiple-use mission of the Forest Service. The Forest Service clearly believed that too much wilderness would hinder the smooth operation of the multiple-use forest. Too much wilderness would eliminate the Forest Service's ability to produce other values in demand by the consumer, including roaded recreation. The Forest Service provided the following context for wilderness selection " the responsibility placed on the Forest Service by Congress to produce a continuous supply of other goods and services

has not diminished or changed." [52] While the decision-making process that led to the number of 274 new study areas was to a certain degree arbitrary, the Forest Service decision to limit the overall number of wildernesses clearly stemmed from its interpretation of multiple-use.

Chapter 4: Salmon River Unit Plan

The Forest Supervisor of the MHNF announced in 1971 the formation of the Mount Hood Interdisciplinary team to provide firm management direction and to produce Environmental Impact Statements. The core personnel of the team was composed of a landscape architect, experts in silviculture and logging methods, a civil engineer, watershed specialists, soil scientists, fisheries biologists, and recreation specialists. The team was to engage in "total" planning which meant that the planners would take into account recreational and ecological factors as well as economic factors. The team's essential task was to compare ecological factors to "man's needs" to determine which uses of the forest were compatible with a given area. To accomplish this, planners were to collect data on watershed quality, soil characteristics, plant communities, and wildlife ecology. They recognized that collection of ecological data was necessary because of the interrelationship between the various parts of an ecosystem. In the 1970 MHNF Annual Report, the MHNF planners recognized that " a change in the relationship of one resource to another can drastically alter that entire ecosystem." The results of the data collection would be a land use plan which assigned human uses to areas where the Forest Service thought they would be ecologically

suited. [53] The multi-discipline approach satisfied the NEPA requirement that federal agencies use a multi-disciplinary approach to planning. With the multi-discipline team approach, the Forest Service was in a better position to defend its planning process and results from critics who accused the Forest Service of only being interesting in timber in its planning process. Most important for wilderness selection, the USFS could also justify its actions on an ecological basis.

The planners initially created seven geographic planning units roughly organized around watersheds. The remainder of the MHNF not covered by these units to be divided into planning units later. The Salmon River and Huckleberry units held virtually all the land that would become the SalmonHuckleberry wilderness. A small portion of the wilderness fell under the Mount Hood Planning Unit. The Salmon River Planning Unit encompassed 48,757 acres south of Highway 26. The unit centered on the Salmon River, from its entrance into the planning unit below Highway 26 until it exited Forest Service lands to the west of the planning units borders. The team estimated that the unit had 33,582 acres of commercial timber land. Before creation the Salmon River plan, most of the unit was covered by the Zigzag Ranger District Plan. Most of the logging on the unit had occurred in its southeast portion. Before the creation of the Salmon River plan, virtually all of the area was available

for general multiple-use. RARE I passed over the Salmon River Roadless Area because the MHNF planners committed the area to general multiple-use in the initial stages of the Salmon River planning process.[54]

In May 1973, the Forest Service released the Draft Environmental Statement for the Salmon River planning unit. After public comment was solicited, the Final Environmental Statement was released in 1974. The Salmon River and Huckleberry Environmental Statements were more sophisticated than the Zigzag Ranger District Plan. The Multi-Discipline Team used a process known as "land suitability analysis" for two related purposes: to determine what management activities could be sustained on the planning unit, and to avoid disrupting natural processes. They based the land suitability analysis on the system devised by Ian McHarg in Design With Nature (1969). A landscape architect and planner, McHarg wrote his book to provide a way to reconcile competing human uses of the land. He wanted to supply a means to collect a variety of ecological and social data into a single coherent form which would allow planners to make informed judgments about land use. His method centered on determining the physical limitations of the land to support human activity and assigning land uses in accordance with those limitations. McHarg wrote of his land use planning system:

> The basic proposition employed here is that any place is the sum of historical, physical, and biological processes, that these are dynamic, that they constitute social values, that each area has an intrinsic suitability for certain land uses and finally, that certain areas lend themselves to multiple coexisting land uses. [55]

McHarg recognized that nature presented limitations as well as opportunities for land use. Within those limitations, he saw land use as a social issue with decision-making based on determining the highest use for society. He recognized that simply evaluating the physical and biological aspects of an area would not provide management direction. In some cases, society would have to decide which uses were of higher value for a particular area.[56] For example, an area could be deemed suitable for both wilderness recreation and logging but the two clearly could not coexist. Society had to decide which uses to allow. Overall, McHarg's system was very compatible with the Forest Service's multiple use philosophy because both stressed the idea that management was mainly a matter of finding the proper location for land uses.

In the first step of the land suitability evaluation process, planners created suitability maps that included: fire risk and potential, soil types, geologic conditions, water quality and quantity, flora and fauna, recreation use, timber quality and quantity, scenic features, and any

special interest areas. Planners then used this data to create individual maps which showed intrinsic suitability of the land to absorb human use. The concept of intrinsic suitability was based on the idea that each piece of land had environmental characteristics which made it better suited to some uses than others. For instance, a piece of land which had shallow soils would not be highly suitable for logging but would be suitable for some forms of recreation. Planners took into account the following forest uses: water, timber,grazing, presence elements of scientific interest (geologic, botanic, and zoologic), scenery, developed campsites, sports (hunting, fishing, snowmobiling, off-road vehicles), and non-timber harvest potential (huckleberries , wild plants,etc.). They assessed the uses according to the nature of the activity being evaluated by using collected field data and professional judgement. In general, the ecological elements taken into account centered on geology, soil type, and topography. Planners ranked individual ecological elements and gave them relative weights. The planners took the end results and turned them into color-coded maps which showed three areas of suitability: high, medium and low. Unfortunately, one of the plan's most serious flaws was its overall omission of explanation of how specifically the Forest Service ranked the various elements. The result of the suitability analysis was the identification and mapping of 13 intrinsic zones (A-M).

Intrinsic zones were areas with similar ranges of suitability for specific uses. The planners created the 13 zone map by taking the color overlays which showed suitability for individual forest uses and combined them into segments (A-M) which differed in at least one of the basic suitability ranges.[57]

Two examples will indicate how the Forest Service used the collected data to evaluate suitability. Water is vital to organic life and its importance did not go unnoticed by the Forest Service. Planners explicitly recognized the value of water and a non-polluted watershed for sustaining plants, animals, and humans. The basic types of data that were used for analysis to determine amount of water that any given area would yield were: annual precipitation, snowpack, slope, annual water yields, potential for water turbidity, retention ability of soils, potential for soil to erode when soil is bare, potential of soil compaction due to use of machinery and finally, bedrock permeability of the soil.[58] The analysis for water suitability included elements which ran throughout the factors that dealt with the ability of the land to absorb environmental impacts: slope, aspect, elevation, and soil characteristics, such as erosion potential which would affect how operations on the land were conducted.

For timber, planners mainly considered the land's ability to continue to produce timber after being harvested. They considered lower elevations

sites the most suitable for timber production because of their generally greater resiliency and higher productivity than higher elevation sites. They considered slope because it determined the type of logging equipment that could be used as generally higher elevation slopes could not be accessed by conventional roaded access. The erosion and compactibility potential were assessed as well as the risk for roadway failure. Finally, seed mortality and regeneration potential were factored into the decision making process. [59]

To be of use in the planning process, the suitability analysis had to be coupled with management objectives. The first objective stated that no single use would dominate the unit. Planners recognized all life forms were significant and that habitat for all species had to be preserved or produced. In this vein, they called for some of the roadless area to be left intact for recreation and to provide wildlife habitat. They decided that timber harvest was to be an integral part of management activities. The USFS would construct roads and trails to provide access. Wildlife in the unit would be primarily enjoyed for observation rather than harvest (hunting and fishing). Planners directed the Salmon River in the planning unit to be managed as to allow for later possible designation as a Wild and Scenic River. Finally, execution of the plan would be coordinated with the other planning units in the MHNF and private landholders.[60] In

sum, the planners provided for a wide variety of uses, everything from recreation to timber. The plan directed that execution of the management directives had to be designed to mitigate any possible environmental damage.

Finding the prospect of creating management direction for zones A-M daunting, planners merged the intrinsic zones with common features into four subunits, A-D. For a map of the planning unit and the four subunits see page 67. Using the objectives outlined previously, the planners proceeded to create general management directions for the subunits, but they recognized that the management activities prescribed for a subunit might not be able to be executed on every part of it because of environmental and/or economic concerns. The planners decided to manage subunits A and C totaling 15, 783 acres (with the exception C5) for a variety of uses including grazing , logging and recreation, and accompanying road-building but these subunits would also be managed as Landscape Management Zones. In the case of these subunits, management as a Landscape Management Zone meant that the planners would take steps to ease the visual impacts of the logging and other management activities. Employing the Visual Management System guidelines, the USFS would keep the landscape character in a state of retention or partial retention. Retention of landscape character meant

that management activities could not be visually evident from frequently used recreation areas as well as areas deemed to have high visual quality and would have to mimic natural patterns. Under partial retention, management activities would be visually evident but could not subordinate the character of the original character of the landscape. Partial retention would be practiced in the middleground and background of areas visible from publicly accessible places. In practice , application of the Visual Management System meant a modification of clearcutting practices to achieve the goals set for a given area.[61] Under this designation, an area would become no longer eligible for wilderness designation because of the extent of human induced changes.

The MHNF planners decided to manage subunit B, consisting of 18,560 acres under a "Backcountry" designation. The Forest Service defined the Backcountry as " an informal designation for primitive, semi-wild areas that are managed to preserve the character." [62] The goal was to allow the area to remain in a primitive condition with little or no evidence of human activity for the purposes of recreation and providing wildlife habitat. Unlike wilderness, this designation explicitly allowed for salvage logging, construction of fuel breaks, clearing for vistas, and construction of trails, helispots, and trail camps. Since no roads were to be built in the subunit, management activities would have to be

accomplished through aerial log removal. Fire management was to consist of constructing fuel breaks and aerial removal of fuels, except in the potential Wild and Scenic Area.[63] This designation would allow for the Salmon River Corridor to be studied as a potential Wild and Scenic River. The Backcountry designation was essentially the same as the Wilderness designation but the crucial difference was that Backcountry areas lacked the legislative protection against development. Since the Backcountry designation was created by the Forest Service, it could be changed at any time and the normal range management activities could be conducted at any time. Nonetheless, to make the classification work as a substitute for wilderness the area had to be substantially undeveloped.

Finally, planners decided to manage subunit D, consisting of 13,950 acres in three sections, as general forest. This meant that all the activities considered under the land suitability process could be carried out in the unit : recreation, grazing, wildlife harvesting, and timber production. The level of development in the subunit was to be high compared to the other subunits. Planners intended to build a single lane road system to make part of the unit more accessible. Logging would take place but the plan called for the leaving of snags for those animals which required them. Fire management would consist of prescribed

burns, salvage logging, and fuel breaks. The plan also called for a study to assess the feasibility of a reservoir on Mud Creek. Nearly all of subunit was outside the area considered for wilderness under RARE 1. The main difference between D and the Landscape Management Units was the extent of visual management taking place. Subunit D would have most of its natural character modified compared to the partial retention and retention of character found in subunits A-C.[64]

The planners expected two major sources of environmental impacts from the proposed action: timber harvest coupled with the associated road building and increased recreation. The planners felt that water quality was protected through the Backcountry designation and in the rest of the planning unit by placing restraints on activities which caused damage to riparian and stream habitats. Areas in which the Forest Service placed such restraints were known as Stream Side Management Units. In some places, the USFS expected logging and road- building to cause disruption to fisheries habitat but it believed that any such disruption would have only a slight impact due to the mitigation efforts. The unit plan called for the Salmon River area to be managed to preserve existing fish and riparian species habitat. The Forest Service anticipated that areas managed for timber harvest would see an increase in animals such as deer and elk which would use the forage created by

clearcutting. The subunits managed as General Forest and Landscape Management Zones were expected to increase forage opportunities.[65]

The planners created an environmental impact chart that gauged biological and physical impacts of the proposed actions for A-D compared to a continuation of the previous policy of general multiple-use for the entire planning unit as well as the alternatives to the proposed actions. The chart was not designed to provide firm figures but to compare general differences in environmental effects among the management options. It displayed changes which could be quantified numerically, such as timber harvest effects. For changes which could not be quantified , the planners used three measures of impact. The first was a measure of trend direction, which indicated whether an element was expected to increase, remain unchanged, decrease or degrade. The second measure was the degree of impact or change associated with trend direction. The ratings for it were: high significance(h),moderate(m), low significance(l), no impact or change (n), and unknown(u). Finally, Planners estimated the level of intensity for populations, products or activities. The levels of intensity were high(3), moderate(2), low(1), none(0), and unknown(u). The major categories for the non-quantifiable impacts were Biological [animals], Botanical, Physical, and Socio-Economic.[66]

Planners used several sources to determine the impacts of management directions: professional judgment, professional academic journal studies, and USFS reports. The level of information available for assessing impact on wildlife and the fishery varied greatly. The USFS had detailed information to assess the impacts of the proposed action on the fish populations and the Final Statement cited two specific reports on fisheries on the Salmon River. From the available information, planners predicted that resident trout and anadromous habitat would experience a decline of low significance in subunit A (Landscape Management) and that resident trout habitat would experience a decline of medium significance in subunits C (Landscape Management) and D (General Forest). They predicted that no change would occur in resident trout and anadromous habitat in subunit B (Backcountry) and they also predicted that in subunit C there would be no change in anadromous habitat. For most of the planning unit , the Salmon River was in the Backcountry subunit until it approached the western boundary when it entered a Landscape Management Zone. In the eastern part of the planning unit, the amount of buffer provided by the Backcountry Subunit to the Salmon River was quite thin, with the river nearly touching the border of the General Forest Subunit. So despite the protection of the Backcountry Subunit, the Salmon River was still downslope from Landscape

Management and General Forest Subunits. While the Forest Service acknowledged that the Backcountry designation would help protect salmon habitat, the Forest Service denied that the whole area surrounding the river needed to be in a undeveloped state to maintain fish habitat and populations, because mitigation efforts in the Landscape Management and General Forest subunits would prevent serious harm to the fish. In effect, the Forest Service was arguing that the fish populations and their habitat had no need of wilderness conditions. Since the Forest Service claimed it would preserve fish habitat under all circumstances, there was no need for an official wilderness to be created to protect fish habitat. Furthermore the Forest Service felt that in some cases it could improve the habitat conditions of an area. For instance, it could remove a natural barrier to migration.[67] In response to the draft of the unit plan, environmentalist critics such as the Sierra Club, Friends of the Earth, and the Mount Hood Forest Study Group, along with the Department of Interior, disagreed with the Forest Service's optimistic claims that the proposed management activities would result in no impact or an insignificant decline in fish habitat. The Mount Hood Forest Study Group, a Portland, Oregon environmentalist group, wrote:

> Road construction and logging in the watersheds of Bighorn, Copper, Iron, and Tumbling Creeks will lead to

> siltation downstream in the main stem Salmon River, affecting adversely the spawning and rearing habitat of salmonids. The effects of siltation can be felt years after the initial impact of logging and road construction in that spawning gravels can become compacted with fine sediments, eliminating adequate inter-gravel oxygen levels and the production of young salmon.[68]

The group also noted that logging could lead to increased water temperatures and decreased water flow in the summer months. While the planners acknowledged the possibility of a slight siltation problem from logging and road building, they concluded " there is no evidence that the proposed action would cause a destruction of the fish habitat." [69]

The weakest element in the Forest Service's attempt to gauge the potential ecological effects of management activities was the lack of wildlife population data from the field. Additionally, the planners noted that " the lack of definitive research about behaviorialism and environmental needs of many botanical and faunal species prevents an accurate assessment of long term productivity of nongame animals." [70] The general trend that the Forest Service predicted was that many animals would benefit from the elimination of undisturbed habitat through logging because it would create more early successional habitat and an increased amount of sunlight which would benefit some wildlife species, such as reptiles. The planners also noted that "sun-loving" plants, such as huckleberries and fireweed, would benefit from clearcutting. On the

other hand, they noted the management of subunit B benefitted those animal species, such as amphibians, which favored old-growth or relatively undisturbed conditions. They also noted that climax vegetative species would also benefit. On the other hand, planners recognized that there were trade-offs involved in creating new habitat. They forecasted that salamander habitat would experience a decrease of low significance in subunits A,C and D while frogs were expected to experience a highly significant habitat decline in C and D. The result of these gaps in knowledge were categories in the chart which were very broad, rendering some of them practically useless. For instance, all nongame mammals were listed in one category. Plant species were not even considered in the chart. As the Huckleberry plan demonstrated a year later, the Forest Service expected a more diverse range of effects of management direction on nongame mammals, and not surprisingly, that mammal reactions to management activities could be quite diverse.[71] In an overall sense, the decline of species associated with climax conditions or old-growth was theoretically compensated for by the creation of habitat for early successional species. In effect, the MHNF planners justified the decline in amphibian numbers and habitat in three by increasing in reptile habitat.

Under NEPA regulations, alternatives had to be considered.

Planners created alternatives to the proposed action on the same basis as the proposed action:intrinsic suitability, management objectives, and Forest Service perception of public needs and desires. The first alternative listed was simply to continue with the commodity-oriented multiple-use plan. The second was to manage the Salmon River roadless area as a wilderness study area and recommend it to the Chief of the Forest Service for wilderness study. The wilderness study area would consist of the roadless area consisting of most of subunits A, B, C, and D-2. The Forest Service would manage the remaining area of the subunits as Landscape Management zones. As with the selected areas for RARE 1, the same management direction that applied to wilderness areas would be applied to the wilderness study area. Once again we see the presence of the Landscape Management Zone to provide a visual, but not an ecological, buffer for management.[72] Unfortunately , the Forest Service did not fully discuss the environmental pros and cons of making the Salmon roadless area a wilderness study area, but the benefits and drawbacks of wilderness designation were similar to the Backcountry designation.

Planners drew up further alternatives for each of four subunits. For subunit A , the two alternatives centered on making the subunit into a Landscape Management zone. The difference between the two options

was the degree of management activities allowed. The first option retained the natural character of the landscape with no commercial harvests. The second alternative for subunit A allowed for more management activities in order to create facilities and access for recreationists , although such activities were supposed to be kept a minimum. For subunit B , the planners proposed two alternatives. The first was designation as a Special Interest Zone. This designation would have kept the area in natural condition with logging occurring only for salvage, fire management, or facilities construction. The second alternative was the Backcountry designation. The same management policies would apply as the proposed option for subunit D. For subunit C, the first alternative was a Landscape Management Zone which allowed for timber production. The second alternative was Landscape Management Zone, but with the addition of a road to connect Salmon River Road with Abbot Road. Subunit D had only one alternative: general forest management.[73] The Forest Service did not choose these alternatives because it felt the proposed action best achieved the balance between preservation and development.

The planner's decision to proceed with development of most the Salmon River roadless area was based more on economics and their perception of recreationist's need for roaded access than on ecology.

When the planners tried to provide an ecological justification for development, it centered on two related factors: early successional habitat and increases in biological productivity. For both factors planners presented largely simplistic ecological theory backed by scant field study in support of the underlying assumptions about why roadless areas were dispensable. The plan lacked a real discussion of the trade-offs between logging and development compared to leaving areas roadless. Since the plan purported to consider fully the environmental impacts of the proposed plan, such a discussion should have been included in the Environment Impact Statement. True to its relativistic outlook, the Forest Service recognized the ecological value of the Backcountry designation, but at the same time decided that other designations were just as acceptable. In the Huckleberry plan , the planners gave a more sophisticated elaboration of the Forest Service's ecological assumptions backed by a more complete wildlife inventory; therefore I will explore more deeply the Forest Service's ecological assumptions in the following chapter.

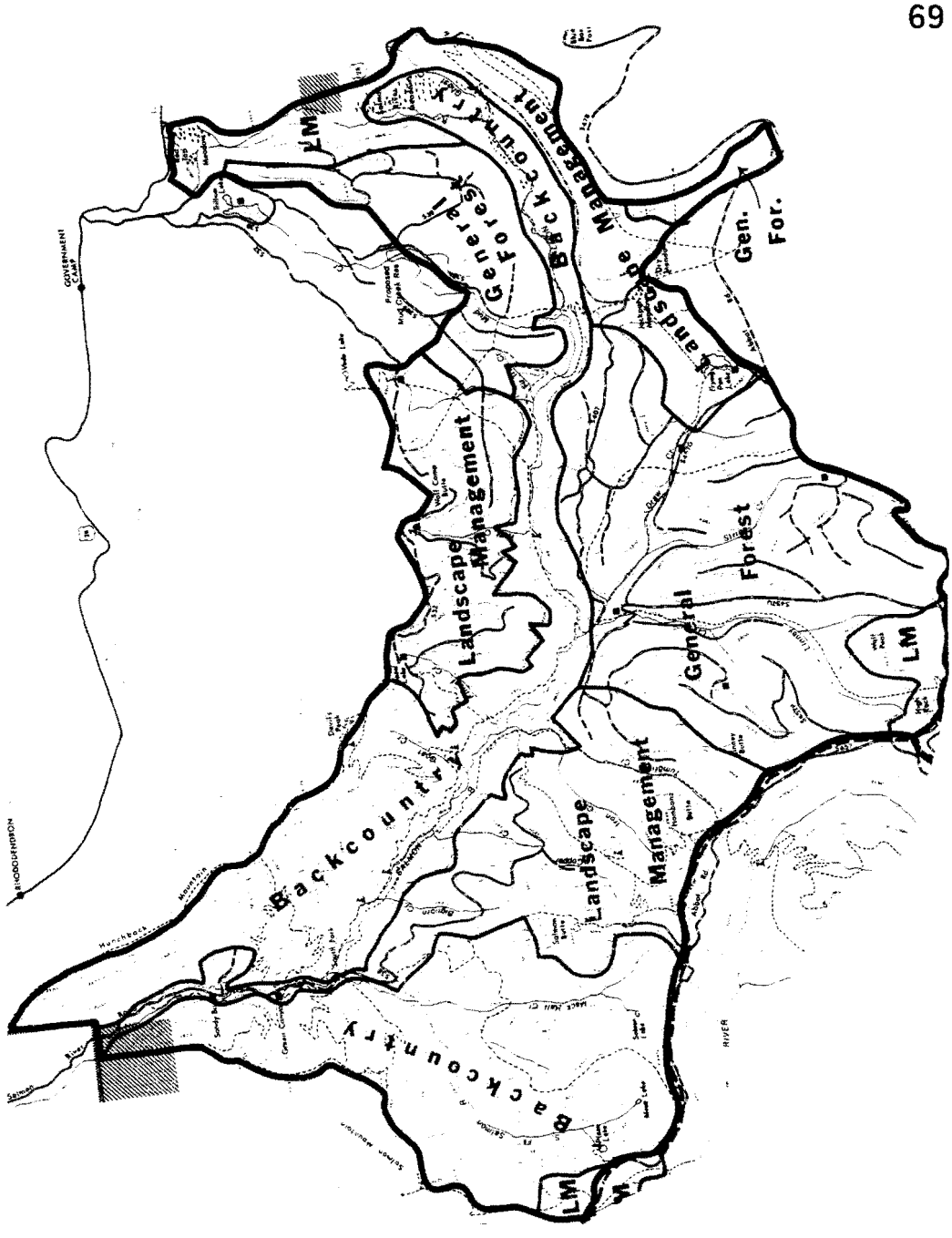

Fig. 1 Salmon River Planning Unit. Reprinted from USDA Forest Service, Final Environmental Statement: Roaring River Unit and Salmon River Unit Land Use Plan (Portland,OR: Forest Service, 1974).

Chapter 5: The Huckleberry Planning Unit

The Huckleberry Planning Unit Environmental Impact Statement covered an area of approximately 30,000 acres all within the Zigzag Ranger District. The Forest Service released the draft of the plan in 1974 and the final version in 1975. To the north of the unit, landownership was mixture of private, state, and Bureau of Land Management [BLM]. To the west, the unit was bordered by private land and BLM holdings. The unit contained parts of Eagle Creek and Cedar Creek which flowed into the Clackamas and Sandy rivers respectively. The Forest Service considered these two creeks the most important to protect in the unit because they supplied water to the fish hatcheries downstream. Only two creeks in the unit actually supported anadromous fish within National Forest borders, Cheeney Creek and Boulder Creek. The planners noted that unit had relatively light density of wildlife. Of 30,000 acres, RARE 1 assessed 21,300 under the name Eagle-Huckleberry roadless area. The entire planning unit was available for the full range of multiple-use activities under the 1968 Zigzag plan.[74] Any development of the roadless area included in the Huckleberry plan was very important because it could have precluded the later wilderness designation as well as had a major impact on the ecology of the area. The planners used the same

land suitability analysis process as in the creation of the Salmon River Plan.

The Forest Service created a new set of management objectives for the Huckleberry planning unit. Specifically, the plan called for a continuous water supply for consumption downstream and maintaining water quality which met or exceeded state or Forest Service standards, whichever was higher. The planners called for a variety of recreation forms to be provided for, but recreation had to be conducted on ecologically suitable sites. Forest commodities were to be produced in suitable areas but an unspecified portion of the planning unit was to remain roadless. Management activities could not threaten the viability of the native wild cutthroat trout populations on the mainstem of Eagle Creek. Livestock grazing was to be continued in suitable areas. The Forest Service recognized that all forms of life were important and that habitat should be provided for the continued existence of species inhabiting the planning unit. Finally, the planners assigned the Wildcat area of the unit to maximum production under sustained yield forestry practices but not to the point of compromising the other objectives outlined for the unit.[75]

The Salmon and Huckleberry plans share the same ecological assumptions, but the planners decided to give a more elaborate

explanation of the Forest Service's ecological assumptions than in the Salmon River plan. MHNF planners in the 1970s used two definitions of an ecosystem. The first , given in the Salmon River plan ,was simple and vague: " Includes all biotic and abiotic elements in a given situation or area" [76] The planners gave a more elaborate definition in the Huckleberry plan:

> An ecosystem is generally thought of as a definable area (e.g. shrub community or ecosystem,grassland community or ecosystem, etc.) which represents inter and intra specific interactionism of cycling biotic (living and nonliving or organic features) and abiotic (nonorganic) components which are needed to continue survival (active living, growing and reproduction) a population of organisms over an extended period of time (e.g. for the life of any given seral stage) without renewal from the outside. [77]

The planner's definition closely mirrors Tansley's definition of an ecosystems.

The MHNF planners chose to follow Arthur Tansely's lead in using Fredrick's Clement's succession theory but with the superorganism purged from the paradigm. The planners, did however, keep one very Clementsian idea. They emphasized the permanence of the climax state if there were no disturbances. The reason why the Forest Service kept the idea of the permanent climax stage was that every wilderness would theoretically one day reach this state and thus it could use the

characteristics associated with this stage, such as a lower species diversity than early successional stages, as an argument against wilderness preservation. The MHNF planners generally did not use the word ecosystem in the planning process, but they did mention ecosystem in the definition of climax community in which ecosystems were equated with seral stages. They defined a climax community as an ecosystem at steady state. In steady state, the community is self-perpetuating and no other combinations of species are able to out-compete or replace the existing community. They considered the non-climax community as being unstable and constantly going through seral stages.[78] The definitions given by planners reflected the Clementsian emphasis on the climax community's ability to persist with little mention of the role of disturbance. This use of ecosystem in the definition of climax clearly implies that the climax state is highly persistent. The implication for nonmanaged lands was that they were heading towards a stage which was more stable and less diverse than managed lands.

For the Huckleberry planning unit , the Forest Service created 11 intrinsic zones(A-K). Each of the zones was rated for suitability for the following uses: water, timber, grazing, and scientific interest in terms of flora, fauna and geology. One important change from the Salmon River plan was the acknowledgement that some of the factors represent

potential and not current conditions of the land's ability to support management activities, such as, grazing .[79] In order to provide management direction, the eleven intrinsic zones were merged into four subunits(A-D). For a map of the unit and the subunit see page 89.

Subunit A consisted of two separate areas totaling 9590 acres with nearly all the area lying in the northwest corner of the planning unit. At the time of the plan's creation in 1974, the subunit was being used for timber production, rock quarrying, recreation, and water production. Subunit A contained the Wildcat area which was scheduled for road building and timber harvest before the creation of the Huckleberry plan. The Wildcat area is adjacent to the present-day Salmon Huckleberry Wilderness. Land suitability analysis confirmed that subunit A was highly suitable for the variety of uses already taking place. Visually, the area had little variation in terms of scenery and no features that were not common elsewhere in the forest. Areas along public access ways and campgrounds would be subject to partial character modification while the rest of unit would be under the modification or maximum modification classification. Partial modification meant that management activities, such as logging, would not visually overwhelm the existing "natural " landscape. Modification of landscape character occurred when management activities dominated the landscape character; maximum

modification meant a total visual subordination of landscape character.[80] The planners designated subunit A to General Forest which meant that all the uses could occur but not necessarily all in the same place.

Subunit B consisted of 4250 roadless acres and was part of the Eagle-Huckleberry roadless area considered in RARE I. The subunit encompassed all of the Boulder Creek drainage in Forest Service ownership. The suitability analysis indicated that subunit B had an overall moderate suitability for timber harvest with areas of high, low and noncommercial. Water production suitability was moderate and a few spots in the unit were deemed acceptable for campgrounds. Visually, the planners felt subunit B contained a good deal of variety but only 20 percent was judged to be outstanding quality. After considering the management objectives and land suitability, subunit B was to be managed as general forest. To provide access for timber and recreation, the planners proposed a road that would have run parallel to Boulder Creek and would have further fragmented the roadless area.[81]

Subunit C was a 6110- acre piece which also came out of EagleHuckberry roadless area. The major feature of this unit was Eagle Creek. The planners felt it was important to protect Eagle Creek because of its fish hatchery. In order to protect Eagle Creek , the Forest Service decided to use the Streamside Management concept, which consisted of

restricting management activities in riparian areas, to protect the fisheries and water quality of Eagle Creek. The planners found the subunit to have a moderate suitability for water production and a range of timber suitability from high to noncommercial. They deemed the area suitable for grazing. They decided to designate the subunit as General Forest.[82]

Subunit D was the largest single block with 10,050 acres. The subunit contained the upper portion of the Eagle Creek drainage and the Cheeney Creek drainage. The entire area was roadless and was part of the Eagle-Huckleberry Roadless area and adjacent to the Salmon roadless area. Subunit D was to be managed under the Streamside Management concept. The Forest Service declared the subunit unsuitable for timber production because of the potentially unstable soils which would make roads vulnerable to failure and slopes susceptible to erosion. The Forest Service considered the possibility of using helicopters to remove timber from roadless areas to roads instead of the normal method of direct access by building logging roads but the USFS decided it was uneconomical and that the need to protect watershed values was worth more than any possible economic gain from timber sales. Nevertheless the harvestable timber of the subunit was still considered in the MHNF timber base but no action was to be taken until the life of the plan expired in ten years when the economical feasibility of

helicopter logging would be reassessed. What was not stated however, was why it would be any less ecologically damaging to log the area in ten years, even if the Forest Service used fewer roads to log. Planners never discussed the issue of whether the same soil conditions that would make road building environmentally hazardous would not also make logging risky as well. Furthermore they left open the possibility of road construction later by stating that road access for timber was "not feasible at this time." Given the economic and ecological conditions of the time of the plan's creation in the early seventies, the planners decided to leave the subunit in a largely undisturbed state and so it was designated a Backcountry zone.[83] The Forest Service position on logging in subunit D provides evidence that the Forest Service was willing to overlook potential environmental problems if the economic gain from resource was deemed large enough.

Planners considered five alternatives for the planning unit. The first and second alternatives were the more preservation oriented options. Alternative one would have created a wilderness study area out of subunits B,C,D and the unroaded portions of A. This option would have allowed for no management other than trail building and fire suppression techniques which would be the least disruptive to the landscape.[84] MHNF planners never truly considered this option because they simply

accepted the judgement of RARE 1 that Eagle-Huckleberry should not be a wilderness study area. In refusing to reconsider the accuracy of the RARE 1 decision, local USFS planners were simply listing the wilderness study option as a matter of procedure. The Forest Service made the questionable assertion that " the area [roadless portions of the planning unit] is not highly suitable for wilderness ... while B and C are suitable for sustained timber production" [85] In other words, MHNF planners decided that timber was worth more than wilderness in this case. The proposed management of D was supposed to meet the demand for primitive recreation without a congressionally designated wilderness. Wilderness was never a serious option for local planners.

Alternative two consisted of making roadless recreation areas out of subunits B and C. Planners did not take this option because they felt timber values outweighed the values of keeping B and C roadless. Alternative three was the proposed action for subunits A-D which was described earlier in the chapter. In the fourth alternative, the planners changed the management direction for subunit C while A,B,D had the same management directions as the proposed action. The thrust of this alternative was to maximize timber production in subunit C to the highest level possible, meaning more logging and human disturbance than any of the other options. Logging access would not be limited to the lower

slopes and more miles of road would have had to have been built. The effects of option four would have intensified the adverse effects, such as erosion, of the proposed action for subunit C. [86]

Planners created an Environmental Impact Chart for the planning unit to estimate the physical and biological impacts of the proposed actions for A-D compared to the management alternatives. The first element in the chart was a trend direction which indicated whether an element was increasing, unchanged,decreasing, or degrading. The second measure was degree of impact or change. The ratings for it were as follows:high significance(h),moderate(m), low significance(l), no impact or change (n), and unknown(u). The planners separated the estimate of degree from intensity. They gave the following rankings to the levels of intensity: high(3), moderate(2), low(1), none(o), and unknown(u). These predictions of environmental impact were based on professional judgement, available literature, and inventory data.[87]

Compared to the Salmon River plan, the Huckleberry chart clearly shows the varied impact of the proposed action on the fauna of the planning unit and the picture that emerges was complex. As an example, the Forest Service estimated that bobcat habitat would increase under the existing multiple-use plan in all the subunits. Under the proposed action, the planners expected in subunit A that bobcat habitat would

experience a highly significant decline while B and C were expected to see increases of medium significance. The planners predicted that in subunit D, the Backcountry area, bobcat habitat would remain static. They expected habitat for all the species on the list to remain static in the Backcountry unit. In contrast to subunit D, management was to be the main dynamic force in A-C. Despite the intricacies of the chart, the basic trend that emerged from the chart was that the species that required old-growth or relatively undisturbed habitat would remain static in the Backcountry subunit and decline in the other subunits.[88] The Forest Service associated climax stages with decreasing the amount of habitat available for species using early seral stages. The planners wrote: " the ecological succession of plant communities [in subunit D] will be towards climax. This will reduce the opportunity for life systems (plants and animals) utilizing plant communities not exceeding timber management rotation age to survive, due to change of habitat."[89] In this view, wilderness and similar land classifications are in vegetation stages which are static or nearly static. In both cases, the amount of early successional habitat would less than actively managed lands, because there would be less logging.

A major improvement of the Huckleberry plan over the Salmon River plan was a wildlife inventory. Because the Forest Service conducted a

wildlife survey during the summer of 1972, the planners were able to create a list of species which had been observed or were expected to be present in the planning unit. In general, the planners found that the unit was populated by species that favored densely forested ecosystems and that their populations densities were low. Since most of the planning unit was densely covered by forest, there was a lack of variation in habitat . The Forest Service here employed the ecological concept of ecotone. The Forest Service in the Huckleberry plan defined ecotone as " an area (edge or transition) where two or more diverse plant communities join together. This tendency for increased animal variety and density at plant community junctions is often referred to as edge effect. " The lack of "edges" meant that wildlife populations were at relatively low levels and that the highest densities were those species adapted to living in densely forested conditions. The planners expected wildlife populations in the planning unit to remain at low levels until timber cutting or some natural occurrence such as fire or windstorms created new niches in the landscape.[90] Judging by the Huckleberry plan, the Forest Service was not willing to rely on nature to provide edges. While it acknowledged that nature could create edges, the agency felt it could do the work of creating edges in subunits A-C through logging, while also reaping the economic and social benefits of harvesting timber. In the bio-economical view the

Forest Service used, nature could not plan the efficient and rational use of resources and so the agency had to step in to push the environment in the desired direction.

One of the most important things that the Forest Service hoped to improve was production of game animals, deer and elk being the most important. To do this, it had to create habitat conditions that led to an increase in game populations. The reason for the importance of deer and elk was that they were charismatic animals which attracted the attention of both hunters and wildlife observers. The Forest Service determined that there were two major problems with big game habitat in the unit: limited winter range in lower elevations and a densely vegetated summer range. Game animals also faced heavy human harassment on the periphery of the planning unit. Planners had to acknowledge in the Huckleberry plans that the creation of ecotones by logging had limits in accomplishing some of their objectives. Despite Forest Service claims that the proposed plan provided for habitat improvement for game animals, it had to acknowledge that because of the lack of winter range the increase in elk and deer numbers would not be substantial.[91] In this case, the Forest Service used its knowledge of ecology to provide a further justification for logging. The planners did not use the production of deer and elk habitat as a primary justification for logging. The primary

justification for logging was economic, but the production of such habitat provided the USFS with an ecological rationale for arguing for the necessity of logging and human intervention in the forest, especially the practice of clearcutting. The Forest Service argued that since wilderness areas and other unmanaged lands typically did not provide deer and elk with a full range of habitat, having large expanses of wilderness or similar land classifications would cut down on deer and elk populations .

On the other hand , the Forest Service acknowledged the benefits of refraining from management activities but within limits. In subunit D, the unit managed as Backcountry, planners allowed for habitat for species requiring age classes not allowed under timber management which is typically between 40 and 100 years and species which require snags (trees with broken tops) for habitat. The Forest Service recognized the importance of unit old-growth(200+ years) and associated stands of 80-120 years old, both of which provide snag habitat opportunities. The planners listed 71 species of mammals and birds that depended entirely or in part on old-growth and associated stands. The 71 species were observed or expected to occur in the unit. Species which favor this habitat included the now infamous northern spotted owl. Other commonly associated old-growth species include northern flying squirrel, ruffled grouse, and marten. The planners even listed elk and deer as

significant users of old-growth; however, the same emphasis in creating early successional habitat was not to be found for preserving old-growth. Only the economics restraints of subunit D prevented the Forest Service from logging the old-growth and associated stands in the subunit. In the proposed action, the Forest Service predicted a highly significant decline in habitat for several species which were significant users of old-growth, including the spotted owl.[92]

The plan's measurement of environmental impact of the proposed and alternative actions were largely centered around changes induced by management. The baseline was whether management activities caused a decline in the land's ability to sustain productivity of resources after management. The land had to be able to support wildlife populations and continue to produce timber. As the plans for the four subunits show, the Forest Service fully recognized that some uses were incompatible with others and that management activities caused a decline in habitat for some species. The Forest Service found this state of affairs acceptable unless management activities pushed species to the point of extinction or soils were depleted of their biological productivity. By earmarking only the old-growth habitat in subunit D for preservation, MHNF planners were in effect saying that was enough and that there was little need to preserve a significant portion of it in the remaining units. Planners listed

the preservation policy pursued in subunit D as a favorable environmental impact. At the same time, the planners argued that having the Backcountry unit would " reduce the opportunity for life systems (plants and animals) utilizing plant communities not exceeding timber management rotation age to survive, due to change of habitat. " [93] As in the Salmon plan, planners were consciously pursued ecological trade-offs between habitat types with the result that old-growth and associated stands would decline and more roadless areas would be developed.

The planners, however, had an ambivalent attitudes towards the role of one of the most important agents of change in the forest, fire. They endorsed fire policy suppression. Fire can be an important agent in helping to bring about early successional vegetation but the Forest Service determined that wildfire was a largely unacceptable form of ecological change and it had to be suppressed. Fire should not generally play a role in changing the vegetation structure and types of the forest. While MHNF planners acknowledged the role wildfire played in creating habitat, they made no attempt to construct a fire history of the two units.[94] The Forest Service's fire suppression policy was not absolute, because it did allow for the use of fire. It allowed for burnings which were planned and started by Forest Service personnel to achieve a management goal, such as reducing fuels. These were known as prescribed burns. Only in

the case of huckleberry growth in the Salmon planning unit did the planners consider fire as a means to change vegetation patterns and types. In the case of huckleberries, fire burns vegetation which would otherwise shade out the huckleberries. The planners also allowed for prescribed burning that was intended to reduce fuel loads, but the stated goal in this case was not to increase early successional habitat. The ecological effects of prescribed burning were never discussed in the Huckleberry or Salmon E.I.S. Since the Forest Service largely precluded wildfire from being an agent of changing vegetation patterns, it was in effect arguing that its management activities were needed to take the place of one of the roles fire historically played in the forest, generating ecotones. In this position, the Forest Service had a convenient argument for logging based on ecological theory.

The Forest Service believed that none of the management options in the Salmon and Huckleberry unit plans presented in the plan would lead to real environmental decline and breakdown. The planners never considered the possibility that the plan might contribute to species extinction, serious erosion, or harm the overall biological productivity of the land. In the Forest Service's view, mitigation of negative environmental impacts was a positive environmental effect of the management plan. The planners explained that constraints would be

placed on road location to protect water, visual, and soil quality and they would be designed to avoid critical soil areas and known areas of geological hazard. The planners argued that restraints on logging and road building in riparian areas would protect the Eagle Creek fish hatchery from degradation water quality and thus such activities would not affect fish survival. The Forest Service considered the disruption caused by road building and logging as negative environmental effects while considering placing restraints on its activities as a favorable environmental effect. The Forest Service was claiming that restraining its management activities was a positive effect resulting from creation of the plan, but without the plan there would be no negative impacts from logging or roads.[95]

In order to present a contrast to the Forest Service view of the wilderness and roadless areas, I am here introducing the Mount Hood Forest Study Group (MHFSG). The MHFSG was composed of a small group of Portland citizens who formed in 1970 in response to Forest Service's desire in the early seventies to have public involvement in the land use planning process and to monitor the Forest Service activities in the MHNF. The groups's primary focus was ensuring that the Forest Service gave adequate protection to the MHNF's remaining unprotected wilderness lands. The group tracked the progress of the MHNF Multi-

Disciplinary Team, which created the unit plans for the MHNF, and made a counter-proposal to both the Huckleberry and Salmon River plans. In their recommendations, they advocated that most of the Salmon and Huckleberry roadless areas be made wilderness study areas. The group also offered a counter proposal to the RARE 1 Draft E.I.S. , in which it recommended these areas for wilderness. The MHFSG observed that the amount of roadless area in the MHNF was constantly shrinking, particularly after the World War Two when timber harvests began to rise dramatically. They estimated from Forest Service fire road maps that 70 percent of the MHNF was roadless in 1946 while in 1971 the figure was down to 25 percent. According to the 1990 MHNF Land Management Plan, the MHNF had 118,350 roadless acres out of 1.1 million acres, which represents approximately 11 percent of the forest. While these figures are rough estimates, they do convey the dramatic increase in road building and logging since World War Two.[96] Unlike the Forest Service, the members of the MHFSG and other environmentalists were deeply alarmed by this decline and wanted the Forest Service to designate large sections of roadless area as wilderness to protect their ecological and social values.

Despite this alarm, many of their ecological assumptions were the same as held by the Forest Service. Both emphasized the importance of

protecting habitat, preserving species diversity, and the need to protect watersheds. One crucial difference was emphasis. For the MHFSG, wild lands were unsurpassed in their ability to produce clean water and fish habitat. Wilderness lands helped to preserve wildlife habitat and diversity. The group attacked the USFS's contradiction that logging helped to maintain functioning ecosystems. The group argued that " it is a basic principle of ecology that the stability of an ecological system, its capacity to resist destructive changes, is a function of complexity. The more complex it is the more stable it remains." In contrast to the Forest Service's claims that it was enhancing biological diversity through silvicultural practices, the Study Group maintained that the Forest Service practice of managing forests primarily for the production of Douglas-fir had the effect of reducing the overall complexity of the ecosystems of the MHNF. They argued that wilderness lands were needed to maintain ecosystems in an equilibrium state.[97]

While the MHFSG and other environmentalists emphasized the persistence and vitality of wilderness, the Forest Service saw wilderness ecosystems as just once stage in a dynamic ecosystem. For the Forest Service wilderness ecosystems tended to be static, and most importantly, tended towards a climax state which limited plant and animal diversity and did not maximize timber quantity. In the Forest Service's view, the

persistence of climax stages in wilderness was a major problem. Like the MHFSG, the MHNF Planners also recognized the stability of wilderness ecosystems but viewed such a point of stability as biologically stagnant if left undisturbed for too long. The Forest Service never considered in the planning process that one of the potential effects of simplifying the vegetative composition through the creation of tree farms in the Salmon and Huckleberry units would be to reduce species diversity of animals. In the drive to maximize timber production, the Forest Service often took steps to reduce any element of a seral stage which interfered with tree growth. The planners never strayed far from the ecological concepts and facts that provided a rationale for logging and other management activities. The Forest Service noted the negative environmental effects of developing roadless areas but created plans to develop them regardless of the negative consequences. To the Forest Service, the positive ecological and economic effects of management activities were more important.

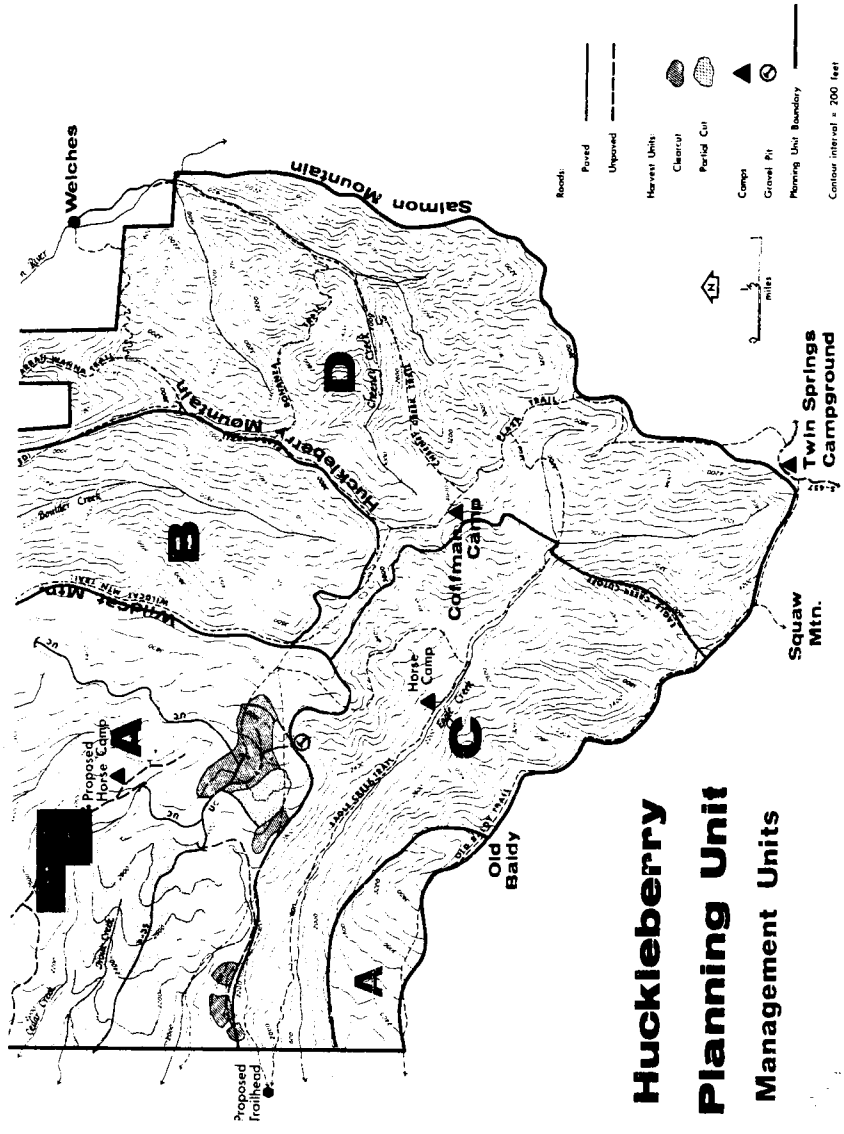

Fig. 2 Huckleberry Planning Unit. Reprinted from Forest Service, Final Environmental Statement Final: Huckleberry Unit Land Use Plan,Mount Hood National Forest (Portland, OR: The Service, 1975).

Chapter 6: Roadless Area Review and Evaluation II

The last major planning unit to affect the SalmonHuckleberry area was the Mount Hood Planning Unit plan (1977), which covered an 8,100 acre portion of the northeastern end of the Salmon Roadless area. The Forest Service decided that the area did not offer outstanding opportunities for primitive recreation and so it decided to make the area available for roaded recreation. More importantly, the MHNF determined that the lower elevations of the area were of high timber productivity. Once again the planners confirmed the RARE 1 decision of non-wilderness study. However, as the Mount Hood plan was finalized, national level Forest Service planners were just beginning to reconsider the Mount Hood Planning Unit decision along with Salmon and Huckleberry plans in RARE 2. Both environmentalists and the timber industry were dissatisfied with RARE 1. Environmentalists wanted more wilderness study areas than provided by RARE 1 while the timber industry wanted firm action to release roadless lands into multi-use. This dissatisfaction eventually boiled over into action. The passage of the National Forest Management Act in 1976 provided a specific motivation for a reevaluation of RARE 1 because it called for a comprehensive study of roadless and undeveloped lands within the National Forest System and to evaluate

both their resource and wilderness potentials. Additionally, both environmental groups and the timber industry were pushing for a speedy resolution of the fate of the nations's remaining unprotected roadless and undeveloped areas. The Renewable Resources Planning Act of 1974 (RPA) was also a factor because it required the Forest Service to develop national planning targets for all forest resources, including roadless areas and wilderness areas.[98]

The Forest Service began RARE 2 in earnest in 1977. The first step in RARE II was an inventory which resulted in the listing of 1449 areas totaling 56 million acres. Originally, MHNF inventoried only a tiny fraction of SalmonHuckleberry roadless area. It consisted of 8170 acres and was named Salmon River. The Chief of the Forest Service asked that the entire roadless area be included in the inventory. Accordingly, the RARE 2 planners added 60,630 acres to the Salmon River area to create the Salmon-Huckleberry area totaling 68,800 acres. The original intention of the Forest Service was to exclude areas that had been previously committed to uses not compatible with wilderness from the RARE 2 inventory lists. The RARE 2 documents do not reveal why the Chief of the Forest Service ordered the revised inventory but presumably political pressures from environmentalists made it impossible for some areas, such as the Salmonhuckleberry, to be excluded.[99] In creating the

inventory for RARE 2, the Forest Service took a step away from the purity doctrine to a certain extent. The Forest Service defined roadless areas as free of improved roads, but it recognized that an area could still have the potential to become a wilderness even if it contained past signs of human use, such as logging. Nevertheless, the area had to appear substantially natural. After public comments were taken on the completeness of the list and which areas should be allocated to wilderness or non-wilderness, the number of areas on the list increased to 2,686 areas containing 62 million acres. Regional and district personnel collected data on the resources contained in the roadless areas under their charges, including recreation use, wilderness potential, timber harvesting potential, grazing conditions and potential, scenic values, water (production and quality), wildlife and fish and potential for mineral and energy production.[100]

The Forest Service assessed the wilderness potential of the area by the Wilderness Attribute Rating System (WARS). WARS consisted of four main parts: natural integrity, apparent naturalness, solitude opportunity, and primitive recreation opportunities. Regional personnel rated each of these features on a scale of 1 to 7 and they added the scores together to give a WARS rating number for comparison purposes. These four attributes were based on the Forest Service's reading of the Wilderness Act and consultation with university researchers, environmentalists,

resource managers, and other researchers. Since the attributes were based on the Wilderness Act, they had little to do with the science of ecology. The concept of natural integrity was meant to measure how much evidence of human activity an area contained. This measurement was not meant to assess the ecological state of the land but to provide an indication how well an area could provide wilderness users with a feeling of escaping the marks of civilization Apparent naturalness was a measure of an area's ability to appear natural despite prior human activity. The remaining two criteria, solitude and recreation opportunity, had nothing to with ecology.[101]

When ecology was mentioned in the WARS system, it was as a supplementary feature that Forest Service decision-makers would take into account in addition to the numerical rating for the four main factors. The Forest Service here based the supplementary status of ecological factors on the Wilderness Act which stated that ecological features was only an optional factor in what constituted a wilderness. For WARS, ecological considerations were limited to endangered or threatened species or any other "special" feature. The other supplementary factors were geological, scenic, and cultural features.[102] Despite the fact that WARS had little to do with ecology or environmental concern of a scientific origin, WARS nonetheless had implications for ecosystem

preservation. The use of the WARS system meant that RARE 2 would continue the focus on adding high "quality" areas at the expense of considering the ecological value of including relatively more heavily impacted areas into the National Wilderness Preservation System (NWPS).

The Forest Service, as in RARE 1, also considered ecosystem representation in wilderness selection in the decision making process. They used a mapping system called the Bailey-Kuchler system to determine how many ecosystems types existed in the National Forests. The first part of the system consisted of the geographer R. Bailey's mapping of the ecoregions of the United States. The Forest Service explained Bailey's ecoregions concept as areas " characterized by distinctive flora and fauna, climate, landform, soil,vegetation, and ecological climax. Ecoregions provide a classification system to understand and separate variations within the environment." [103] The Bailey system consisted of a hierarchy the highest levels of which were based on regional climatic differences. As the levels progress downward the scale of the area became smaller. For instance, the highest two levels were domain, which was a subcontinental climate type, and division, which was a regional variation of the subcontinental. The Pacific Northwest fell into the humid temperate domain and the marine division.

The next level of differenation was provided by grouping broad vegetation associations with similar soil types together (this level was known as the province). The Forest Service used the A. W. Kuchler map of potential vegetation for the United States to further refine the differentiation of ecosystem types. The Kuchler map of potential vegetation (both climax and seral) was applied on a level under province, the section level in Bailey's ecoregions system. The Bailey-Kuchler system, with its emphasis on potential vegetation, was geared more toward theoretical conditions than on existing conditions. As employed by the Forest Service, the Bailey-Kuchler system ignored vegetative differences in areas smaller than 50,000 acres. This meant that many aquatic, relict, or transitional areas were left out because of their relatively small sizes.[104] Using the Bailey system, the Forest Service recognized six major potential vegetation zones (provinces) for Oregon : Pacific Forest, Willamette-Puget Forest, Sierran Forrest, Intermountain Sagebrush, Palouse Grassland, and Blue Mountain Forest. The SalmonHuckleberry Roadless area fell into the Pacific Forest Zone and the Silver-Fir-Douglas Fir type.[105]

The Forest Service identified 241 ecosystems in the United States, of which 105 were represented by National Forest roadless areas. The Forest Service decided to give preference to including ecosystems

which were not represented in the NWPS.[106] In considering the whole NWPS, the Forest Service left open the possibility of developing areas with uncommon ecosystems in National Forest lands on the rationale that they were represented elsewhere in the NWPS. The Forest Service justified the wide scope of the Bailey-Kuchler systems because it was " refined enough to be meaningful but not so intensive as to become unmanageable." [107] The Forest Service faced a difficult task in creating a national scope for representing ecosystems in both RARE processes. The salient question here is how meaningful are generalizations about ecosystems when the scope of the study is national but the effects of implementation are local? Generalizations are a necessity when confronting such a complex task, but at what level are the generalizations the most meaningful. The Forest Service had the choice of reviewing ecosystem diversity on a local, regional, or national level. A regional level approach could have allowed for a deeper consideration of local variations without making the allocation process too cumbersome, but the Forest Service's desire to conduct a review with a heavy national emphasis denied an in-depth review of local ecological factors. The Forest Service felt wilderness allocation was a national issue because the entire American public should be involved and there were national economic issues, such as inflation and the health of the housing industry.

As the rest of this chapter will bear out, economics so dominated the considerations that the Forest Service had difficulty in meeting even its limited ecosystem representation goals.

After preliminary data collection and assignment of WARS ratings, the RARE 2 planners created alternatives for the public to consider in the RARE 2 Draft Environmental Statement. Planners recognized that an almost infinite number of possibilities existed for producing alternative allocation options. With this in mind, the goal of the alternatives was to provide a few possible variations between the extremes of allocating all roadless areas to wilderness areas and allocating none. The Forest Service proposed ten alternatives. The two extremes of "none" or "all" were two of the options. Another option was to make wilderness allocations through the local planning processes. The remaining alternatives were variations on balancing resources forgone with creating a high quality NWPS as measured by WARS. The Forest Service also provided rough estimates of the physical, biological, social, and economic effects of designating an area wilderness, further planning or non-wilderness study.[108] The physical and biological effects of the three possible allocations will be discussed at the end of the chapter.

The Forest Service solicited public comment on the alternatives contained in the draft. From the response, they concluded that public

comments broke down into two major trends. The first was a desire for inclusion of high quality, scenic and diverse locations in wilderness areas. The second was a concern for the Forest Service's ability to continue producing enough commodities to support economic growth in the local areas. Planners used these two trends to provide the foundation for making wilderness allocations which they termed the preferred alternative. The goal of the preferred alternative was to recommend the highest quality areas as measured by WARS for wilderness designation and areas with a high potential for resource use would be allocated to non-wilderness. From this the planners created a list of wilderness study, non-wilderness, and further planning areas. [109]

The Forest Service also developed a set of specific criteria to guide the remainder of the process. These criteria were listed in priority order : avoid foreclosing Renewable Resource Planning Act (RPA) roadless targets, reduce adverse impacts on commodity production and dependent communities, utilize national economic issues such as housing starts and inflation, assure the addition of high quality areas as measured by WARS, allocate to wilderness National Grasslands only if needed to meet diversity goals, improve diversity of landform and ecosystems, consider wilderness associated wildlife, and improve accessibility and distribution of the NWPS, and utilize any public

agreement on allocation. The Forest Service also developed a set of supplementary criteria. The six supplementary criteria were: adequacy of the existing NWPS, allocating existing wilderness study area to wilderness or further planning status, areas with high potential for non-wilderness snow activities to be allocated to non-wilderness status, cost of developing a roadless area, existing wildernesses and other protected lands, and that wilderness boundaries should be ecologically manageable.[110]

The Forest Service then proceeded to make allocations based on the criteria and its professional judgement. Allocation of areas began with the planners placing areas with high commodity potential to non-wilderness. They allocated areas considered to have high wilderness qualities to wilderness. For the rest of the areas and where conflicts arose between resource production potential and high wilderness values, the Forest Service used the further planning allocation, which meant a more detailed study to determine the allocation. The planners then modified the results of this list by a ten step process. First, the Forest Service allocated areas to wilderness, non-wilderness, and further planning if the public response was greater than 71 percent in favor of one these designations. The Regional Forester then checked the new allocation list to make sure that it truly reflected what they perceived to be

regional and national sentiment on wilderness allocation. Regional Foresters could then recommend that changes be made if the Chief of the Forest Service agreed with the decision.[111]

After these steps were taken, planners decided to ensure that the previous allocations list did not jeopardize the goal of achieving a high quality without sacrificing commodities production. To this end, they changed the allocations of areas with high mineral or energy producing potential from wilderness to non-wilderness or placed them in the further planning category. Similarly, they placed non-wilderness areas with high WARS rating to wilderness or further planning. They then made additions and subtractions from the list to meet RPA roadless targets, which required the Forest Service to develop national targets for forest resources, including for acreage of wilderness. The RARE 2 decision-making team checked the list to see if wilderness or non-wilderness allocations could be more appropriately placed in the further planning category. Planners used their professional judgment. They also considered social displacement caused by wilderness designation, public disagreement and the six supplemental factors, developed from public comment during the RARE 2 process. The six supplemental factors were: wilderness supply and demand, development/opportunity costs, congressionally designated study areas, boundary adjustments,

consideration of areas adjacent to wilderness areas, and potential for non-wilderness snow activities if they were in short supply in a state. As an example, if an area had a high WARS rating but had a large public response against wilderness allocation then the planners would place it in further planning. The planners also used the same criteria to move further planning areas to the wilderness or non-wilderness categories.[112]

After the above mentioned adjustments took place, the decision-makers tested the new list against the ten alternative allocation lists listed in the Draft Statement to see which one best met the decision criteria. If the analysis revealed that one of the alternatives met the criteria on the Regional level better than the proposed list then the planners made changes in list to make the proposed list sufficient to meet the criteria. Finally, Regional Foresters, the Chief of the Forest Service and RARE 2 planners, and representatives of the Department of Agriculture met for a planning session and produced the final allocation list. This group adjusted the list to make sure that all national, local, and regional concerns had been addressed in the decision-making process. The Forest Service released the results in January 1979. The Forest Service allocated 624 areas to wilderness totaling 15,088,838 acres. The non-wilderness number was 1,981 with 36,151,558 acres and the further planning category had 314 areas with 10,796,508 acres.[113]

In the Final Environmental Statement , the Forest Service assessed the effects of implementing the RARE allocations. The Forest Service viewed the primary trade-offs as wilderness values forgone or commodities values forgone. As required by the National Environmental Policy Act, the Forest Service assessed the environmental impacts which would stem from the decisions made in RARE 2. The ecological effects of the allocation decisions made by the Forest Service in RARE 2 were once again considered peripheral to selecting high quality areas for wilderness and economic gain. The Forest Service noted the broad range of possibilities of the allocation process and came to the conclusion that most intensively managed areas would experience the greatest degree of physical and biological change. They wanted to assure the public and environmentalists that the Forest Service could control the impacts of resource extraction. Planners wrote: " Areas are <u>not</u> available for uncontrolled development but will be guided by these existing laws, regulations, and policies [NEPA, MUSA, Forest Service Regulations, etc.]" [114] Once again the Forest Service asserted its ability to assure the productivity of the land no matter what the management activity. In fact, the Forest Service adopted a relativistic attitude toward the potential impacts of allocation decisions. It asserted that the implications could be viewed as positive, negative, or both depending on

one's point of view. The relativistic attitude was due in part to the Forest Service's Multiple-use mission. The agency's mission spanned from preservation to the sustained yield of timber. Users of the National Forests held radically different opinions as to what constituted environmentally responsible forest management. In RARE 2 these differences erupted in the battle between those who wanted the greatest possible acreage of wilderness and those who wanted little or no new wilderness. Through the NEPA process, the agency had to list the all possible environmental consequences. In order to help justify more wilderness to satisfy recreationists and environmentalists, the Forest Service recognized the environmental benefits of wilderness preservation. When trying to protect areas with high commodity producing potential and recreation forms not compatible with wilderness, the Forest Service used the negative environmental consequences of wilderness preservation.

Within this context of relativism, the Forest Service discussed the environmental impact of allocations. One of the most important was what the Forest Service termed ecosystem representation goals. During the course of the RARE 2 , the planners created a quantitative measurement of how the alternatives and proposed action would fare in representing ecosystem types. For each ecosystem type present in the NWPS, three

levels representation were devised. The Forest Service admitted that the ecosystem representation targets were based simply on its perception of adequate representation numbers. No mention was ever made of any scientific studies to support the setting of the numbers. The Bailey-Kuchler classification system was descriptive and provided no guidance on this matter.[115] The Forest Service in creating these targets assumed that some ecosystems would already have representation in other agencies in the NWPS and it also took into account potential additions from other agencies. The planners set Level I to provide for two separate examples of each ecosystem represented in the NWPS. The planners created Level 1 to ensure that in the case an area was switched from wilderness allocation to non-wilderness or a natural catastrophe destroyed an ecosystem there would be at least one left. They set the other levels to provide additional protection, provide more chances for more people to see the ecosystem, and represent different successional stages. Level II was between three and five representations of an ecosystem and Level III provided for six or more. The Forest Service determined that the RARE 2 wilderness list would meet 85 percent of Level 1 and only 63 percent of Level 3. The Forest Service had enough representatives of each ecosystem to meet all the levels. In four of the alternatives, Level 1 was fully met and the Level 3 could have been fully

met by two alternatives. The point here is that the Forest Service had the enough ecosystem examples in the National Forests to meet its ecosystem representations goals.[116] The reason the Forest Service could not meet the Level 1 targets was that too many areas were placed in the non-wilderness category in large part to protect commodities production and so could not be used to meet the targets. The fact that the Forest Service could not even fully meet its Level 1 goal of two representations of ecosystem types is clear evidence that the Forest Service was not going to let ecological considerations stand in the way of commodities production.

The Forest Service also evaluated the environmental impacts of other aspects of the allocation process. The Forest Service estimated that allocating an area to wilderness or non-wilderness would have no appreciable effect on air quality. The Forest Service asserted that management activities (such as slash burning) would be of temporary duration and would not be allowed to violate standards set by the EPA. As for wilderness areas, the Forest Service argued that wilderness areas did nothing to either improve or degrade air quality. Water quality was more of a mix of potential effects. They noted that the wilderness designation would prevent construction of water "improvement" projects (such as dams and irrigation) unless specifically authorized by the

President or provision was made for it in Congressional legislation. In general, wilderness designation would also prevent the Forest Service and other agencies from taking steps to control flooding (such as planting vegetation) or otherwise manipulate the water supply. The Forest Service acknowledged management activities had the potential to degrade water quality, but it asserted that mitigation efforts would prevent serious degradation of water quality and that all Forest Service activities would at the very least meet state water quality standards. The Forest Service claimed that active management was the best way to improve both the quality and quantity of water. As far as the Forest Service was concerned, the benefits of wilderness to water quality and quantity were limited because the wilderness designation generally protected water quality in the short term but did not provide as many opportunities to improve water quality. On the whole, the Forest Service determined that "neither water quality nor quantity will be greatly altered as result of implementing any of the alternatives." But the Forest Service noted that " there was a certain element of risk that planned management practices will not achieve management objectives." In plain English, this meant that the possibility for degradation of water quality existed, but on balance, the Forest Service placed more weight on its ability to control water quality than to preserve water quality conditions in roadless areas.[117]

Finally, the Forest Service considered the impact of the alternatives on wildlife and fish. The Forest Service repeated its often used argument that the wilderness designation would impede its ability to increase favorable habitat for wildlife and fish. The allocation process would not affect management decisions concerning endangered or threatened species because the Endangered Species Act (1973) supersedes the Wilderness Act (1964) and the Forest Service could take active steps to help those species in wilderness areas. In considering wildlife and fish, the Forest Service downplayed the significance that wilderness areas play in providing habitat for wildlife. It created a list of 29 wilderness-associated species , such as the bald eagle and grizzly bear, but it provided conflicting statements on the nature of the relationship between these wilderness-associated species and wilderness habitat. The planners stated that these species were not biologically dependent on wilderness character or management, and that they were not necessarily dependent on wilderness character or management.[118]

As in the case of ecosystems, representation targets were established for wilderness-associated wildlife. Two different types of representation targets were established: one for widely distributed species and one for limited distribution species. For wilderness-associated species with wide distributions, the planners set Level 1 at 25 representative areas in the

NWPS and Level II at 50 areas. For the less widely distributed species, Level 1 was set at 10 representatives and Level II at 20 areas. The planner's set the Level I numbers at 25 and 20 so that no one area became such as attraction as to endanger the wildlife or any of the area's resources. They set Level II numbers to allow for expanded opportunities for viewing. Compared to the ecosystem representation targets, the Forest Service was more successful in implementing the wildlife targets. The percentage achieved for all 25 species at Level 1 was 100 percent while Level 2 was at 71 percent.[119] The success of meeting the wildlife targets was in part due to the fact that the number of elements was small which meant that the Forest Service did not have to sacrifice much productive timber land to meet the targets; additionally, some of the area used to meet the ecoregions targets were used to meet the wildlife targets.

Many environmentalists were deeply dismayed by the result of RARE 2. They criticized the distribution of the areas selected because of the 15 million acres allocated to wilderness 5 million were in the Tongass National Forest in Alaska. Furthermore, the Forest Service was predicting at the beginning of the RARE 2 that the selection process would result in as much as half the areas in further planning, but the leadership of the Forest Service decided that to settle controversy over the wilderness

selection process RARE II had too be conducted with the greatest speed possible.[120] The Forest Service met its Resource Planning Act long-term target for the year 2015 which called for preserving at least 9 million acres because the Forest Service estimated that the roadless acreage would be 15.1 million acres in 2015.[121] As far as the Forest Service was concerned its goals had been met.

For the MHNF the results of RARE II were mixed but still an improvement over RARE I. The Forest Service listed 24 inventoried areas in the Final Environmental Statement, but six of these units were actually three areas divided into two parts: Badger Creek, SalmonHuckleberry, and Bull of the Woods. The planners selected three areas for wilderness: SalmonHuckleberry A (8300 acres), Bull of the Woods A (23,700 acres), and Eagle(40,620 acres). The RARE 2 planners decided to allocate only a small part of the Salmon-Huckleberry Roadless areas. Out of the entire SalmonHuckleberry roadless area (60,500 acres), the Forest Service selected only 8,300 acres for wilderness. The essential difference between the wilderness and non-wilderness portions of the SalmonHuckleberry was the general lack of salable timber on the area selected for wilderness. The relative wilderness quality was not an issue for the SalmonHuckleberry roadless areas. The larger portion of the roadless area received a 20 out of a possible 28 score under the WARS

system while the wilderness portion received a rating of 21 out of 28.[122] For the Salmon-Huckleberry area, the Forest Service's attempts to balance economics and non-wilderness uses with wilderness in RARE 2 resulted in wilderness receiving much less priority than economic factors. Overall, this is also true of the entire MHNF. Although the Forest Service could claim that it was interested in a high quality wilderness system as much as it wanted to protect commodities production, the agency was clearly more interested in protecting commodities production. The Forest Service did not base the RARE 2 selections on the basis of the ecological effects of allocating an area to wilderness or non-wilderness. The Forest Service did not view wilderness selection as an environmental issue because it felt that managements activities could be practiced without harm to the environment, and in some cases, it felt it could improve environmental conditions by conducting managing activities in undeveloped areas.

Chapter 7:Conclusion

The Oregon Wilderness Act of 1984 settled the issue of the fate of the SalmonHuckleberry roadless area. Congress created three wildernesses in the MHNF: Badger Creek(24,000 acres), Bull of the Woods (34,900 acres), and SalmonHuckleberry (44,600 acres). Congress released the remaining roadless areas assessed under RARE 2 for general multiple-use. The act provided that the Forest Service would not have to review non-selected roadless areas during the first generation of forest plans required by the National Forest Management Act of 1976 (NFMA). The act also prohibited any statewide review of roadless areas for wilderness designation by the Forest Service.[123] The congressional intent in the act was clearly against future wilderness designation. In very clear language, it affirmed the ability of the Forest Service to manage the remaining roadless areas for multiple-use.

The Forest Service in the wilderness selection process used ecology in a very superficial manner on the national level. In the context of compressed deadlines and a commodities-production bias, the Forest Service devoted little energy to fully considering what role wilderness and roadless areas could play in protecting ecosystems. The RARE I planners made representing ecosystems types a part of the decision-making process, but they used ecosystem classification system that was

overly broad, and consequently the system did not represent the true diversity of America's ecosystems. The RARE 1 planners came to the conclusion that they could not include some areas in the New Study Area list because wilderness designation could not fully protect ecosystems from recreation users. RARE 2 planners also made representing ecosystem types a goal and they created a more elaborate system to assist in identifying types of ecosystems as determined by the Bailey-Kuchler system but they still left out a large number of localized variations in ecosystem types. Despite the increase in the number of ecosystem types identified (43 in RARE 1 compared to 243 in RARE 2), the Forest Service decided that economic gains resulting from developing roadless areas and the goal of excluding low quality areas from the wilderness allocation list were more important than meeting the goals for representing ecosystem types the planners had set for themselves. In both RARE 1 and 2, the agency acknowledged that wilderness preservation had ecological benefits, such as preserving high water quality and providing wildlife habitat, but it also argued that active management produced environmental benefits equal to or greater than wilderness preservation. For the Forest Service, the biggest drawback of creating wilderness was the loss of commodities production, but it also stressed that wilderness precluded the ability of the Forest Service to

"improve" conditions when nature degraded environmental conditions. Since developing a roadless area produced economic and ecological gains, the USFS felt it had compelling reasons to limit the number of wilderness areas. As for the problems associated with development, the Forest Service assured environmentalist critics that it would take steps to limit any ecological damage caused by management activities.

On the local level, the MHNF planners used ecological theory as a justification to limit the amount of wilderness and roadless areas. The Forest Service used Clementsian climax theory to paint wilderness ecosystems as static or nearly static with less diversity than managed lands. At the same time, they argued that management activities were necessary to increase the biological productivity of the land. In its bio-economic view of ecology, the Forest Service was to be the main source of ecological change because it was a more efficient and timely than simply letting natural processes operate without interference. In the Salmon and Huckleberry planning units, the Forest Service attempted to maximize production wherever possible and rarely conceded that areas could not be logged or that commercial uses could be seriously damaging to environment. A common thread runs through local and national planning in the SalmonHuckleberry area. On both levels, the Forest Service largely downplayed the role of wilderness preservation in

helping to maintain functioning forest ecosystems in order to achieve economic and ecological objectives which were deemed to be of greater importance.

The MHNF released its the final version of its Land and Resource Management Plan in 1990. This plan superseded the planning unit plans of the 1970s. The 1990 plan had a larger and more detailed elaboration on the role of wilderness in maintaining a functioning forest ecosystem but MHNF planners continued to believe that wilderness and roadless area preservation could not be allowed to jeopardize the Forest Service's other economic and ecological aims. The specific motivation for this plan was the National Forest Management Act which mandated that each National Forest release a general forest management plan every ten years. As allowed by the Oregon Wilderness Bill of 1984, the Forest Service decided not to review roadless areas for their wilderness potential since the 1990 plan was a first generation plan. Some of the ecological assumptions behind the 1990 plan were different than those used to formulate the plans of the seventies, but there was also continuity. The 1990 planners were much more explicit than MHNF planners in the 1970s about the dangers of Forest Service management activities. They still asserted that early successional stages can be the most diverse in terms of species richness [number of species present],

but the Forest Service attached a caveat: "diversity is at risk when a high percentage of the land base is actively managed for consumptive purposes such as timber management." [124]

One consequence of intensive management was disruption of deer and elk habitat. The Forest Service admitted that logging, road building, recreation had been concentrated on lower elevation winter range which had a negative effect on deer and elk populations. In the Salmon and Huckleberry unit plans, planners used the creation of deer habitat by logging as one of the rationales for limiting wilderness and Backcountry areas. There is no mention of needing to log roadless areas specifically to provide deer and elk habitat in the 1990 plan as in the plans of the 1970s. The planners have disconnected the issue of roadless areas from providing early successional habitat for deer and elk. This does not mean that logging in a roadless area could not be justified as creating wildlife habitat, but that the planners have dropped the explicit linkage between logging roadless areas and providing deer habitat.[125]

In the 1990 MHNF plan , the Forest Service presented much the same view of the biological pros and cons of preserving roadless areas as in the Salmon and Huckleberry unit plans. The difference was that the amount of detail and attention paid to the value of roadless areas was much greater than in the 1970s plans. Planners noted that roadless

areas in general provide good habitat for species requiring "natural" conditions, but that such areas typically lack early successional habitat and that unmanaged areas are vulnerable to catastrophic fires disease and insect outbreaks that would effect surrounding lands. This is essentially the same view about the negative effects of wilderness and roadless area preservation that is found in Salmon and Huckleberry plans. One of the most important differences between the older plans and the 1990 one was that the Forest Service acknowledgement that the National Forest lands play a special role in protecting species that require or use old-growth and relatively pristine conditions. The planners stated that " many ownerships surrounding the Forest , are dominated by consumptive uses. As such, Forest lands allocated to non-consumptive uses act as refuges for those species that require later seral stages, such as spotted owl or western hemlock associations ."[126] The Forest Service recognized the value of roadless areas in the 1990 plan but there were still limits to how of it could be preserved.

The MHNF 1990 forest plan calls for keeping 81,130 acres in a unroaded condition out of 118, 350 acres of roadless area, but some of the areas that would remain roadless would be available for timber harvest. After the SalmonHuckleberry wilderness was formed, there were 20,300 acres of roadless area that surrounded the wilderness. Between

1984 and the creation of the 1990 MHNF forest plan, the Forest Service reduced this area to 17,650 acres by building roads. Under the 1990 plan, planners made 76 percent of the of the SalmonHuckleberry roadless area available for timber harvesting and possible road construction. The planners recognized that logging entry into the roadless area would foreclose wilderness designation.[127] The question of whether the plan adequately protected roadless areas and associated habitat and species is a question for future ecologists and historians to answer. If Congress, pushed by environmentalists, had not intervened, the Forest Service would have had much less land to use as biological reserves because the Oregon Wilderness bill gave the SalmonHuckleberry wilderness much more land than the Forest Service recommended.

The MHNF created its first management plan for the SalmonHuckleberry Wilderness in 1994. Before 1994, MHNF planners relied on guidelines set by the national headquarters in Washington D.C.[128] The wilderness management direction centered on minimizing the ecological impact of visitors to the wilderness. In accordance with the Wilderness Act, the Forest Service planned to let natural processes dominate the forested landscape. It also recognized the importance of maintaining connections between the ecological components of

wilderness and area outside the wilderness, but the planners who wrote the wilderness implementation report admitted that they did not fully understand the interaction between the flora and fauna of the wilderness and those outside the wilderness boundaries. The wilderness management planners called for utilization of landscape analyses to determine the function of the wilderness in the landscape.[129]

The Forest Service's ultimate goal for the SalmonHuckleberry will be to have natural variability of the structural [snag, eg.] and compositional [animal and plant species] components of the wilderness landscape. For the most part natural variability meant simply the absence of Forest Service management activities, but the managers of the wilderness face some difficult issues in letting natural processes dominate. First, Planners admitted that they did not know precisely what was the natural variability of the SalmonHuckleberry ecosystem. The issue of fire is particularly difficult one in this respect. Although fire played a part in shaping the natural variability of the composition and structure of the ecosystem, there are limits to what the Forest Service will allow when it comes to fire as an agent of vegetative change. The fire history of the area is high intensity stand replacement fires every 100 to 300 years. The exact role of Native Americans in the fire history is not known, but the Forest Service believed that Native Americans probably burned areas

now in the wilderness to encourage huckleberry growth. Does Native American burning fit into natural variability? The plan provided no answer. Figuring that fire played a role in shaping the processes and components of the wilderness, wilderness planners intend to let some naturally ignited fires burn , but they will not allow the fires to jeopardize public safety nor allow fire to destroy habitat for endangered species such as the spotted owl or the peregrine falcon. The primary purpose for burning will be to reduce fuel loads which would contribute to destructive fires and create openings for huckleberry fields. The question here is whether the Forest Service will let fires burn until they become stand replacing fires? The Forest Service in the plan stated that it will not allow natural cycle of stand replacing fires if they threaten spotted owl habitat or threaten to spread outside the wilderness. The answers to what precisely will be the effects of Forest Service policy await future ecologists and historians, because the specific plan for natural fires was not yet been created. Until then the fire suppression policy stands.[130] If the Forest Service prevents fires from becoming high intensity fire then it will have put its fire policy in conflict with the stated goal of having the wilderness ecosystem function within natural variability of structure and function. Use of fire is a controversial issue and conflict over it in the SalmonHuckleberry may be forthcoming.

Management of the SalmonHuckleberry area has been controversial from the wilderness selection process to current Forest Service plans for the area. The controversy so far has not been from the management of the wilderness itself but from harvesting activities in areas surrounding the wilderness. One of the most controversial has been the Eagle timber sale which was planned in 1996 and is currently being executed. The Eagle sale allows logging to the border of the SalmonHuckleberry. The sale plan calls for nearly all of the logging techniques which will not require new road building. One of the primary rationales behind the sale is to use silvicultural techniques to once again to improve wildlife habitat through the creation of edges and protecting water quality through promoting healthy stands of trees. Environmentalists have criticized these motives as not supported by fact and have attempted to block the sale. The history of this sale is complex and beyond the focus of this thesis, but the Eagle sale shows that rationales similar to the ones used in the seventies are still being used to log roadless areas. There has been enough controversy that Roberta Moltzen, current Forest Supervisor of the MHNF, has decided to suspend timber sales on the Zigzag ranger district. Her rationale for imposing this restriction on timber sales is that the public would object to any sales on environmental and aesthetic grounds. Alongside environmentalist protests, the City of

Portland has protested sales that would affect the city's water supply. The MHNF plans to make up the loss in timber through salvage logging on the disease infested east side forest. Most of the logging will be selective with little or no clearcutting.[131] This ban ,however, comes only after several controversial sales, including timber sales on the border of the SalmonHuckleberry Wilderness.

In Forest Dreams and Forest Nightmares,Nancy Langston outlined how, in the Blue Mountains of Oregon, Forest Service management activities had the opposite effect of what they were supposed to have. Fire suppression led to more devastating fires. Attempts to control insects led to a decline in insect predators but not the insects themselves. The Forest Service clearcuts ended up encouraging the growth of fir trees rather than the desired and commercially valuable ponderosa pine. Langston has pointed out that the Forest Service response was to not stop the actions that were leading to the undesirable results but to intensify previous efforts of fire suppression and logging. She has observed that " foresters have always found it difficult to imagine alternative consequences for their actions." [132] By this she did not mean that the Forest Service failed to list alternative courses of action as required by NEPA, but that foresters had difficulty imaging that their silvicultural techniques would produce anything but a better, more

efficient, and even a more ecologically sound forest. While environmental conditions are different in the drier Blue Mountains than on the westside of the Cascades, MHNF planners are in danger of repeating the same pattern of failing to recognize alternative consequences for their plans. MHNF and national USFS planners expressed little doubt that their vision of providing ecological and economic gain by developing roadless areas would not work, but as the 1990 MHNF plan revealed, everything did no go quite as planned. If not for the creation of the SalmonHuckleberry wilderness, the problems would have been that much greater.

Time will reveal whether the Service's plans to road and/or log portions of the last remaining roadless areas of the MHNF are environmentally sound. In general, the Forest Service is heading toward using more and more sophisticated ecological theories, models , and practices. This SalmonHuckleberry case study showed that the Forest Service in the seventies mainly used ecological theories which justified logging and other management activates at the expense of roadless areas and their potential to become designated wilderness areas. Although the Forest made a commitment to protect some of the roadless areas from logging, the ecological values of these areas were not enough to be fully protected. Other than the need for timber, the Forest

Service is basing some of this intrusion into roadless areas as necessary to prevent fires, insects infestation, and disease and to promote healthy tree stands along with wildlife diversity. How valid these concerns are in the MHNF remains to be determined, but if the past is any guide, then critics of Forest Service policy have reason to be worried. The Forest Service is more responsive today toward protecting the ecological values of roadless areas, but it still will not prohibit management activities in many roadless areas because it believes that it can ecologically improve these areas. For critics of the Forest Service, this is evidence that the Forest Service has not learned enough from past mistakes.

Endnotes

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8. Ibid, 226.

9. USDA Forest Service, Mount Hood National Forest, Multiple-Use Plan: Zigzag Ranger District, Mount Hood National Forest (1968), 2-5.

10. Ibid, 5.

11. Ibid, 7-8.

12. Multiple-Use Plan: Zigzag Ranger District, Mount Hood National Forest , 32-34.

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35. Ibid, 170-171.

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1973), 515-529. Better know as Roadless Area Review and Evaluation 1 (RARE 1).

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40. Final Environmental Statement: Roadless and Undeveloped Areas ,24-31.

41. Ibid, 32-43.

42. Ibid, 42-46.

43. Ibid,102, 444-448.

44. Hendee, 131.

45. Final Environmental Statement: Roadless and Undeveloped Areas , 60-78.

46. Ibid, 95-96.

47. Ibid, 97-100.

48. Ibid,42.

49. Ibid, 529,35, and 95.

50. Ibid, 153

51. Hendee, 130.

52. Final Environmental Statement: Roadless and Undeveloped Areas , 2.

53. USDA Forest Service, Pacific Northwest Region, Mount Hood National Forest 1970 [Annual Report] (Portland, OR: Forest Service 1971), 2.

54. USDA Forest Service, Final Environmental Statement: Roaring River Unit and Salmon River Unit Land Use Plan (Portland,OR: Forest Service, 1974),6-7. A small portion was covered by the Bear Springs plan.

55. Ian McHarg, Design With Nature (Garden City, NY: Double Day, 1971), 104.

56. Ibid, 104-105.

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60. Final Environmental Statement: Roaring River Unit and Salmon River Unit Land Use Plan ,14.

61. Final Environmental Statement: Roaring River Unit and Salmon River Unit Land Use Plan , 108-109.

62. Ibid,104. The Forest Service defines foreground as from the observer to about one-quarter mile. Middleground from one-quarter to three to five miles. Background from three to five miles to infinity.

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95. Final Environmental Statement: Huckleberry Unit Land Use Plan,Mount Hood National Forest, 39-44.

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102. Wilderness Management, 135-136.

103. Final Environmental Statement: Roadless Areas Review and Evaluation (RARE II), 12.

104. Ibid, 12 and 148.

105. USDA Forest Service, Pacific Northwest Region. Oregon State Supplement to USDA Forest Service Environmental Statement: Roadless Area Review and Evaluation II (RARE II) (Portland,OR: Forest Service, 1978), 4-5. For the Bailey system see: Robert Bailey. Description of the Ecoregions of the United States (Washington D.C.: U.S. Department of Agriculture, Miscellaneous Publication Number 1391, 1980)1-75.

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148.

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108. Ibid, 25-31.

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