

Cooperation and Conflict in a Federal-Municipal Watershed:
A Case Study of Portland, Oregon

by

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Increasing demand for exploitation of natural resources in federal-municipal watersheds in the Western United States has caused conflicts involving municipalities, the U.S. Forest Service, and community interest groups. Better understanding of the resource management process is needed to help resolve these conflicts.

The objectives of this study were to document and analyze how attitudes, interest group activities, and applicable research affected federal-municipal management relationships in the Bull Run Watershed from 1890-1989. A descriptive model of decision-making in natural resource conflicts was also developed to provide a framework for future research.


A combination of historical and applied methodology was used in the case study. Archival searches, quantitative

and qualitative content analysis, public meeting observation, and interviews were used in gathering data.

Conclusions were that attitudes played a major role in the evolution of management relationships in Bull Run, interest groups provided incentive to institutionalize federal-municipal relationships, and research on timber harvest and water quality in Bull Run is not conclusive and has been used by interest groups to support opposing positions. The decision model illustrated how these three factors are related in resource decision-making.

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COOPERATION AND CONFLICT IN A FEDERAL-MUNICIPAL WATERSHED:
A CASE STUDY OF PORTLAND, OREGON

CHAPTER I. INTRODUCTION

A. BACKGROUND

In 1988, the U.S. Forest Service released an environmental impact statement which detailed a management plan for removing blown-down timber from the Bull Run Watershed. It was yet another attempt to address the conflicting concerns of environmentalists, the city of Portland, the Forest Service, and timber industry representatives regarding the management of the Bull Run Watershed.

Since the selection of the Bull Run in the 1880's as a source of Portland, Oregon's municipal water supply, there has been controversy over its management. Water quality considerations led to the passage in 1904 of the Bull Run Trespass Act (P.L. 206), which forbade any entry into the watershed except to protect the water supply. For five decades, the law severely restricted land use activities in the watershed.

In the 1950's, the U.S. Forest Service initiated large-scale timber harvesting in Bull Run, declaring that by removing old growth timber they were decreasing the possibility of catastrophic fire. In 1973, environmental groups sued the Forest Service, claiming that the 1904 Trespass Act was being violated. The Portland Federal

District Court agreed, and the watershed was closed to logging.

In 1977, the year after the successful court challenge to timber harvesting in the watershed, the U.S. Congress repealed the Trespass Act and reopened the Bull Run to multiple use (P.L. 95-200). The salvage logging of the blowdown in 1983 has added impetus to the continuing conflict over timber removal and water quality in a watershed owned by the federal government but serving as a vital resource for a city.

B. PROBLEM STATEMENT

Management of municipal watersheds located on national forest lands is an important issue in the Western United States. Increasing demand for exploitation of natural resources in federal-municipal watersheds has caused conflicts between municipalities, the Forest Service, and community interest groups (Burby et al. 1983, Lockman 1981, McKinley 1965). Better understanding of the watershed management process is needed to help resolve these conflicts.

By documenting and analyzing the evolution of federal-municipal relationships in the Bull Run Watershed, this research contributes to a better understanding of how resource management in federal-municipal watersheds¹

changes in response to changes in attitudes, interest group activities, and applicable research.

This study also addresses the wider problem of natural resource conflicts. Using the knowledge gained from the Bull Run analysis, a stress model of decision-making in natural resource conflicts provides a framework for future research.

C. STUDY OBJECTIVES

1. Give an overview of watershed management in the Western United States National Forests from 1860 to 1989.
2. Document the evolution of federal-municipal management relationships in the Bull Run Watershed from 1890-1989.
3. Analyze how attitudes², interest group³ activities, and applicable research⁴ affected federal-municipal management relationships in the Bull Run Watershed from 1890-1989.
4. Construct a descriptive model of decision-making in natural resource conflicts that will provide a framework for future research.

D. CONCEPTUAL BACKGROUND AND PRIOR RESEARCH

Many geographic studies of natural resource conflicts have adopted Zimmerman's concept of a resource. For him, a resource was culturally defined by human wants, perceptions, technology, and political and economic institutions. "Resources are not, they become" (Zimmerman 1951).

Using Zimmerman's functional definition of resources, geographic research has emphasized man's relationship to his environment in which "neutral stuff" is converted into resources. Harlan Barrows, in his 1923 presidential address to the Association of American Geographers, pointed out the role of the geographer in explaining the relationships existing between natural resources and the activities of man. "To view the life of nations and of communities in relation to their environments provides one indispensable prerequisite to understanding their problems and their attitudes, and so helps to pave the way for effective cooperation."

This study combines historical and applied approaches in studying man-environment relationships. The historical dimension was emphasized by Carl Sauer in 1941 when he stressed the evolutionary nature of man-land relationships. A recurring theme in historical geography has been the record of man's use of natural resources: water, soil, vegetation, and animal life. Clark (1954)

noted that historical studies have made contributions to understanding changing resource use and serve as an aid to resource planning. Mitchell (1989) emphasized the historical dimension in studying the social system in relation to the environment.

Pragmatic concern with resource decision-making has been a focus of applied research (Wescoat 1987). This approach has focused on such topics as the influence of perceptions, attitudes, institutions, and political behavior on resource management. O'Riordan (1971) has noted that "one of the most fundamental research needs in resource management is the analysis of how institutional arrangements are formed, and how they evolve in response to changing needs and the existence of internal and external stress."

Research using these two approaches is not characterized by a firm theoretical foundation. Zabler (1966) noted the resources field is lacking in theoretical constructs and the identification of variables is the most pressing task. According to Moore (1975), no overall schemas, paradigms, or predictive models have emerged. Descriptive models which indicate the nature of resource allocation processes and recommendations that make those processes more effective have been cited as valuable contributions to resource studies in geography (Mitchell 1989). The predominant method has been the detailed case

study, which Park (1986) cites as having made significant contributions to resource allocation decisions.

In summary, this dissertation follows other geographic research in natural resource management in relying on a phenomenological research philosophy, identifying key variables, developing a descriptive model, and using the explanatory case study method. Geographers have made numerous contributions to natural resource management using these approaches.

White (1961), in a study analyzing decisions on the use of floodplains, stated that decision making centers on the resource managers (individuals or groups) and their choice of use is influenced by resource quantity and quality, present value of gains and losses, technological change, and spatial linkage. He suggested this framework be used in examining decisions on the choice of use in public forests. The range of choice is limited by agency commitments, spatial size and organization, and previous assumptions regarding the resource. White noted that as multiple-use becomes more intense, the need for analysis of management decisions increases.

Institutional studies of water resources have contributed to increased understanding of water management. Muckleston (1986) used the Willamette River of Oregon as a case study of changing management characteristics as the socio-economic aspects of society changed through 150 years of use. By examining stages of

indigenous occupance, early settlement, and urbanization and industrialization, he traced the relationships between changes in society and changes in water management.

Kasperson (1969) carried out an exploratory study which examined attitudes and political behavior in a water resource dispute in Massachusetts. Rapidly expanding population in the Brockton, Massachusetts area began to strain municipal water supply. The extent of future water consumption and alternatives to increase supply were the principal factors in the dispute.

Kasperson sought to describe attitudes and political behavior in the Brockton dispute and to identify larger issues in the public management of natural resources. Using interviews, content analysis of newspapers, and archival sources (reports, historical literature, and legislative documents), he found attitudes toward alternatives were connected to precedent and myths concerning local water supplies. Reliance on experts to provide accurate information and to make decisions caused problems when forecasts of future water consumption and supply alternatives were incorrect. Changes in water management occurred only when decision-makers considered social and political values in addition to cost-benefit analysis and technical reports.

A study examining the use of water supply reservoirs for recreation by Bauman (1969) analyzed managers' perceptions of reservoir use by recreationists and noted

regional differences. Using mail questionnaires, a literature review, and interviews, Bauman found managers in the Northeast and Far West generally restricted activities on reservoirs while the Interior-South permitted activities. He termed these three areas geobehavioral regions and concluded differences resulted from social guides (laws, state policies, consumer and managerial attitudes), land use changes, and historical evolution (which he termed the single greatest factor).

A conflict over water needs of Victoria, British Columbia and minimum in-stream flows for salmon was studied by Wood (1976). He sought to gain insight into community decision-making and how decision-making structures could be modified to incorporate input from interested citizens. He concluded that as the possibility of salmon elimination increased, conservationists began a campaign to "save" water in order to put pressure on the water board to change their policy. The conservationists' strategy was successful, decreasing water sales considerably. A compromise on water release was eventually reached and Wood concluded that early involvement of interest groups in the decision-making process reduces the amount of conflict in making resource decisions.

The amount of stress placed on decision-makers was also the subject of a study done by Sewell (1977). He used management of the Fraser River Basin in British Columbia to illustrate the role of stress in influencing water

planning and policymaking. Stress was caused by catastrophic floods in 1948 and 1972, and deteriorating water quality in the early 70's. Pressure from environmental groups and threats by the federal government to intervene initiated changes in management by local governments. Sewell concluded that changes in management strategies will not occur until some crisis or perceived threat precipitates action.

These studies concerning attitudes, institutions, and political behavior, using both historical and applied approaches, have contributed to a better understanding of conflicts involving water and related land resource management. Research concerning how these factors affect management relationships in federal-municipal watersheds has not been undertaken. There has been research done on other aspects of the Bull Run Watershed.

Casey Short, an employee of the Portland Water Bureau, wrote a history of the Portland water supply, emphasizing the Water Bureau's role (Portland Water Bureau 1983). He traced the history of the Water Bureau in its efforts to supply the city of Portland with a reliable and safe water supply. Short praises the far-sightedness of city leaders who chose Bull Run as a water source and initiated development of the delivery system. Written at the request and with the sponsorship of the Water Bureau, Short's book provides a valuable reference but does not document the Water Bureau's management relationship with the Forest

Service or identify the key variables which affected that relationship.

Walter Jei Mah (1977) wrote on the management conflicts in the Bull Run Reserve at a time of extensive activity on the Bull Run issue. The watershed had been closed to logging by Judge Burns and Congress was considering a bill which would address Bull Run management. Mah's paper summarized the activities which led to the lawsuit and suggested alternatives for Bull Run management. One suggestion was to improve the coordination between Portland and the Forest Service, noting that cooperation between the local and federal actors would be necessary to resolve the conflict.

Stephen Levy wrote a report for the Bull Run Interest Group in 1977 which addressed the Bull Run issue from the viewpoint of an environmental activist. Arguing against continued activity in the reserve, the paper provides insight into the attitudes of the interest groups which affected the city-Forest Service relationship.

The U.S. Forest Service issued Bull Run Environmental Impact Statements in 1976, 1979, 1987, and 1988 which included references to events important in the management history of the watershed. Each was written at a critical juncture in the evolution of Bull Run management. The 1976 statement was issued after the closure of the watershed by the lawsuit and set the stage for congressional action.

The 1979 statement included the provisions of the 1977 Bull Run bill.

The 1987 and 1988 statements resulted from the blowdown of 1983 which re-ignited the controversy over Bull Run management. All four statements are valuable sources in providing information on Forest Service attempts to establish management relationships with the city.

E. METHODS

The real problem of geography is how to combine the subjective view, which is the essence of the art of description, with explanation in which the subjective view has no place. History in its broadest sense helps to bridge the gap.

H.C. Prince (In Newcomb 1969)

This dissertation uses the case study method in combining description and analysis. Yin (1984) defines case studies as those research studies which investigate situations in which phenomena and context are not clearly distinguished and in which multiple sources are used. They describe phenomena, explain the links between phenomena, and develop hypotheses for further study. This dissertation uses these techniques in describing federal-municipal management in the Bull Run Watershed and explaining the links between attitudes, interest groups, and research. Conclusions are then developed which may serve as hypotheses for further study.

The design of the case study is what Yin (1984) terms the single-case embedded type. This is when a single case has been chosen because of its unique aspects and sub-units are embedded which serve as units of analysis. In this case study, the Bull Run watershed was chosen as a single case study because it serves the largest number of people in Oregon (630,000), has a long and well-documented history, has been the center of controversy over land use practices since 1892, and has a unique federal-municipal relationship with the United States Forest Service. The embedded units of analysis which serve to illustrate the links between attitudes, interest groups, research, and management relationships are the Forest Service, the Portland City Council and Water Bureau, and environmental and forest industry interest groups.

The case study method has been used extensively in resource studies in geography. Whitaker (1954) noted case studies of resource use are "especially needed for shaping action programs of controversial aspects of resource development." The embedded single-case design which this study uses combines historical and applied approaches in analyzing the evolution of a federal-municipal conflict in natural resource development. This integrated context has been suggested as a valuable means to understand the origins and changes in natural resource management (McKinley 1965, Fox 1966, Bauman 1969).

Evidence was collected through archival searches, content analysis, direct observation, and interviews. Archival searches were conducted at the Portland Archives and Records Center, the Portland Water Bureau, and the Columbia Gorge District of the Mount Hood National Forest. Material analyzed at these archives included notes, memorandums, letters, news releases, and other documents pertinent to relations between Portland and the U.S. Forest Service.

Another archive that was a valuable source was the Bull Run Interest Group files at Multnomah County Library. Collected and maintained by an environmental interest group, the files contain extensive documentation of the lobbying activities of the group. These documents were valuable in providing an outside view of the official documents of the city and the Forest Service.

Official documents were supplemented by a content analysis of newspaper articles from 1900 to the blowdown salvage operations in 1989. Weber (1985) defines content analysis as a method that uses quantitative and qualitative data in assessing changes in relations between political, social, economic, and cultural factors. The purpose of the content analysis in this study was to determine changes in the interest level in Bull Run from 1900-1989, changes in interest group participation in Bull Run management, and changes in attitudes toward land use in the Bull Run Watershed.

Four newspaper indexes were used in collecting articles from 1900-1987 on the Bull Run Watershed.⁵ Articles from 1987-1989 were clipped from the Oregonian. One hundred ninety-nine articles were photocopied, catalogued according to date, and coded. Figure 1 shows the number of articles by decade and illustrates the increased public awareness of activities concerned with the Bull Run Watershed. More detailed results of the content analysis are discussed in the conclusions section of chapter IV.

In addition to document and content analysis, data was obtained through direct observation and interviews. Direct observation was used to record arguments and interactions between individuals representing the Forest Service, Portland, and interest groups at public hearings concerning the management of the 1983 blowdown⁶. Although blowdown management was nominally the topic of the public hearings, past and present management of water quality monitoring, harvest levels, city and Forest Service responsibilities, and citizen input opportunities were frequently addressed.

Interviews were conducted with representatives from the Portland Water Bureau, the Forest Service, and environmental and industry interest groups.⁷ A free form format was used in which questions were prepared in advance but the interview was not limited to these questions. The primary purpose was to elicit attitudes concerning the Forest Service-city relationship and to

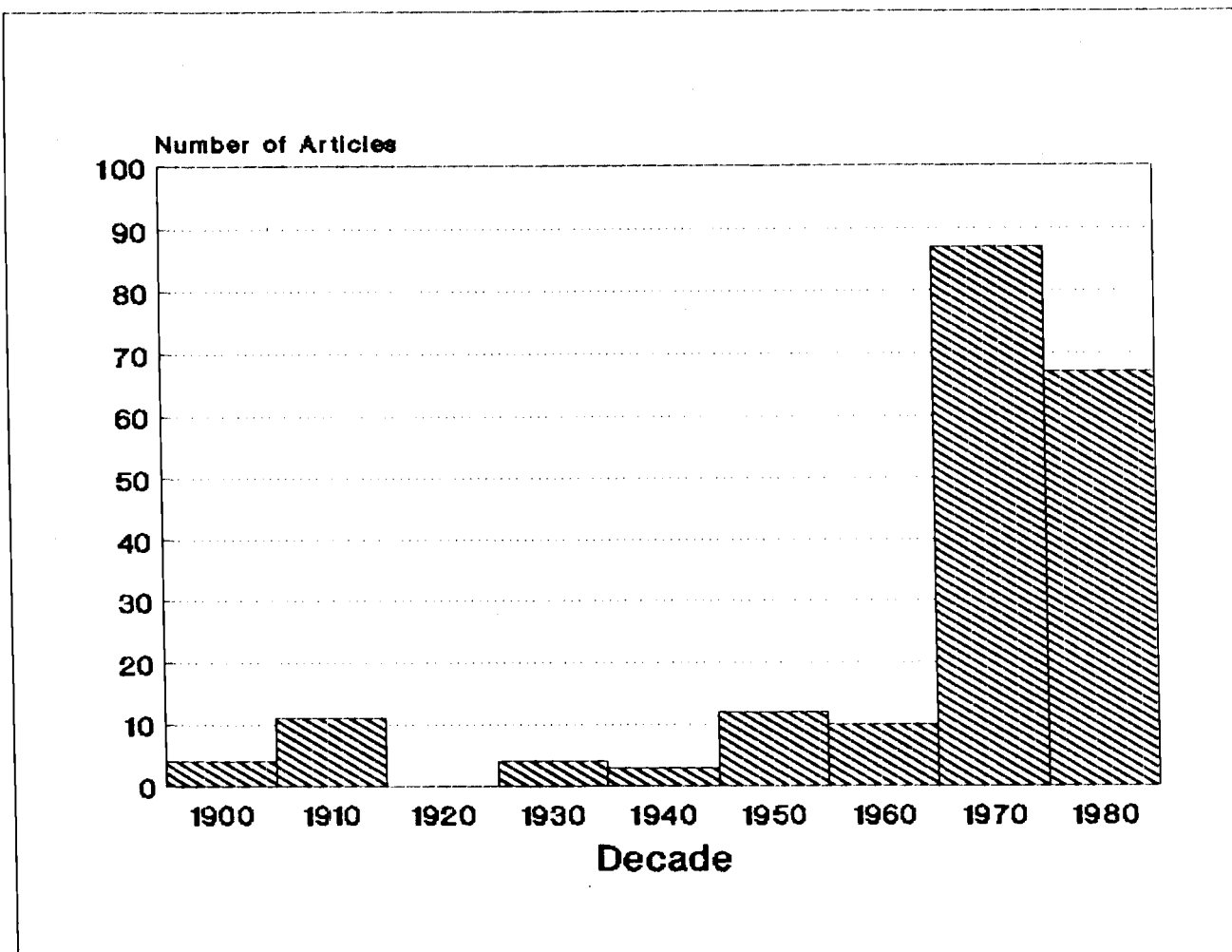


Fig. 1 Number of Oregonian Articles Concerning
the Bull Run Watershed 1900-1989

acquire information as to the role of the agency or interest group in affecting city-Forest Service relations.

The data obtained from archival searches, content analysis, direct observation, and interviews were used to support explanations which linked changes in attitudes, interest group activities, and research with changes in federal-municipal management in the Bull Run Watershed. Conclusions on the effects of each of these three variables was then compared with similar studies by resource geographers.

These conclusions provided a basis to extend the study to a more general view of resource decision-making. Variables important in resource decision-making suggested by White (1961) have been used by Kasperson (1969) and Wood (1976) in constructing stress models. This study provides a framework for future research in resource management by developing a stress model based on the Bull Run study.

By identifying variables and their links to natural resource decision-making and constructing a descriptive model, this study seeks to attain what Yin (1984) states is one of the advantages of detailed case studies: critical insight into the policy-making process.

F. Endnotes

1. federal-municipal watershed - a municipal watershed that is located wholly or partly on land owned and managed by the federal government.
2. attitude - organized set of beliefs which influences behavior.
3. interest group - an organized group that seeks to influence the outcome of a resource allocation.
4. applicable research - studies on the relationship between timber harvest and water quality.
5. a. Oregonian. Microfilm Index, 1916-1959, Reels 1-16. Oregon State University Library.
- b. Oregonian. Card Catalogue Index, 1952-1987. Oregon State University Library.
- c. Oregonian. Business Journal. Oregon Journal. Willamette Week. Microfilm Index, 1902-1984.
- d. Microfilm Index, 1970-1975.
6. Observations were conducted at six public hearings with approximately 22 hours of observation time.
7. Interviews:
 - a. Bruce Niss. Watershed Resources Adviser. Portland Water Bureau.
 - b. Dr. Joseph L. Miller. Bull Run Interest Group. Portland, Oregon.
 - c. John Straughan. Oregon Department of Human Resources. Drinking Water Division. Portland, Oregon.
 - d. Connie Athman. Hydrologist. Columbia Gorge Ranger District. Mount Hood National Forest.
 - e. Bruce McCammon. Hydrologist. Columbia Gorge Ranger District. Mount Hood National Forest.
 - f. John A. Charles. Executive Director. Oregon Environmental Council. Portland, Oregon.

CHAPTER II. FEDERAL-MUNICIPAL WATERSHEDS IN WESTERN NATIONAL FORESTS

A. Introduction

The national forests of the western United States are a primary source of municipal water supplies. Although they make up 21 percent of the area of the 11 western states,¹ they receive 32 percent of the total precipitation, and furnish 53 percent of the total annual runoff (Munns 1952). In Oregon alone, 79 municipalities have their watersheds on national forest land (McKinley 1965). Table 1 contains statistics for some larger municipal watersheds on western national forest lands. In contrast, most watersheds in the eastern United States are owned and operated by a variety of public agencies, private water companies, regional water districts, and cooperatives (CEQ 1975).

Water from the western national forests is especially valuable because of its timing and quality. It is available in late spring and summer when sources in lower elevations are drying up, and its quality is high due to its low salinity. As the demand for resource utilization on municipal watersheds in the national forests increases, cooperative relationships between municipalities and the Forest Service assume more importance.

This chapter's purpose is to give an overview of national forest watershed management since the origin of

Table 1
Statistics for Some Larger Municipal Watersheds
on National Forest System Lands

Municipality	Population Served	City Water Supplied By Watershed (percent)	National Forest Lands (percent)	Municipal Lands (percent)	Total Watershed Area (acres)
Arizona Phoenix	1,173,000	13	59	0	8,400,000
California East Bay	1,100,000	100	88	7	368,640
Los Angeles	3,400,000	80	75	20.5	755,200
San Bernadino	102,300	5	87	13	2,720
Colorado Colorado Springs	135,000	100	95	1	50,000
Denver	1,250,000	99	54		1,250,000
Ft. Collins	50,000	100	96	4	64,000
Montana Bozeman	23,000	100	82	9	39,400
Helena	25,000	80	77	5	35,660
Missoula	45,000	85	60	32	47,700
Nevada Reno-Sparks	131,000	85	33	1	64,410
New Mexico Santa Fe	45,000	36	92	7	16,800
Utah Salt Lake City	285,000	89	59	32	118,850
Oregon Corvallis	35,000	40	76	24	9,000
Portland	600,000	100	97	3	68,074
Washington Seattle	900,000	100	22	71	104,000

Source: U.S. Congress. Senate. Subcommittee on Public Lands and Resources. 1977.

the conservation movement in the 1860's. This overview provides a context in which the Bull Run case study may be seen in the light of past experience in decision-making concerning urban water supplies on national forest land.

B. The Conservation Movement 1860-1891

In 1847 George Perkins Marsh described Vermont watersheds as bald and barren hills with the dry beds of the smaller streams furrowed out by the torrents of spring. "They seem sad substitutes for the pleasant groves and brooks and broad meadows" (Marsh 1847 in Lowenthal 1952). Concern for watersheds helped inspire Marsh to write Man and Nature in 1864, a widely popular book which heralded the beginning of the conservation movement.

During the quarter century after the civil war, expanding population and an improving business climate increased demand for forest products. The logging industry expanded from the Northeast, the South, and the lake states to the Northwest and continued the rapid exploitation of the forested landscape with accompanying watershed problems (Dana and Fairfax 1980).

This destruction was causing serious water problems in the arid and semi-arid West. However, there were groups and individuals who began to press for action to halt forest destruction. They believed that the protection of forests was closely connected with water quality and

quantity. Popular concepts that forests produced rain, prevented floods, and retained moisture caused concern about rampant deforestation. "Eastern activists might have been bent on scenery or forest management, but for every Westerner opposed to the forest protection movement there were thirsty Westerners, many with thirsty livestock, who believed, at some level of analytical sophistication, that water grew on trees" (Dana and Fairfax 1980).

There were numerous scientific reports that documented the deterioration of forested watersheds. The United States Geological Survey, the agricultural experiment stations, and the land grant colleges were concerned with the preservation of natural resources. In 1878 John Wesley Powell wrote the Report on the Lands of the Arid Region of the United States, in which he suggested that western lands be classified according to watersheds rather than using the grid system as a basic planning unit.

Several attempts were made to respond to the growing concern about harmful effects on water supplies from forest exploitation. Unsuccessful efforts were made in Congress in 1876 to reserve 6,000 square miles in the headwaters of the Columbia and Missouri rivers to protect water quality and flow rate. In 1885, New York passed a constitutional amendment prohibiting cutting of timber on a newly created preserve in order to protect water supplies. A year later, the American Forestry Congress advocated federal lands containing stream sources be

granted to the states in order to preserve a full supply of water in all rivers and streams (Salmond and Croft 1955).

Rakestraw (1955a) and Lockman (1981) cite as a cause of the conservation movement apprehension about the effect of forest destruction on urban water supplies. Private entrepreneurs had operated many of the urban water supply services but generally provided unsatisfactory service. City governments enhanced their power by providing municipal water supplies and making efforts to protect their supply from logging and grazing. Prime examples of this pattern are Portland and other cities who, in the 1890's, began purchasing private water companies or obtaining new sources. In the Pacific Northwest the Oregon Alpine Club (later renamed the Mazamas) lobbied to include municipal watersheds in the newly created forest reserves (Robbins 1985).

C. Forest Reserves 1891-1960

The conservation movement provided the impetus for the creation of the forest reserves in 1891. Earlier attempts to set aside areas for forest protection had failed. In 1889, John B. Waldo, an Oregon state legislator, was concerned about the degradation of the Cascades and introduced a bill in the state legislature which would request the Federal government to set aside 12 miles on

each side of the summits in Oregon to preserve the "... wildness, game, fish, water and other fowl, its scenery, the beauty of its flora, the purity of its atmosphere, and healthfulness, and other attractions ..." (Rakestraw 1955b). Waldo suggested that a combination of federal and state commissioners appointed by the governor and the President could administer the reserve. The bill passed in the house but sheep grazing interests marshalled their forces and tabled the bill in the Oregon senate where it died.

Congress also wrestled with the problem of protecting watersheds. Numerous attempts were made to pass some sort of conservation bill which would enact a comprehensive forest policy or set aside specific forest reserves. Las Vegas, New Mexico, and several small cities in Colorado introduced bills to protect their watersheds, but none passed. Then as a last minute addition, Secretary of the Interior Noble managed to attach a rider to a bill which gave the President the power to set aside forest reserves. On March 3, 1891, the Forest Reserve Act (26 Stat. 1095) was passed by Congress. The rider (section 24) led to consequences which the legislators who passed it had not anticipated (Rakestraw 1955b).

Shortly after the bill's passage, President Harrison proclaimed the Yellowstone National Park Reserve and by the end of his term had withdrawn 15 reserves totaling 13 million acres (Huffman 1978). Grover Cleveland followed

Harrison's lead and established two Oregon reserves in 1897 totaling four and one-half million acres. Shortly before his term expired in 1897, Cleveland nearly doubled the acreage of the forest reserves by setting aside 21 million additional acres. The reserves were further increased by Theodore Roosevelt's action in 1907 in which he added 16 million acres. They were called the midnight reserves because the next day he signed into law the act of March 4, 1907 (34 Stat. 1256, 1269), which renamed the reserves as national forests and allowed only Congress to create or enlarge reserves (Steen 1976).

In drawing up boundaries for the forest reserves, the rationale, as explained by land office commissioner M. Lamereaux, was to "... cover the headwaters of streams, so that the water supply may be protected as far as possible ..." (M. Lamereaux in Lockman 1981). In 1897, a Division of Geography and Forestry was established by the United States Geological Survey to survey and map forest reserves and to analyze resource data. However, the forest reserves were not to remain merely sources for water protection and research.

Strong opposition to the "closing up" of the Western forests resulted in the Pettigrew amendment to the Sundry Civil Appropriations Act of June 4, 1897 (16 U.S.C. 475), which specified that no forest reserves could be established except to "improve and protect the forest within the reservation, or for the purpose of securing

favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States...". This act, known as the Organic Act, was seen by Gifford Pinchot, the leading advocate of utilitarian conservation, as the most important federal forest legislation ever enacted. It opened up the reserves to wider use and to the practice of what Pinchot considered scientific forestry (Huffman 1978).

In emphasizing the multiple benefits flowing from the National Forests, the Forest Service consistently emphasized its role as the protector of watersheds. The Weeks Act in 1911 (16 U.S.C. 480) was supported by assertions that forest cover played a large part in the regulation of streamflow and thereby affected navigation on interstate streams. Although there was little evidence for this view, the act was passed and enabled the Forest Service to purchase lands within the watersheds of navigable streams. After the act's passage, the Forest Service helped to sponsor research in the White Mountains of the Upper Rio Grande Basin that would examine the relationship between land use and streamflow. Over the length of the study no relationship could be found and what was known as the Wagon Wheel Gap research was gradually abandoned (White 1969).

The Weeks Act also provided money for cooperation between the states and the federal government in fire

prevention and control. Cooperation with state and local leaders had been part of Forest Service policy since the efforts to establish forest reserves to protect municipal watersheds. Cooperation, however, did not extend to relinquishing management control. In 1911, the year the Weeks Act was passed, the city of Seattle, Washington advanced the idea of gaining title to national forest lands east of the city which contained the city's watershed. Chief Forester Henry Graves and his staff agreed that transferring title to cities would set a bad precedent and that the Forest Service was best suited to manage water flow (Robbins 1985). In 1919, the Forest Service signed a cooperative agreement to manage the watershed of Salt Lake City while maintaining full control over the area. Cooperative agreements allowing input but reserving final decision authority set the precedent for relationships with municipalities who were concerned about management of their watersheds (Robbins 1985).

In 1913, in an article in *Surburban Life*, Buck referred to the Forest Service as the "Pure Water Bureau," and emphasized its role as the protector of municipal water supplies. She mentioned cooperative agreements with various cities that excluded stock and the public and set up patrols that enforced the agreements. Baker, Portland, and The Dalles, Oregon were cited as examples of a system that "... insures protection against contamination."

In 1919, Dana stated that the primary values of water in the national forests were to provide domestic water supplies, transportation, and power. Seven Hundred Thirty-Two western towns and cities containing 2,265,000 people depended on the national forests for their water supply and many had cooperative agreements with the Forest Service (He mentioned Denver, Salt Lake City, Los Angeles, and Portland). Recognizing that fire, destructive lumbering, and overgrazing could seriously affect the water supply, Dana cautioned that the Forest Service provides protection against these problems and stated that destructive timber cutting on national forests was a "... thing of the past...".

Cooperative agreements were codified when the Act of May 28, 1940 (54 Stat. 220), was passed. The Secretary of Agriculture was given the authority to enter into cooperative agreements with municipalities which obtain their water supplies from national forests. The President was given the power to set aside from all forms of location, entry, or appropriation lands which are covered by such cooperative agreements. If a municipality objects to resource use on its watershed, it must pay the Forest Service the amount of lost revenue. This landmark act is included as Appendix A.

Watershed management has been a consistent theme in legislation concerning national forests since the establishment of the forest reserves. During the economic

boom after World War II, watershed and timber uses began to compete with stock grazing, recreation, wilderness, and other uses on national forest land. The Forest Service, faced with these competing interests, sought legislative authority for a multiple-use policy.

D. Contemporary Management 1960 - 1989

The Multiple-Use Planning Act (MUPA) of 1960 (74 Stat. 215) codified what had been a long-standing Forest Service practice. Water management was only one of a number of uses that were to be taken into account in managing the forests. It was important that the act did not designate priorities. The Forest Service was given the discretion to decide which resource would be the "highest use" in a particular area and if competing uses could coexist, such as water supply and timber harvest. As the case study illustrates, lawsuits frequently followed these types of resource allocation decisions. Other legislation in the 70's also had major effects on national forest municipal water management.

The National Environmental Policy Act (NEPA) of 1970 (83 Stat. 852) requires that an environmental impact statement be prepared for any federal action that might "significantly affect the quality of the human environment." This act has been used extensively in litigation which questions Forest Service actions

regarding forest practices on municipal watersheds.

The Resources Planning Act (RPA) of 1974 (88 Stat. 476) requires an assessment of present and potential productivity of Forest Service land and cites the necessity to protect and maintain soil and water resources. A decennial assessment of renewable resources is required with updates at intervals of five years.

The National Forest Management Act (NFMA) of 1976 (16 U.S.C. 1600) addresses timber management practices and strengthens the references in the RPA pertaining to suitability and maintenance of land productivity and the need to protect and improve the quality of soil and water resources. Planning by the Forest Service to maintain water quality is mandated by the NFMA and requires the protection of water quality and fish habitat.

Water quality regulation on the national forests is also affected by the Federal Water Pollution Control Act (FWPCA) of 1972 (86 Stat. 816),² which requires state plans to control pollution problems from nonpoint source activities such as silviculture (Section 208). Amendments of February 4, 1987, require the states to set specific water quality standards. The FWPCA further states that federal agencies are subject to all procedural and substantive requirements of state water quality law and standards (Anderson 1987b).

The Safe Drinking Water Act (SDWA) of 1974 (P.L. 93-523) gave the federal government the authority to set

standards and to mandate treatment techniques specifically for drinking water. The Environmental Protection Agency was required to set standards for contaminants in drinking water. However, regulations designed to protect drinking water quality at its source through land use restrictions were not part of the act, largely because land use is still viewed as a state and local responsibility (Burby et. al 1983).

A recent case has pointed out that the Forest Service is subject to state water quality standards mandated by EPA. Prior to this case, the Forest Service plan to meet state standards involved the use of Best Management Practices (BMP's), not numerical limits on contaminants. In 1982 the state of California sued the Forest Service, claiming that logging and road-building in the Blue Creek area of the Klamath River basin would violate state water quality standards. The district court for the Northern District of California ruled that the Forest Service was violating the NEPA and the FWPCA and enjoined all timber harvesting and road construction in the Blue Creek area until an environmental impact study was prepared showing that the logging would not violate the FWPCA (Anderson 1987a).

There are also laws that apply to specific watersheds. In Region 6 of the Forest Service, The Act of 1977 (19 Stat. 1425) repealed earlier laws applying to the Bull Run Watershed, and The Act of March 4, 1921 (41 Stat. 1366-

1367) applies to the City of Yakima, Washington's watershed. There are also laws that apply to specific municipal watersheds in other Forest Service regions, but the 1977 Bull Run law is unique in its provisions regarding the federal-municipal management relationship.

The Multiple-Use Act, NEPA, the RPA, the NFMA, the FWPCA, the SDWA, and the individual watershed laws affect the municipal watershed policies outlined in the Forest Service Manual (Forest Service 1986). The objective of municipal watershed management on the national forests, as stated in the FSM, is to balance present and future water supply needs with multiple-use policies. Identifying watersheds providing the principal source of community water supplies, developing management prescriptions on a case by case basis, and maintaining inventories of municipal watersheds at national, regional, and forest levels are part of the written policies of the Forest Service.

The Chief of the Forest Service has the authority to approve and execute formal agreements that restrict the use of national forest lands in municipal watersheds. Cooperative agreements and memos of understanding institutionalize the federal-local relationship and are extensively discussed in the Bull Run case study.

Cooperative agreements in Region 6 were discussed by Jeff M. Sirmon, former PNW Regional Forester, in a speech to the PNW section of the American Water Well Association

in 1984. He stated that no cooperative agreements prohibit harvesting, recreation, or grazing. Furthermore, all recognize the importance of water quality, the need for cooperation and coordination between municipalities and the Forest Service, and the administrative control of those uses. Restrictions on use are usually temporary and "... public access restriction should not be a substitute for adequate water treatment, which is the purveyor's responsibility rather than the landowner's from which the water flows." He emphasized that the Forest Service has the legal mandate to exercise control and management of the land and cannot relinquish that authority to others. He also mentioned that the Act of May 28, 1940 requiring reimbursement has not been applied but may be used in the future.

In summary, watershed protection in western national forests has evolved through rampant exploitation in the colonial era, increasing concern for conservation after the civil war, and as a major rationale for the establishment of the forest reserves at the close of the 19th century. With the transfer of the reserves to the Department of Agriculture in 1905, the Forest Service assumed responsibility for the management of the reserves and instituted a multiple-use policy. Long viewed as the final arbiter in how to utilize the forest resource, the Forest Service was forced in the 1960's and 1970's to open up their decision process to public scrutiny. Demand for

recreation, the environmental movement, and concern over timber harvest and water quality caused conflicts. Municipalities in the West have demanded input into management as land use activities have increased on the national forests. In a 1981 survey of community water system managers, forest activities as a source of pollution were seen as a problem by 32% of managers nationwide, but by 73% in the Pacific Northwest (Burby et al. 1983).³ The protection of those water supplies has led municipalities to search for institutions that will provide them with an input into management decisions that have historically been made by the Forest Service.

In a study on the evolution of attitudes toward Southern California watersheds, Lockman (1981) quotes Lukens (1905). "Public buildings can wait, harbor improvements can wait; irrigation projects can wait. But the watershed, which is the mother of streams, and hence, the source of all the institutions of our social and economic life, can wait no longer." The research and case study which follow analyze this resource conflict as the citizens of Portland have cooperated at times, battled at times, and acquiesced at times in their efforts to maintain their watershed's contribution to their social and economic life.

E. Endnotes

1. Washington, California, Oregon, Idaho, Colorado, Wyoming, Montana, New Mexico, Utah, Arizona, Nevada.
2. The original FWPCA was enacted in 1948 and has been amended numerous times. The 1977 amendments changed the name to the Clean Water Act.
3. The survey was completed in the Spring of 1981, and consisted of 496 community water system managers in the United States. Two criteria for inclusion in the survey were that the community use a surface water supply and that the population be from 5,000 to 500,000 persons. The Pacific Northwest states included Arkansas(sic), Idaho, Oregon, and Washington.

CHAPTER III. THE BULL RUN WATERSHED: A CASE STUDY

A. Introduction

A major objective of this study is to document and analyze the evolution of management relationships between Portland and the Forest Service using a case study approach. This chapter describes the location and environment in which those relationships evolved and discusses research which addresses water quality and timber harvest in the Bull Run Watershed.

1. Location

The Bull Run Watershed is located 30 miles east of Portland, Oregon in the Mount Hood National Forest (Fig. 2). It is the primary source of the Portland water system with 21 billion gallons of storage in Bull Run Lake (4 billion gallons), and reservoirs 1 and 2 (17 billion gallons). Since 1982, hydroelectric facilities at dams 1 and 2 have produced an average of 69 million kilowatt hours of electricity each year.

There are three conduits with a capacity of 225 million gallons per day (mgd) located just below the headworks (Fig. 3). The average water demand is 115 mgd, ranging from 95 mgd in February to 165 mgd in July and August. Peak daily demand in July and August is over 225 mgd, the shortfall being supplied from a wellfield in Portland

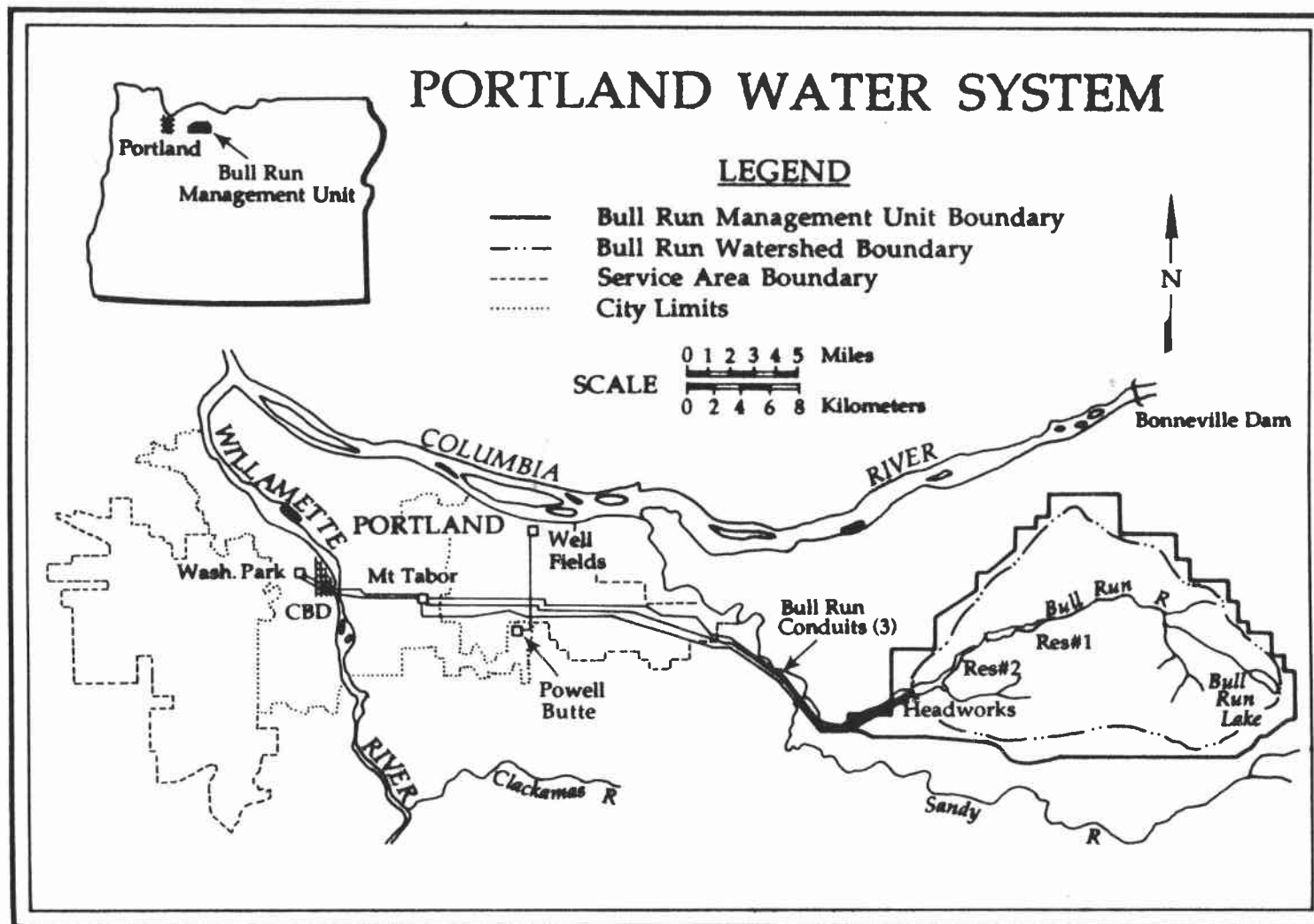


Fig. 2 The Portland Water System

BULL RUN RESERVE

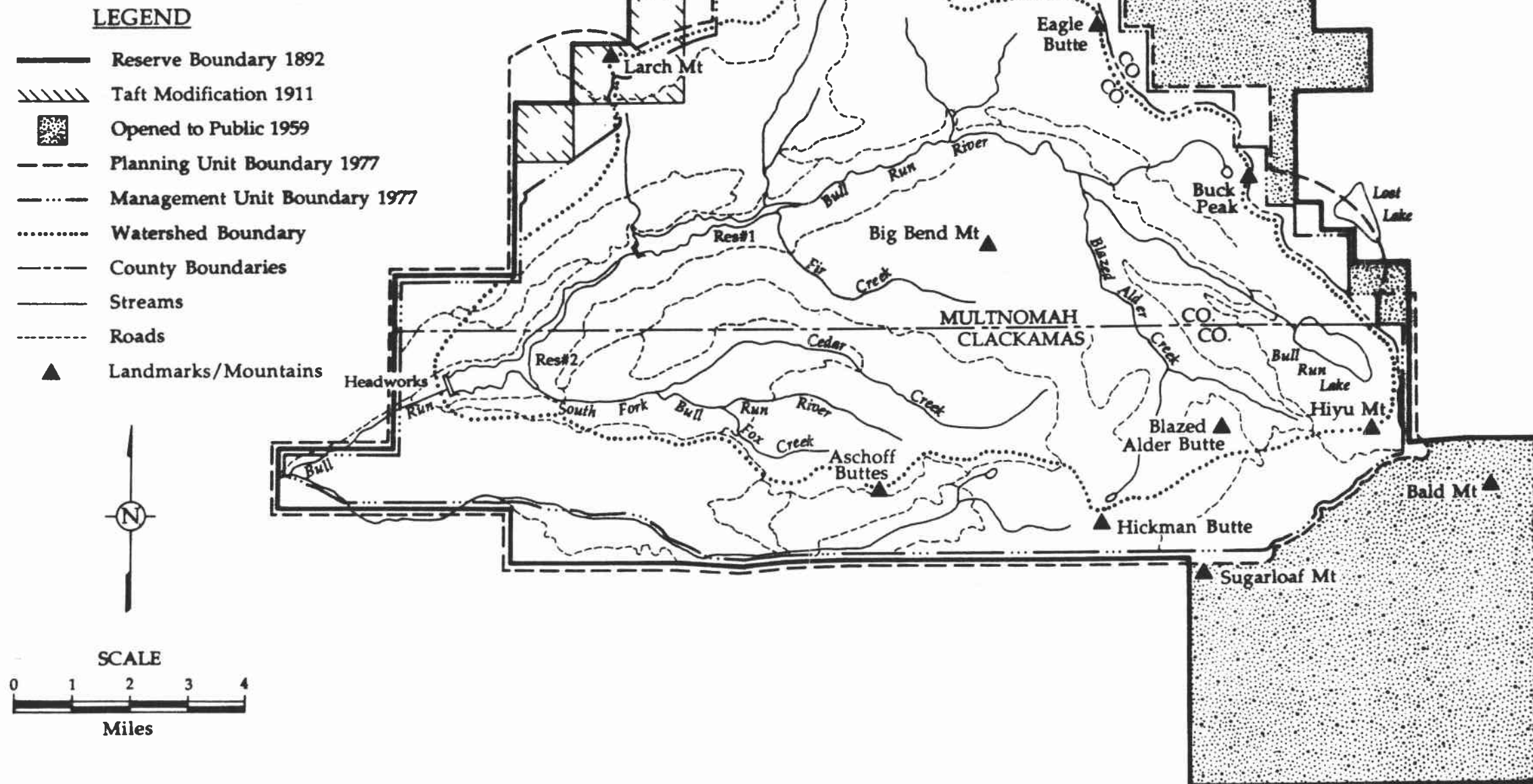


Fig. 3 The Bull Run Reserve

capable of supplying 90 mgd. The wellfield is also used to dilute water which doesn't meet water quality standards (Forest Service 1988).

The watershed has undergone a number of boundary changes since its designation as Portland's water supply in 1888. The following list of terms from the 1979 Bull Run Planning Unit Final Environmental Impact Statement are presently used in referring to the Bull Run Watershed. These areas are indicated on the map in Fig. 3.

Bull Run Reserve (142,080 acres) - The original Bull Run Reserve proclaimed by President Harrison in 1892.

Management Unit (95,382 acres) - Established in 1977 by PL 95-200. Closed to public entry by administrative order.

Planning Unit (101,401 acres) - Area addressed by the 1979 Final Environmental Impact Statement. Includes the management unit plus additional acres in the vicinity of Lost Lake and Larch Mountain.

Watershed (68,074 acres) - The physical drainage of the Bull Run River. Often termed the Bull Run Drainage.

Buffer (27,308 acres) - The area within the management unit but outside the drainage.

2. The Bull Run Environment

Components of the physical environment that have affected management in Bull Run include climate, geology, hydrology, soils, vegetation, and wildlife. The climate is typical of Western Oregon with a high level of precipitation from moist, cool air masses in the winter and drier, warmer air masses in the summer. Overall

precipitation averages 135 inches with approximately 80% being from rainfall. Climatic extremes such as rainstorms and windstorms occur which may stress areas affected by management activities such as clearcuts with exposed edges (Aumen et al. 1989).

The hydrologic system and its relation to natural precipitation determines how Bull Run functions as a watershed. Relative to its land area, Bull Run produces a high volume of water (600,000 acre feet/year with a flow rate of 820 cubic feet per second). About 42% of this flow is diverted to the Portland water system. There are variations in streamflow throughout the year with low flows in late summer and high flows in midwinter and early spring. Storm events from October to April add to variation in runoff patterns.

In the Wyden task force report in 1989, water quality was judged to be of unusually high quality, having low dissolved solids of 21 mg/l, which is close to distilled water. The authors of the report characterized Bull Run water as superior, with no demonstrable historical trend of water quality degradation, and "little room for improvement" (Aumen et al. 1989).

The topography and soils of the watershed are important in managing timber harvests. Bull Run topography ranges from 750 feet at the headworks to 4,600 feet at Hiya Mountain overlooking Bull Run Lake (Fig. 3). Steep canyon walls carved by the Bull Run river and glacial U-shaped

valleys are present in upper elevations (Rinella 1987).

The combination of topography and soil stability significantly affect land use activities. Most soils in the Bull Run are relatively stable and are formed from basalt and andesite parent materials although 11.9% are at high risk of erosion due to slopes of more than 50%. An additional 1.5% are deeply weathered volcanic breccias with a high risk of erosion (Table 2).

Table 2
Soil Erosion Risk from Land Types in the
Bull Run Watershed

LAND TYPES AND RISK	SLOPE	AREA
	- - - - - Percent - - - - -	
Pliocene basalt and andesite		
low risk	0-10	7.7
low risk	10-25	26.7
moderate risk	25-50	50.2
high risk	>50	11.9
Deeply weathered volcanic breccias		
high risk	10-50	1.5
Lakes and reservoirs	0	2.0

^{1/} As developed from Beaulieu (1974).

Source: Fredriksen and Ross 1974.

Vegetation historically has been dominated by old growth forests (175-250 years old) but these are being increasingly replaced by seral (young-aged) forest due to

reservoir construction, timber harvest, blowdown, wildfire, and escaped slash fires. Major tree species are Douglas fir (Pseudotsuga menziesii), western hemlock (Tsuga heterophylla), and western red cedar (Thuja plicata). Bigleaf maple (Acer macrophyllum) and red alder (Alnus rubra) are the major deciduous species. There is an understory of shrubs and herbs, particularly along stream banks (Forest Service 1988).

Wildlife habitats vary from old growth stands to early successional stages of grass communities. Aquatic and semi-aquatic environments are also present. Old growth habitats create living conditions for spotted owl, goshawk, and cougar. Openings created by land use activities have created areas in which deer mice, elk, deer, voles, sparrows, and nighthawks are common. The reservoirs also provide habitat for ducks, geese, swans, ospreys, and shore birds. Species present in the Bull Run watershed identified in the 1988 Forest Service FEIS by the U.S. Fish and Wildlife Service as endangered, threatened, or sensitive are:

Peregrine falcon (Falco peregrinus anatum)
endangered

Northern bald eagle (Haliaeetus leucocephalus)
threatened

Northern spotted owl (Strix occidentalis caurina)
sensitive

Common loon (Gavia immer)
sensitive

Western spotted frog (Rana pretiosa)
sensitive

Wolverine (Gulo gulo)
sensitive

The Northern spotted owl is a candidate for threatened status and may play a significant role in Bull Run management in the future. Present controversy in the watershed centers around timber harvest effects on water quality and the presence of the spotted owl has not been an issue.

Land use activities in the watershed have extensively modified the natural landscape through timber harvest, road construction, fuel treatment, and reforestation. Between 1958-1986 13,151 acres were harvested, 8,690 (66.1%) being clearcut and 4,461 (33.9%) being partial cut. Both comprise 19.3% of the total watershed.

Fuel treatment in these harvested areas serve to lower the amount of slash and debris and prepare the area for reforestation. Between 1958-1985, 8,905 acres were treated, 67.6% broadcast burned and 32.4% burned by piling. Of the areas that were clearcut and burned, 93% were reforested. There has also been extensive road construction in the watershed. From 1958-1986, 160.3 miles of road were built with 132 miles built between 1958-1970. These land management activities in the watershed have been major subjects in forming cooperative relationships between the city and the Forest Service. Graphic summaries of these activities are shown in Figures 4a-4d (Forest Service 1988).

The watershed contains about 55,500 acres of land classified as capable and suitable for growing timber. Timber receipts are distributed based upon county percentage of land in the national forest, regardless of where the timber is cut in a particular period. Most of the watershed is in Clackamas and Multnomah counties with a small section in Hood River County (Fig. 3). The counties have participated in decisions concerning allowable timber harvest in the watershed, since they depend on the shared revenue for school and road construction.

Timber Harvest Activities in the Bull Run Watershed
1958-1986

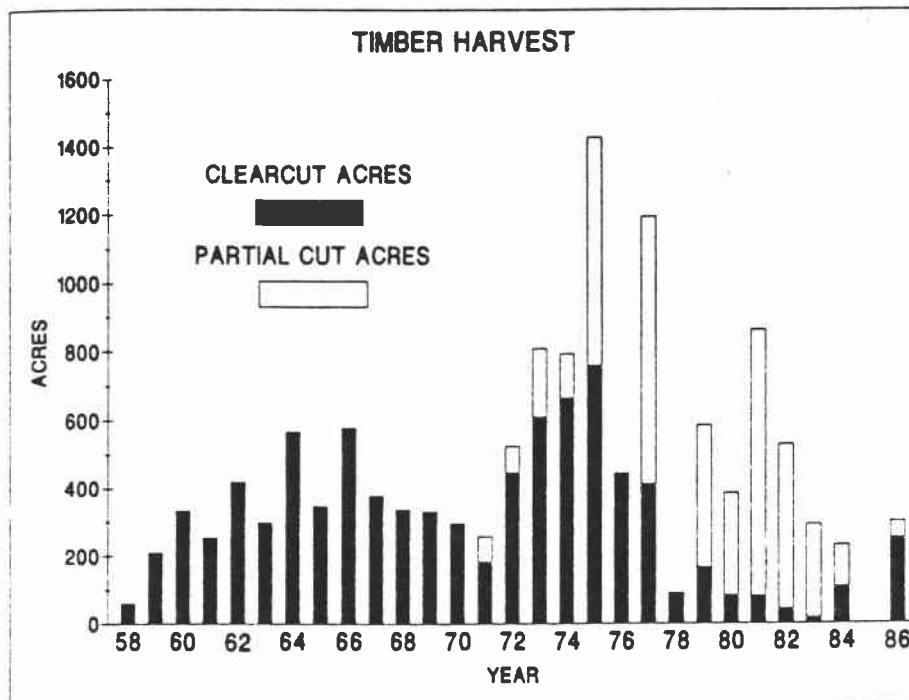


Fig. 4a

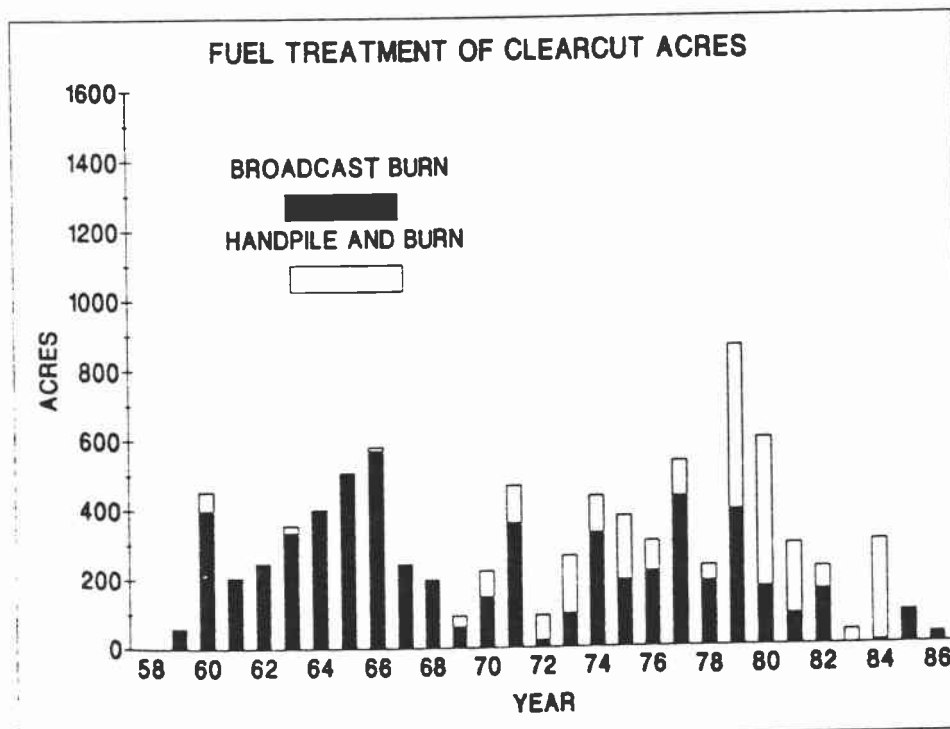


Fig. 4b

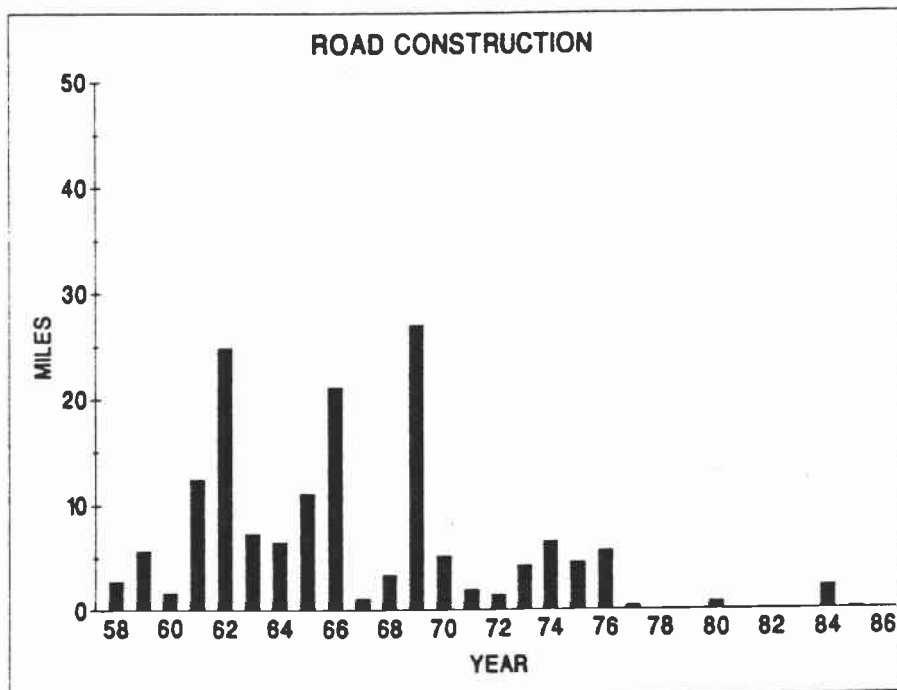


Fig. 4c

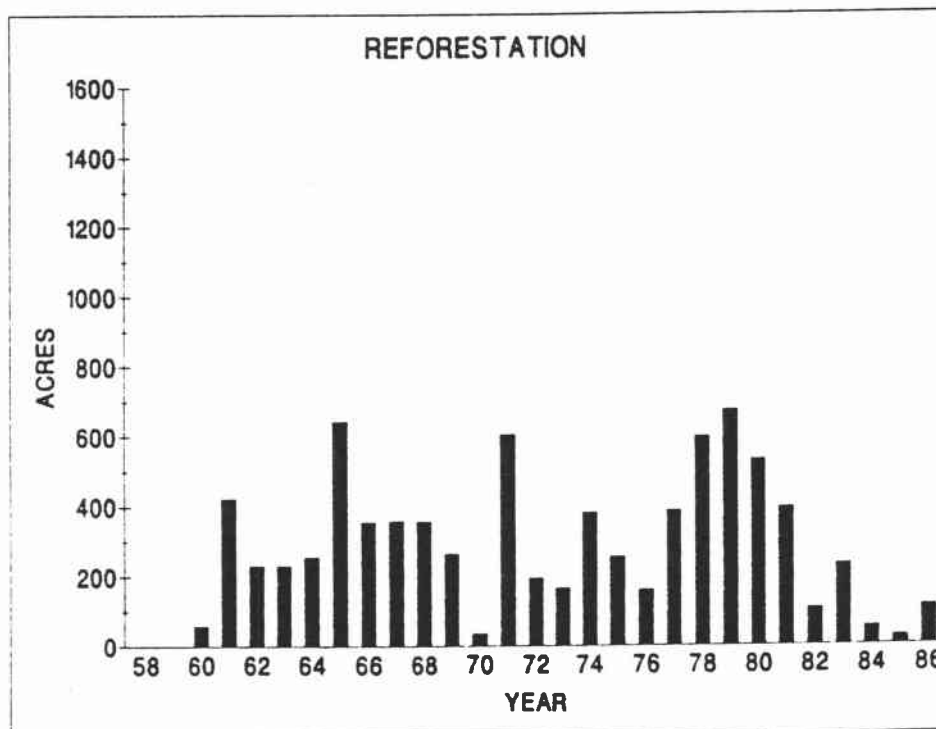


Fig. 4d

Source: Forest Service 1987, figs. 3-2A through 3-2D

3. Research on Bull Run

There has been little research on the relationship between timber harvest and water quality in the Bull Run watershed. However there has been considerable work done on the effects of logging in other Western Oregon watersheds. Harr and Fredriksen (1988) noted that "streams from undisturbed forests have water of the highest quality." Forest litter and vegetation protect the forest from surface erosion, and tree roots add to the stability of steep slopes. The forest also serves as a sink for

nutrients and shade minimizes stream heating. However, natural processes such as mass wasting, channel erosion, fire, and blowdown can increase sediment and nutrient content without human intervention.

Timber harvest activities such as logging, road building, and slash burning can seriously affect water quality. Significant increases in suspended sediment (Fredriksen 1973), temperature (Brown and Krygier 1970), and nutrient loads (Fredriksen 1971), have been observed in Western Oregon watersheds where harvest activities occurred on steep slopes with unstable soils. Three major studies have dealt with these topics in Bull Run, one on timber harvest in a sub-basin of the watershed, and another a review of water quality monitoring data. The third study completed in 1989 examined the adequacy of the monitoring system to detect effects of land use in the watershed.

The major study done in Bull Run that examined the effects of road construction, logging, and slash disposal on water quality was the Fox Creek study begun as a result of a 1955 cooperative agreement between Portland and the Forest Service (Harr and Fredriksen 1988).

Fox Creek is a tributary of the south fork of the Bull Run River which empties into a reservoir which supplies drinking water to the Portland metropolitan area (Fig. 3). The three watersheds chosen for study within the Fox Creek drainage are incised into a broad ridge sloping 5% to the

West and underlain by massive slightly weathered andesite. The slope gradients are less than 15% with stable slopes and soils. The vegetation consists of an overstory of Pacific silver fir, Western hemlock, and Douglas-fir. The Douglas-fir and Western hemlock are approximately 415 and 365 years old. The area is similar to about 25% of Bull Run.

In July, 1964, an all-weather road was built across three watersheds (Fig. 5). FC1 and FC3 were 25% clearcut between 1969 and 1971. logging debris was broadcast burned in FC1 and left to decompose in FC3. FC2 was used as a control.

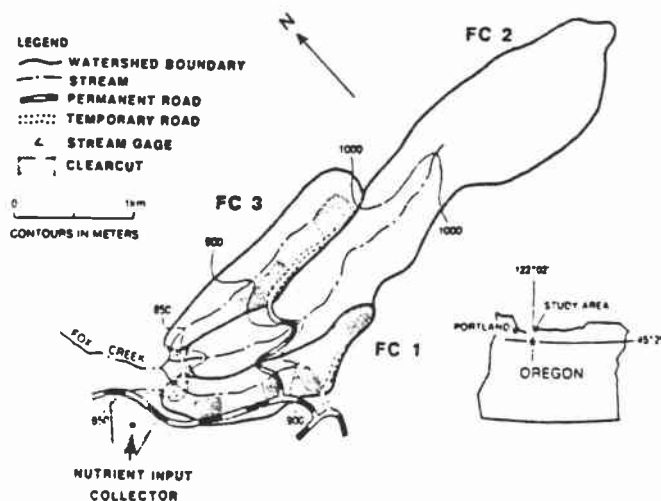


Fig. 5 Fox Creek Watersheds

Source: Harr and Fredriksen 1988, fig. 1.

Water quality measurements for suspended sediment had begun in 1957 and changes were compared before and after harvesting (road construction, logging, and slash disposal). Harvesting activities are summarized in Table 3. FC3 was the control watershed for suspended sediment because no permanent roads or fire lines were constructed in it.

Results of the study indicated that suspended sediment remained at low levels both before and after road building, logging, and slash disposal. The low rate of erosion is related to gentle slopes, stable soils, and poorly developed drainage networks. The increases that were observed were due primarily to construction of a permanent logging road that crossed streams in FC1 and FC2 and erosion of parts of fire lines in FC1.

Table 3
Summary of Watershed Characteristics and Harvesting
Activities for the Fox Creek Watersheds

	Watershed		
	FC1	FC2	FC3
Area, ha	59	253	71
Elevation Range, m	845-945	845-1100	845-1000
Aspect	WNW	W	W
Area in Permanent Road, ha ^a	1.2	2.0	0
Type of Cut	Clearcut ^b	Uncut	Clearcut ^c
Size of Logged Area, ha	3.2-4.0	0	8.5 and 9.3
Area Logged	14.8		17.8
Percent Logged	25	0	25
By High Lead	25	0	19
By Tractor	0	0	6
Slash Disposal	Broadcast Burn ^d	None	Decomposition

^aRoad construction was begun in July 1964 and was completed in August 1965.

^bLogging in FC1 was completed in September 1969.

^cTimber in FC3 was felled in the summer of 1971. Yarding was completed in August 1972.

^dLogged areas in FC1 were burned in September 1970.

Source: Harr and Fredriksen 1988, table 1.

There was a sixfold increase in nutrient outflow from FC3, the watershed in which slash was left to decompose naturally. The nutrient outflow was still elevated 10 years after harvest. In FC1, where the slash was broadcast burned, there was a fourfold increase in nutrient outflow but this increase had mainly disappeared 7 years after burning. Harr and Fredriksen note that although these increases in nutrient concentration were far below the maximum concentrations allowed by domestic water quality standards, algae production in reservoirs downstream could be affected. Annual maximum stream temperatures increased

2-3 degrees after logging, but returned to a normal range within three years.

This study has been criticized on the grounds that the area in which the study is being conducted is not typical of the rest of Bull Run. As Harr and Fredriksen pointed out, the study was conducted in an area of gentle slopes and stable soils, typical of only 25% of the watershed.

Another major study on the Bull Run was a review of water quality monitoring data between 1978 and 1983 by Frank A. Rinella of the US Geological Survey (1987). His objectives were to define the hydrologic characteristics of the Bull Run basin and examine the relationship between basin characteristics (natural and man-made) and water quality and quantity characteristics. Stream discharge, turbidity, suspended sediment concentration, fecal coliform bacteria, and temperature were among a number of water quality characteristics that were either measured at 4 stations during water years 1978-83 or compiled from Portland Water Bureau data. Results from the study indicated that stream discharge approximated the long-term average (1929-83) and that sediment loads were highest within a small fraction of the year, making it difficult to accurately describe annual sediment values.

Water quality characteristics were most closely related to climate, topography, and hydrology with some influence by locational and soil characteristics. Total partial-cut and annual clear-cut areas showed some importance in

dissolved solid concentrations but the influence was minor.

Time trend analysis of turbidity, temperature, suspended sediment, and fecal coliform bacteria showed significant increasing trends on the Kendall time-trend analysis, but the slopes were small and would be difficult to measure on an annual basis. Rinella cautions that extrapolation of these trends with such a small data base would not be prudent.

The third study was commissioned by Representative Ron Wyden (Democrat-OR). Three watershed management consultants were employed to conduct a technical review of the Bull Run monitoring program. The purpose was to assess the adequacy of the existing monitoring program to determine the effects of land management practices and compliance with existing standards. The task force concluded that the existing program was inadequate to attain this objective.

Although praising the Forest Service and the Portland Water Bureau for a conscientious effort to monitor land use practices in the watershed, the task force reasoned that the monitoring program was hindered by ongoing harvest operations. They suggested a number of recommendations to improve the monitoring program.

1. Project monitoring - monitor fewer sites for a longer period.
2. Increase procedural monitoring - more on-site inspections of existing projects to prevent deviation from proper management practices.

3. Improved measurement of atmospheric sources of precipitation - the consultants noted the atmosphere was an important source of mineral addition to the water. This addition should be monitored in order to distinguish changes in natural conditions from land use activities.

4. Reservoirs - research on the structure and function of the reservoirs in the hydrologic system.

5. Standards - the standards should reflect information and monitoring capabilities. This may require a set of supplementary standards.

In summary, the task force noted that no monitoring system is perfect. Sampling can never be often enough, at enough places, cover all water quality considerations, or be long enough to cover all variations. Experience and judgement must be used to construct a defensible system which makes the compromises necessary in real-world monitoring design (Aumen et al. 1989).

All three of these studies point out the limitations of the research on Bull Run. While the Fox Creek study was limited by being done in an area atypical of most of the watershed, the Rinella study was based on data insufficient to draw significant conclusions concerning the relations between timber harvest and water quality in Bull Run. The Wyden task force study pointed out the inadequacies of past monitoring while recognizing the purity of Bull Run water.

Proponents of timber harvest in Bull Run point to the lack of evidence indicating any significant effect on water quality in Bull Run. Opponents argue that timber harvest in other Western Oregon watersheds have affected

water quality and that research and monitoring in Bull Run have been inadequate to detect similar effects. Both viewpoints have affected the evolution of the long and complex relationship between the Forest Service and the city of Portland.

B. A Restricted Watershed 1890-1958

1. Establishment 1890-1905

In 1885 the city of Portland, Oregon formed a water committee and charged it with finding a new water supply. The Willamette River, the previous source, was being polluted by upstream wastes and tidal shifts which backed up pollution. A city charter amendment provided bonding authority to raise money for the purchase of a water supply and the newly appointed committee pursued its duties with vigor.

The water committee placed newspaper advertisements which attracted the attention of two entrepreneurs who saw the opportunity to make a substantial profit from their rights to the Bull Run River. A.G. Cunningham and Charles Talbot offered to sell their rights to the city for \$130,000, whereupon the committee dispatched Col. Isaac W. Smith, water committee engineer, to lead a survey party and determine the suitability of the area as a watershed. Smith reported that the Bull Run River would serve very well as a water source and that a pipe line could be built to transport the water. After protracted negotiations, Cunningham and Talbot sold their water rights to Portland in February, 1888 for \$21,189 (Portland Water Bureau 1983).

Even at this stage in the watershed's history, there was concern expressed about possible contamination of the

water supply. Charles E. Oliver, a member of Smith's survey party, recalled in 1939 that Talbot and Cunningham's original idea of an open canal was rejected because of fears of contamination (Oregonian 1939). The water committee hired California state chemists Falkenau and Reese to conduct water quality tests, and they reported that "the water ranks among the best on record, and is exceedingly adapted for domestic use" (Oliver 1939).

After securing the water rights, the water committee began to press for protection of the watershed. In 1892, Henry Failing of the water committee wrote to Oregon's congressional delegation, urging them to appeal to President Harrison to set aside the Bull Run area as a forest reserve. Congressman Binger Hermann and Senators Joseph N. Dolph and John Mitchell appealed to the President and on June 17, 1892, the President set aside Bull Run as a forest reserve, stating that "it appears that the public good would be promoted by setting apart and reserving said lands as a public reservation." This proclamation limited activity in the reserve and allowed the committee to more easily acquire remaining water rights to the Bull Run river (The proclamation is included as Appendix B).

Construction on the pipeline began in 1893, supervised by Col. Smith. The Water Committee hired James D. Schuyler to corroborate Smith's work and he confirmed the

correctness of the Bull Run choice, noting that "the adequacy of the supply can scarcely be questioned, . . . and so long as this watershed is kept from settlement, and the forests free from devastation by fire or sheep, the flow will never be diminished" (Portland Water Bureau 1983). On January 2, 1895, water flowed from Bull Run to Portland reservoirs 1 and 2 on Mt. Tabor and 3 and 4 in Washington Park (Fig. 2).

The water committee did not stop their protection efforts after the designation of the watershed as a forest reserve. In December, 1895, Chairman Failing wrote to U.S. Secretary of the Interior Hoke Smith concerning human use of the watershed.

If the forests are burned by the owners of sheep or cattle, or removed by lumber companies, the snow will go off in sudden freshets with the first warm weather, the springs will go dry long before the summer is over and the water system which cost the people of Portland 3 million dollars will be greatly impaired if not rendered useless by a few individuals for the sake of a few thousand dollars worth of sheep, cattle and lumber (Portland Water Bureau 1983).

In 1897, the Organic Act (16 U.S.C. 475) permitting travel, road construction, mining, and logging in federal forest reserves was enacted by the U.S. Congress. The water committee saw this act as a threat to the reserve and pressed the Department of the Interior's general land office (GLO), which oversaw the reserves, to prevent entry into the watershed. The GLO failed to respond to these requests, even when W.H.H. Dufur, supervisor of the Bull Run Forest area, urged in a letter to GLO Commissioner

Binger Hermann that a special rule be adopted limiting entry in order to prevent fire. The water committee urged Hermann to support a law limiting access but he rejected the idea as unnecessary (Portland Water Bureau 1983).

In 1903 the water board, which had replaced the water committee, passed a resolution urging the Oregon congressional delegation to sponsor a bill limiting access to Bull Run. With the support of Theodore Roosevelt, "An Act for the protection of the Bull Run forest Reserve and the sources of the water supply of the city of Portland, State of Oregon" (18 U.S.C. 1862), was passed and signed on April 28, 1904 (Appendix C). The bill made it unlawful for anyone to enter any part of the reserve except forest rangers and other persons employed by the United States to protect the forest, Federal and state officers in the discharge of their duties, and water board employees.

In 1905, the forest reserves were transferred to the Department of Agriculture from the Department of the Interior. Gifford Pinchot, head of the Division of Forestry, was determined to bring scientific management to the reserves and was interested in increasing fire protection and initiating topographic surveys. He wrote a letter to the board in 1905 which requested access to water board lands in the reserve for forest rangers and USGS surveyors, and 1,000 dollars for a trail around the reserve. The water board, eager to have assistance in enforcing the 1904 trespass act, agreed to cooperate with

these requests and urged the Forest Service to enforce the act.

However, Pinchot did not have the same attitude toward the reserve as the water board. "The method of protecting the country by leaving it inaccessible has been tried, and the result has not been encouraging At present it is wholly impossible for the rangers to patrol the reserve either against trespassers or against fires, because of its entire inaccessibility to them" (Portland Water Bureau 1983).

2. Protection Efforts 1905 - 1952

Cooperative efforts in the early 1900's revolved around efforts to prevent fires and exclude trespassers. Joint patrols in the reserve served to "keep foes, natural and otherwise, from molesting any part of the vast 220 square miles of timber, mountains and wilderness which form the base or watershed which conserves and delivers the water to the city" (Oregonian 8/5/17). Fire trails were maintained in the reserve with telephone lines and cabins for the use of the rangers. An Oregonian editorial in 1912 supported the hiring of additional rangers for summer patrols and stated that the interest and welfare of the people of Portland should not be subordinated to a few picnickers or sportsmen and that "all persons except the rangers should be rigidly excluded."

Rigidly excluding development in Bull Run would prove to be more difficult than excluding a few picknickers or sportsmen. In 1914, a road was proposed through the Bull Run that would connect with the Columbia Highway and allow a circular route from Portland. A railroad was also suggested as a means to increase tourism and a bill was introduced in Congress which would allow summer homes of 10 acres in national forest reserves. Water Bureau Commissioner Daly reacted to these threats with an offensive against development in the reserve. He proposed a ban against any road construction in the reserve, suggested that the Forest Service trade timber lands in Oregon for Bull Run lands still owned by individuals, and suggested that filtration would never be necessary if the reserve was properly protected (Oregonian 1/29/14, 1/30/14, 8/12/14, 4/3/15).

Daly was successful in his efforts to exclude development in the reserve but in 1927 the Water Bureau found it necessary to push for its own development as increasing population made it necessary to increase water storage. However, during the construction of Dam #1, extensive efforts were made to insure that the water supply was not contaminated. In a 1927 article in the Engineering News-Record, D.C. Henny noted that stairways instead of a road were built to the spillway in order to prevent future vehicular traffic, and that a special sewer system was built for construction workers.

This attitude toward preventing contamination of the water supply was instrumental in the city council's initiation of an effort to permanently protect the water supply. In 1925, the council sought to acquire title to the watershed and urged Senator Stanfield to sponsor Senate Bill 3167, which would authorize the sale of the Bull Run Watershed to Portland for \$1.25 an acre. Although the bill was favorably recommended out of the Public Lands and Surveys Committee, it did not secure final passage and died with the end of the session (Portland A&RC 1953).

The city council did not give up its effort to obtain title to the watershed. In a 1930 Oregonian article, Fred Randlet, former Water Bureau chief engineer, urged that "steps should be taken so that no ax will ever remove the timber from the Bull Run Reserve, regardless of the ownership of the title to the land." In an editorial supporting the transfer of title to the city, the Oregon Journal mentioned that the Forest Service had placed a valuation of 2 million dollars on the timber supply, implying that it was considering commercial exploitation. Declaring that there ought to be national legislation forever forbidding any invasion of the reserve whether by logging operations or in any other form, the editorial stated that "the government's valuation of 2 million on the timber in the Bull Run Reserve is a trifle compared with the value of a protected water supply."

John M. Mann, city commissioner, endorsed a bill introduced by Senator McNary which would transfer the reserve to Portland for the nominal fee of \$1. Mann stated that "Portland needs this land so that the city can protect its watershed forever" (Oregonian 3/4/30). However, Arthur M. Hyde, Secretary of Agriculture, opposed the sale and noted that numerous towns obtained their water supplies from National Forest land and that the Forest Service, working with departments of health, ". . . cooperates with these municipalities in apparently satisfactory ways" (Oregonian 3/27/30). He foresaw the breaking up of the national forests, making them impossible to administer. Hyde's opposition was a major factor in the failure of the bill, and Portland was forced to turn to other means to protect the watershed.

Portland's opposition to land use in the watershed extended to timber harvest, although the first timber harvest was carried out by the city itself in clearing an area for dam #1 in 1927. The city also conducted a sale of blown-down trees in 1934 (Forest Service 1988). However, when the Forest Service granted cutting rights to Crown Zellerbach during WWII, the Water Bureau objected strongly. The city council backed the Water Bureau and passed a resolution urging the Oregon congressional delegation to work to remove all timber harvest from Bull Run, citing the 1904 Trespass Act.

The Forest Service sought an opinion from the Department of Agriculture solicitor regarding timber harvest and the trespass act. He responded that:

There is nothing in the title or language . . . to indicate that these lands were reserved for limited national forest purposes. The legal effect of the language used is to give these lands complete national forest status, and, as such, they are subject to the laws affecting the National Forests, . . . authorizing the sale of timber All persons other than those mentioned in the act are forbidden to enter without first obtaining permission . . . and every timber sale carries with it such authorization (Shields 1943).

The city's effort to prevent logging was unsuccessful but the low levels of logging did not make an impact on water quality and the general attitude was expressed by Ben Morrow, Water Bureau superintendent, when he said, "I have always been against cutting any trees in the area, but this property belongs to the government so there is nothing that anybody can do about it" (Portland Water Bureau 1983).

3. Increasing Development 1952 - 1958

The occasional selective timber harvest and blow-down logging in the watershed through the forties and early fifties was tolerated by the city but there were interests in the Forest Service that began to view the use of Bull Run primarily for watershed protection as a misuse of resources. In a 1952 memo by a Mount Hood National Forest District Ranger, it was suggested that the forest should be opened up with roads and carefully harvested under

proper management. Noting that a catastrophic fire would be deemed the responsibility of the Forest Service, the memo also noted that "the values involved would alone warrant the development of the area." One million dollars a year was the estimated value of a timber harvest program on the watershed.

However, the ranger also recognized problems facing the Forest Service when trying to convince city officials and residents to harvest timber in what they perceived as an unmolested watershed. "There is a tremendous P.R. job to change this thinking of some 50 years standing." It would be necessary to be cautious to prevent strong opposition to development. The initial approach would be to Ben Morrow, retired city engineer and now a consultant to the city. "The fire angle should be played up and revenue returns subdued in this initial discussion" (Forest Service 1952).

The memo suggested that a second phase would be necessary to convince the city to participate in a research project. "The council members should not be given the impression that we have a definite preconceived objective." A public relations effort involving trips to the watershed to show sample logging should be planned. "If we have been reasonably successful, continued study and careful management should pave the way for eventual, complete development of the Bull Run division" (Forest Service 1952).

There were other factors that were leading to a change in attitude concerning the desirability of timber harvest in Bull Run in addition to the Forest Service's general policy of multiple use. In 1955 Ben Morrow retired from his position as Water Bureau Chief Engineer and H. Kenneth Anderson succeeded him. Anderson's attitude toward timber harvest in the Bull Run was oriented toward active land management to improve water supply and decrease the danger of catastrophic fire. In a 1958 article in the Journal of the American Water Works Association Anderson pointed out that the old growth Bull Run forests "long ago reached their age of maturity, and in the best interest of forest management should have been logged decades ago." Citing studies that showed increases in runoff from timber removal and that openings in the forest produces more snow depth, Anderson argued for a forest administration that would decrease fire hazard through a road network and increase runoff through vegetation manipulation.

Anderson was supported in his conclusions by the Oregonian, which in an editorial noted the increased demand for old growth Douglas fir. Selective and careful logging could be of benefit by providing more access roads and removing old growth trees that increased the danger of lightning fires (Oregonian 9/13/58). A letter to the editor argued that the rationale for creation of the reserves was false, e.g. forests increase precipitation, induce uniformity of stream flow, increase humidity, and

decrease temperature extremes. These ideas had been necessary to support the concept that forests affected navigable streams and thereby gave the federal government authority to create the reserves by using navigation as a legal lever. The writer argued that forests have two benefits, preventing erosion and providing timber. With scientific logging, erosion could be prevented and timber could be provided without harm to water quality (Oregonian 9/19/58).

Economic considerations also contributed to the changing attitude toward Bull Run by the Forest Service and city decision-makers. In 1957, Governor Robert Holmes called an economic development meeting at which representatives of the Industrial Forestry Association argued strongly for increased timber harvest on the federal lands. Citing the "federal timber problem" the association charged that low harvest levels in the national forests had created timber shortages, inflated prices, and shut down mills. They urged the Oregon congressional delegation to press for more roads and the full allowable cut in Oregon national forests (Oregonian 9/20/57).

The Oregon Journal noted that the old growth timber in Bull Run was a valuable resource, selling at \$25 per thousand board feet. "It is no surprise that the Forest Service wants to do more than protect Bull Run for watershed purposes" (Oregon Journal 3/1/59).

These economic pressures for utilizing the timber resources of the watershed renewed the controversy over the extent of timber harvest. The city and the Forest Service sought to institutionalize the informal consultations through cooperative agreements that would point out their responsibilities in the watershed. In 1953, there was an agreement allowing access roads in the watershed for fire protection (Portland City Club 1973). In 1955, a more comprehensive agreement was concluded which spelled out responsibilities, provided for research, and allocated costs.

According to the agreement, Portland would provide an adequate supply of pure water for domestic and industrial users and the Forest Service would provide the best possible form of watershed management. Both agreed that it would be desirable to investigate the relationship between forest cover, soil mantle and water flow in order " . . . to promote the highest efficiency in use of all available resources insofar as these uses are compatible with the city's objectives." The research provision provided that the Forest Service and the city would split the costs and that the government would make available designated areas in the watershed for research. Categories of study would be snow storage, runoff, soil studies, erosion, and others to be chosen as the program developed.

It was agreed that a research period of twenty years would be needed to determine long-term trends. The period

agreed to was from 1 Jan 1956 to 30 Jun 1960 with an automatic extension for 5 years to 30 Jun 1965. The city reserved an option to renew and extend the agreement additional periods so that the studies would be conducted over a 20 year 6 month period.

The research resulting from the cooperative agreement began in 1956 and was called the B-1 study. The initial emphasis was on water quantity and precipitation and streamflow gauges were installed in 3 sub-drainages of the Fox Creek area of the watershed. A 1988 progress report on the Fox Creek project published by Harr and Fredriksen was discussed in the Bull Run introductory section.

The movement toward development of the Bull Run received more impetus in 1957 when a report sent to Congress calling for revision of Forest Service timber sale and management policies in Oregon and Washington contained some remarks aimed directly at Bull Run. Comptroller General Joseph Campbell instructed the Forest Service to log timber from the reserve or make the city pay for the lost revenue (approximately 1 million annually).

We believe that either the regional office of the forest service should promptly include the Bull Run watershed in its program of logging operations to attain the allowable cut, or if the city of Portland objects to logging within the watershed area, the service should make effective arrangements with the city to insure that the government is compensated for loss of revenue, as permitted under applicable regulations (Oregonian 4/28/57).

The report also mentioned a 1955 transaction in which the Forest Service gave the city 1,800,000 board feet of timber without charge in an effort to demonstrate that logging could be done without harm to the watershed. Campbell is critical of this arrangement and states that the \$75,000 the city received for the timber was a high price to pay for convincing city officials that logging could be conducted in the watershed without endangering the water supply.

In the latter part of 1958, Mayor Terry Schrunk met with 5 timber management officials to study the possibility of logging Bull Run timber.¹ All agreed that logging could increase the water yield of the reserve but that caution would have to be taken to prevent water quality problems. Paul Neff, Mt. Hood Forest Supervisor, stated that the Forest Service had under way a pattern for building access roads through the entire 138,000 acre reserve for fire protection and needed clearing of timbers. He also proposed that the Forest Service program should be coordinated with city plans for Bull Run expansion. Kermit Linstedt, Assistant Region Ten Forester, noted "there are lots of things we don't know about timber cutting in a watershed, but experimental studies are under way now to find some of the answers" (Oregonian 9/6/58).

A week after the meeting, Albert McCready, associate editor of the Oregonian, stated in an editorial that " . . . no hunting, fishing, stock grazing, hiking, camping,

mining, or logging are permitted within its boundaries" (Oregonian 9/13/58). Both in the meeting and the editorial there was no mention that since the middle of 1958 a commercial sustained-yield logging program had been underway in the reserve (Burns 1976).

4. Summary and Discussion

The years 1890-1958 were marked by significant changes in the relationship between the city of Portland and the Forest Service. Major factors in these changes were attitudes, legislation, and the economy.

Attitudes toward the watershed by city and Water Bureau officials in the 1890's was dominated by a vision of a pristine wilderness whose purity should not be violated by any land use activities. Editorials and articles in the Oregonian advocated "rigid exclusion" of any loggers, recreationists, sheepherders, or other human intruders. However, by the late fifties this attitude had changed. The spectre of a catastrophic fire and insect infestation which would degrade water quality were cited as reasons for timber harvest in the reserve. In 1958 the Forest Service began a timber harvest program to "protect" the watershed from fire and insects.

The Bull Run Trespass Act in 1904 was the first legislative effort of the city to prevent entry into the reserve. In the late twenties, the city sought to insure protection of the reserve by purchasing it. However,

Arthur M. Hyde, Secretary of Agriculture, was adamantly against "breaking up the national forests" and successfully opposed several bills authorizing the sale. Finally, in 1943 an opinion by the Department of Agriculture solicitor general stated that the 1904 Trespass Act did not prohibit timber harvest on the reserve. This opinion set the stage for development.

After World War II, demand for forest products increased and the timber industry looked to the national forests for increased timber supplies. At the Governor's economic development conference in 1957 the timber industry pressed the Forest Service for the full allowable cut in Oregon national forests.

The cooperative agreements in 1954 and 1955 were the culmination of these factors. The 1952 Forest Service memo advocating development of the Bull Run Reserve had been successful. Putting the emphasis on protecting the forest from catastrophic fire and downplaying any economic returns, the Forest Service began a commercial harvest program in what was supposedly a closed watershed. The 1955 cooperative agreement did not mention timber harvest directly but noted that "the forest should efficiently maximize its resources."

Even late in 1958, months after the first large timber contracts had been let, an Oregonian editorial noted that there was no logging in the watershed but it should be considered. At a meeting called by Mayor Terry Shrunk in

September, 1958, the subject of possible timber harvest was raised. It was not mentioned that timber harvests were already underway in the watershed. Large scale timber harvest was a fait accompli before its existence was widely known.

5. Endnotes

1. Kermit Linstedt - Assistant PNW Regional Forester
Ray Grefe - PNW Regional Engineer
Paul Neff - Mt. Hood Forest Supervisor
Dwight Phipps - Oregon State forester
Lyle Watts - Former Chief of the U.S. Forest Service

C. Multiple-Use 1958-1977

1. Changing Attitudes 1958-1971

The commercial harvest of timber in Bull Run was officially recognized in a Portland-Forest Service cooperative agreement in 1959. According to the agreement, the Forest Service would provide for an inventory of the timber located on city land within the division and manage the land for timber harvest. The city would receive approximately 200,000 dollars per year as a return on the timber harvested on its lands. As justification for the timber harvest program, the Forest Service indicated a need for fire protection and diseased timber removal.

The growing attitude that the reserve could be used for purposes other than water supply extended beyond timber harvest. In the late fifties, recreationists from the Portland area began to press for access to the reserve. The Mt. Hood Pow-Wow-Ers, among other groups, felt that some areas inside the reserve should be open to recreation (Oregonian 9/24/58).

The city council indicated a willingness to agree to recreation in some sections of the reserve outside the physical drainage. These areas were in the North and Southeast parts of the reserve. However, the council noted that the Forest Service should construct a fire lane and fence on the boundary and guarantee adequate supervision to prevent unauthorized entry into the watershed

(Oregonian 3/4/59).

On August 12, 1959, the regional forester unilaterally opened to recreation 42,500 acres located in the Northern and Southeastern sections of the reserve (Fig. 3, p. 37). There was no opposition to the move from the city council or Water Bureau, in the belief that as long as the recreation activity was outside the physical boundary of the watershed, water quality would not be affected (White 1977).

The city council opposed recreation but supported the timber harvest program inside the watershed. The primary rationale was the often stated one that a catastrophic fire could occur in the Bull Run unless the fuel built up on the forest floor was removed. "It's hard to believe we could get a fire to burn off the whole Bull Run, but it could happen," noted Paul Neff, Mount Hood Forest Supervisor. This possibility justified "substantial" protection measures such as an extensive road system to permit heavy equipment to reach fires. Neff also pointed out that leaving the area undeveloped posed a greater risk than developing it and that roads were necessary to build reservoirs and harvest timber, although water was the first priority (Oregon Journal 8/20/62, 8/21/62).

The city received 295,930 dollars in 1961-62 from the timber harvest program, and the relationship with the Forest Service was described in an article in the Oregon Journal as "never being better." The Journal pointed out

that Buck Grayson, commissioner in charge of the Water Bureau, and H.Kenneth Anderson, city Water Bureau engineer, had "progressive attitudes." The article noted that the Forest Service could make decisions without approval by the city, but it did not due to the cooperative attitude taken by city employees (Oregon Journal 7/20/60).

The good relations the city enjoyed with the Forest Service and its own customers were somewhat tarnished in the summer of 1962 when water that had a bad odor, contained sediment, and had a chlorine taste was delivered to Portland consumers. The cause of the problem was the drawdown of dam #2 in order to recover a diversion pipe used during construction. The drawdown released organic matter into the pipes and, combined with unusually hot weather, precipitated an algal bloom. City government offices were deluged with complaints about the water (Oregonian 7/24/62, 7/29/62, 1/10/63). Although a temporary condition, the incident emphasized the fact that activity in the reserve could have deleterious effects on the water.

The effects of land use activities on Bull Run water was highlighted in a series in the Oregonian in 1965. In several articles discussing the future of water resources in East Multnomah County, reporter Don Holm stated that problems with the water supply were large amounts of chlorine added to the water to mitigate effects of

selective logging, construction, and road building. He quoted from a long-time city official who said "In the old days, nobody was permitted to cut roads and trails or to trespass. Now the woods are full of people up there, chopping down trees, cutting up the ground, raising hell with the natural terrain."

In a series of articles later in 1965, Holm saw the reserve as being under attack and being ". . . systematically polluted, destroyed, and eroded by logging, road-building, and other man-type activities with the apparant blessing of the Forest Service." The importance of these articles was that they publicly challenged for the first time the idea advocated by the city and the Forest Service of protecting the Bull Run by logging it.

The public's perception that the Bull Run water supply was being threatened increased in 1969 when the U.S. Environmental Protection Agency (EPA) and the Oregon State Health Division released a report which stated that although logging practices were used that minimized erosion, increased turbidity was unavoidable where timber harvest and road construction were occuring. The report noted that continued logging and road construction could only worsen the turbidity problem and that treatment by filtration would be required in the not too distant future (Portland City Club 1973).

The filtration issue emerged again in 1972, when landslides resulted in the delivery of muddy water to

consumers. The landslides, slash fires that had gotten out of control in 1971, and filtration were being connected with logging in newspaper articles at the time (Oregonian 2/1/72). Commissioner Lloyd Anderson claimed that logging was not the cause of the landslides, as they occurred in virgin timber. He recommended to the city council that they look into filtering the water, although the cost would be high.

In early 1973, the Portland water system received the embarrassing distinction of having its water supply downgraded from acceptable to provisionally acceptable by the EPA. The problems cited were cloudiness that exceeded drinking water standards, a need to filter the water, and uncovered storage reservoirs. Lloyd Anderson responded to the downgrading by stating that it would cost 100 million dollars to make the improvements to the reservoirs including 25 million dollars for a filtering system. He argued that the problems were caused by the 1972 landslide and that the turbidity exceeded standards only a few times a year and did not warrant spending the amounts of money involved (Oregonian 1/3/73 1/4/73).

The downgrading continued the trend in the late sixties and early seventies of changes in the popular perception of the water system. During these years, the opening of sections of the reserve to recreation, the initiation of a timber harvest program, muddy drinking water, and the unfavorable EPA report contributed to popular perceptions

that the Bull Run was no longer an untouched virgin wilderness. These changes would significantly affect future relationships between the city and the Forest Service.

2. Cooperative Planning 1971-1976

In 1971, an event occurred which dramatically illustrated to the Forest Service the changed public attitude toward Bull Run. The Forest Service released a draft Larch Mountain-Bull Run management plan, which would open up a 30,000 acre area between the Bull Run River and the Columbia Gorge Rim to boating, picnicking, swimming, fishing, and hiking. The reservoirs in the drainage would be opened to the public and visitor information facilities constructed. The Forest Service noted that there would have to be additional studies made and consultation with Portland before the watershed could be opened (Oregonian 5/15/71).

The report immediately created a storm of protest. The Portland City Council issued a formal statement of protest concerning recreation plans for the watershed. Pollution and subsequent need for a 25 million dollar filtration plant were possible consequences, warned City Commissioner Anderson. He stated that use should be limited to water production and storage, and related uses such as logging and electric power generation. The city had no objection to recreation outside of the physical drainage, but this

plan would allow extensive recreation in the watershed itself, even boating on the reservoirs (Oregonian 6/27/71 7/3/71).

Letters from the public were overwhelmingly negative concerning recreation in the watershed. About 150 letters were received by the Forest Service, most concerned about possible effects on water quality. The Forest Service withdrew its plan for further review and Mount Hood Forest Supervisor Wright T. Mallery stated that the report on Bull Run recreational potential was essentially an "inventory" and that "We're certainly not going to do anything unilaterally to endanger the city's water. If we eventually do decide on a plan for recreational use, it will be with the full concurrence of the City Council" (Oregonian 7/16/71 8/13/71).

In a meeting on July 7, 1971, the city council took a strong stand against recreation in the watershed and also commented on Forest Service construction of a trail near Bull Run lake without consultation with the city. Commissioner Goldschmidt commented that ". . . it's my hope that the Forest Service will not again in the future put in trails, or other kinds of 'improvements' without first consulting with the Commissioner in Charge and the Mayor" (Portland. City Council. 1971). Mayor Schrunk stated that relations with the Forest Service had been good in the past and that he hoped a close cooperative relationship could be restored.

The furor surrounding the Larch Mountain-Bull Run plan inspired a Memorandum of Understanding between the city and the Forest Service in November, 1971. The memorandum established areas of responsibility such as fire protection, sanitation, road construction, security, and public education. Authority to manage Bull Run was expressly given to the Forest Service with the provision that both agencies recognized that close cooperation was essential. An interesting section pertained to public news releases, which would be made only after consultation between the city and the Forest Service (Oregon Journal 11/12/71). A repeat of the Larch Mountain situation was not desired by either party.

Management efforts following the 1971 Memorandum of Understanding concentrated on improving coordination and cooperation between the city and the Forest Service. However, the publicity surrounding the recreation plan had increased public awareness that timber harvest had been going on in the drainage since 1958. Beginning with the Larch Mountain furor, the amount of public involvement increased substantially, spearheaded by Dr. Joseph L. Miller, a Portland retired physician. He began to question both the Water Bureau's and the Forest Service's role in managing the reserve.

In letters to Joseph T. Stockbridge, Columbia Gorge District Ranger, and Robert Hyle, Water Bureau manager, Miller questioned the necessity for timber harvest in the

watershed and the relationship between the Forest Service and Portland. Stockbridge replied that the Forest Service had an obligation to manage the Bull Run for multiple use, no statute prevented road construction, and that the city was in agreement that recreation outside the physical drainage should be allowed (Stockbridge 1972). Hyle replied that there was no evidence of physical deterioration of the water and that "the attitude of the Forest Service has changed considerably the past few years and having gained much experience by trial and error are most cooperative in enlisting our participation in management practices for significant water quality control" (Hyle 1973).

The public interest in Forest Service and Water Bureau management of the watershed extended to organizations such as the Portland City Club (PCC), an influential group of business and political leaders. The club issued a report in August, 1973, on the Management of Forest Resources in the Bull Run Division. The report stated that the reliability of the Bull Run water supply system was inadequate in view of its geologic and geographic setting. The PCC charged that inadequate research had been done on timber harvest and water quality, noting that the B-1 study had followed the initiation of extensive logging rather than preceding it. Among its recommendations were that the city, in cooperation with the Forest Service: set up a more adequate monitoring system, allow only

controlled timber harvest, prohibit new recreation, and consider the maintenance of water supply the dominant land use in the watershed (Portland City Club 1973).

Even before the city club issued its report the city and the Forest Service recognized that closer cooperation and a united front would be necessary to insure long range planning for the reserve. In a supplement to the 1971 Memo of Understanding, the city and the Forest Service set up the Bull Run Planning Unit (BRPU). The goals for the unit were to determine the uses of the area while maintaining water quality, explore management options, consolidate existing information, and summarize legislative directives. An interagency team with representatives from the Forest Service, Portland, and the Columbia Region Association of Governments would be involved in the planning. Provision was also made for public participation through citizens' advisory groups and a series of public meetings (Forest Service 1973). The Oregon Journal noted that the planning unit was a reaction to demands by recreationists and the landslide of 1972 which degraded the water and brought doubt about logging in the watershed. Lloyd Anderson, city commissioner, stated that "There is an aim of loggin trees up there and I believe it's a productive one" (Oregon Journal 5/10/73).

The BRPU interagency team produced a Land Suitability Analysis in early 1975. They listed management goals that would increase cooperation among the various agencies,

monitor resource systems, and involve the public in decisions. The planning process was refined to include five main units. The executive council, including the City Council, Water Bureau, Mount Hood Forest Supervisor, and Columbia Gorge District Ranger, would be the decision making body. A resource consultation committee including specialists from the Soil Conservation Service, Fish and Game Commission, and the Public Health Service would provide expert assistance. A citizens' advisory group, with representatives from organizations such as the Oregon Environmental Council and the Mt. Hood Timber Operators, would have opportunities to comment before decisions were made. Finally, the general public would be involved through public meetings and opportunities to respond to written reports (Portland. Forest Service 1975).

The goal of the management unit was to prepare a draft environmental impact statement by the spring of 1975. This goal was not met, but the Forest Service and the city did issue a Memorandum of Understanding in June, 1975. The memo restated the standing relationship between the Forest Service and the city, namely that the Forest Service administered all lands within the reserve and the city provided for the collection and transmission of water. There was more emphasis on joint review of activities which could deteriorate the water supply, communication between Water Bureau and Forest Service project managers, and notification of any planned water development

projects. The previously announced policy of consultation prior to any news releases was continued and a joint policy on fire and emergencies was developed (Appendix G).

3. The Lawsuit 1973-1976

The 1975 Memorandum of Understanding clarified some aspects of the city-Forest Service relationship. However, some citizens and environmental groups decided that neither the Forest Service nor the city were preventing what they perceived to be the deterioration of Bull Run and its pure water supply. Joseph L. Miller, Amy Miller, the Northwest Environmental Defense Center, and the Oregon Environmental Council sued the Forest Service concerning management on the Bull Run Watershed. Defendants named were Wright Mallery, Mount Hood Forest Supervisor, Joseph Stockbridge, Columbia Gorge District Ranger, James Olsen, Zigzag District Ranger, Richard Mueller, Hood River District Ranger, and Theodore A. Schlapfer, PNW Regional Forester (Oregonian 7/27/73).

The plaintiffs made five claims against the Forest Service: breach of the public trust, violation of the Bull Run Trespass Act, violation of the Organic Act, violation of the National Environmental Policy Act, and violation of the Multiple-Use Sustained-Yield Act. Judge James M. Burns, of the United States District Court of Oregon, segregated the second claim for trial since both parties agreed that if this claim were upheld, further proceedings

on the other claims would be unnecessary. The plaintiffs' second claim was that both the logging and the recreation programs of the Forest Service, whether inside or outside the drainage, were impermissible in light of the Trespass Act. Judge Burns stated that "the conduct at the heart of plaintiffs' second claim is a federally authorized and supervised commercialized, sustained-yield large-scale timber operation on federal lands" (Burns 1976).

The Forest Service replied that the Organic Act of 1897 and the Multiple-Use Sustained Yield Act of 1960 were authorizations for their activities in Bull Run. Logging operations were authorized by these acts and the Forest Service "permits" loggers to enter for logging operations. Therefore, loggers are not trespassers since a trespasser is one who enters without permission (Burns 1976).

In his opinion issued March 5, 1976, Judge Burns addressed the recreation issue first, concluding that the 1959 order opening up 42,500 acres of the reserve to recreation was without foundation. He noted that hunters, fishermen, and campers were specifically mentioned in the legislative hearings resulting in the Trespass Act and that the defendants did not seriously contend that these people were protecting the forest.

Addressing the timber harvesting issue, he cited the history of logging in the watershed, noting that it had increased in the years 1954-1958 and then had moved to a large scale commercial operation from 1958-1975, when 870

million board feet had been harvested. In June, 1974, there were 72 active timber sales, with others being considered. Judge Burns then addressed the contentions of the Forest Service that logging was designed for the protection of the watershed in terms of landslides, blowdown, insects, disease, and fire.

After extensive testimony by experts from both sides, the judge ruled that in terms of protecting the forest from landslides, the logging program did nothing. Damage from blowdown could be inflicted in two ways, decreasing general forest health and increasing exposure to the wind. Selective logging could remove weak trees and thereby lessen the probability of blowdown. However, clearcutting, the predominant method in the Bull Run, left large open spaces, increased the number of exposed edges, and thereby increased the potential for blowdown.

Insect threats to the forest, primarily Douglas Fir bark beetle, were a threat especially to blowdown trees since healthy trees were more resistant. Prompt removal of blowdown trees were protective of the forest, but a sustained yield program was not necessary to accomplish this task.

The danger of catastrophic fire was one of the main arguments that the Forest Service cited as a means of protecting the forest. They argued that by reducing the fuel load and constructing a road system for access, the probability of fire could be substantially reduced. Judge

Burns cited two aspects of the fire question: risk and hazard. Risk is the possibility of fire occurring. Hazard is the potential for damage by fire. Judge Burns stated that risk is not reduced by the presence of man in the reserve, citing figures showing that in the period 1969-1973 there were fifteen watershed fires caused by man (1472 acres), and seven from natural causes (7 acres).

The Forest Service aimed to reduce the fire hazard by reducing the amount of fuel on the forest floor. Judge Burns stated that "the uncomplicated truth is that slash from logging is not removed, the present program annually increases rather than decreases the fuel load, and does so in the types of fuel that are most dangerous as precursors to a crown fire." He cited figures showing that slash averaged about 200 tons/acre with 300 tons/acre in old growth. By contrast, undisturbed old growth averages about 30 tons/acre. From 1970-1973 figures supplied by the Forest Service indicated that about half of the slash was burned, leaving more fuel on the forest floor than before the logging. "The sustained-yield commercial logging program conducted in Bull Run adds to rather than decreases the fuel levels: to say that large-scale commercial logging increases, rather than diminishes, protection of the forest from fires is to say that black is white" (Burns 1976).

In considering the Forest Service argument that roads were needed to provide access for fire-fighting, Burns

ruled that the road system was designed primarily for timber harvest, not for access to likely fire areas. He made two points: roads themselves are not particularly useful in fighting disastrous crown fires, and the network of roads recommended in the 1954 fire protection study were already completed so addition to the system would be of small benefit.

In his opinion, the judge also addressed the Forest Service argument that the 1960 MUPA overrode the Trespass Act. Burns didn't agree, citing the precedent that a specific statute controls over a general one without regard to priority of enactment. He therefore stated that there is a duty to exclude from the Bull Run reserve all persons except federal and state officers and employees of the water board and Forest Service rangers employed to affirmatively protect the forest.

Judge Burns concluded that the management program did not protect the forest, whether from landslide, blowdown, insects, disease, or fire. In some cases, selective logging could protect the forest, but the Forest Service did not practice selective logging. "The defendants have responded with statements of policy and purpose, not with evidence that establishes a protective practice." Therefore he enjoined the continuance of logging in the Bull Run Watershed (Burns 1976).

The court decision to ban recreation and logging in the watershed did not take effect immediately. Recreation was

ended as of November 1, 1976, while the existing logging contracts were allowed to continue until 1981. Judge Burns reasoned that immediate termination of the logging would cause undue hardship on Clackamas, Hood River, and Wasco Counties, which were planning on shared timber funds to preserve county and school district budgets.

The reaction of the Water Bureau to the suit was expressed by Robert Hyle, Water Bureau manager, in an article in the Oregonian. He claimed that no danger to water quality existed in the Bull Run even though the watershed had been logged at the rate of 1% per year since 1959. The roads constructed for timber harvest were an asset for fire protection, the water exceeded Bureau of Health standards, and that in any case purification facilities were "inevitable". He noted that cooperation with the Forest Service would be maintained and that a study program to determine timber harvest effects had been underway for some time (Oregonian 7/28/73). The Water Bureau began planning for a closed watershed and suggested joint patrols and an "open file system" in which any activities in the reserve would be available for public review (Portland. Water Bureau. 1976).

Judge Burns' closing comments in the case foresaw future actions in Bull Run management. He noted that Congress could change the law if they agreed with those who thought that the Trespass Act was bad law, bad forestry, and bad economic policy. Shortly after his

decision, the effort began to supersede the Trespass Act with one that reflected the political realities of the day.

4. Prelude to Legislation 1976-1977

Despite the ongoing court case and Judge Burn's opinion issued in March, 1976, planning for the development of Bull Run continued. The city, the Forest Service, and forest industry interest groups anticipated Congressional action that would negate the 1904 Trespass Act and any court decision stemming from that Act.

A Draft Environmental Impact Statement was issued for comment in preliminary form in June, 1976. The stated management goal was the assurance that water quality standards would be met under conditions that were acceptable to both the city of Portland and the Forest Service. In the Forest Service preferred plan, 95,262 acres, including the Bull Run drainage, would make up what was called the Bull Run Planning Unit. Permissible activities in the planning unit would include water quality monitoring, reservoir construction, timber harvest, road construction, and special uses by mutual agreement.

Outside the planning unit, 49,032 acres would be removed from the reserve and opened to unconfined public use and timber harvest. There were areas within both the planning unit and the sections to be removed that would be

managed for uses such as wilderness study areas and a special interest scenic zone. There were four alternatives to the proposed plan.

1. Boundaries remain the same as in 1892. All 142,080 acres of the reserve closed to public entry. No timber harvest or recreation.

2. Boundary modified as delineated in 1959 to include 98,100 acres. Management direction places emphasis on water and timber production with water quality considerations paramount.

3. Reserve would include only the 68,074 acres of the physical drainage. Activities permitted which would not degrade water quality.

4. Consideration of various wilderness study areas. May be a part of any of the first three alternatives.

(Forest Service 1976c)

The Portland Water Bureau's comments on the plan reflected their primary concern for water quality. The bureau staff claimed that they should be ". . . the deciding authority in all activities in the watershed which impact water quality" (Portland. Water Bureau. 1975). They supported timber harvest in the drainage, noting, however, that intensity should not increase from the existing level. Consistent with past views, the bureau was against any recreation within the drainage.

The city council discussed the proposed Forest Service plan and expressed concerns about fire if logging

continued. Water Bureau manager Robert Hyle stated that logging using new techniques could be used that would minimize the chances of fire. Mayor Neil Goldschmidt replied that "as the director of water, you're not in the forest service business. Our primary interest is protecting the water supply, not logging" (Oregonian 9/8/76).

Logging, however, was on the agenda of individuals who would play a significant role in future Bull Run management. Senator Mark Hatfield stated that he would press for multiple-use of at least the area outside the watershed. Representative Bob Duncan supported this idea and noted that logging in nonwatershed areas ". . . is the least that ought to be done. But I'm not sure that's enough" (Oregonian 3/25/76).

The maneuvering for positions of influence on legislation included the Water Bureau, which noted in a memo assessing the impacts of the court decision closing Bull Run that the city should initiate the release of the areas opened in 1959 for recreation. The city should not wait until the Forest Service acted unilaterally, as had happened in 1959. The Bureau also noted that they ". . . should be clearly identified as having all water resource management responsibility for the watershed and be the determining agency with regard to water quality matters in this area" (Portland. Water Bureau 1976).

The same memo included an evaluation of a Forest Service Staff Report concerning the halting of activities in Bull Run as a result of the court case. The Bureau commented that the Forest Service report didn't make "useful" plans or indicate its duty to protect the forest. The implication was that the Forest Service did not expect activities to be halted for a significant period of time and that legislation would be enacted which would restore multiple-use to Bull Run.

The Portland City Council, led by Mayor Goldschmidt, also began to make their positions known regarding any possible legislation concerning Bull Run. In a newsletter in February, 1977, Mayor Goldschmidt commented that the city had "assumed for too long that the reserve was being managed, by the Forest Service, in our best interest; but we have been lax in articulating that interest" (Goldschmidt 1977). In a memo to Goldschmidt, aide Alan Webber noted that the lawsuit woke the city up to what was happening in Bull Run. "When was the last time the Forest Service appeared before city council to report on management practices? Why have we agreed for so long to let every other political jurisdiction reap economic benefits from logging while Portland rate payers take all the risk?" (Webber 1977).

In February, 1977, the City Council passed a resolution that outlined some of their concerns and objectives for the watershed. The resolution endorsed a boundary

containing the watershed and a buffer area, re-opening the 1959 recreation area, and logging where it was necessary to preserve water quality or shown not to affect it. The council also wanted to be a co-equal partner with the Forest Service in managing the watershed. No activity would be permitted without mutual agreement, and there would be unified management and monitoring activities financed by logging revenues. A Bull Run Advisory Committee representing Portland water users would be created which would advise both the Forest Service and the City.

The Council voted 4-1 to accept the resolution with Connie McCready dissenting, arguing that Congress would never accept any form of federal indemnification if logging disrupted the water supply. She urged that the council support Judge Burns' decision and limit all but "protective" logging (Portland. City Council. 1977).

The Forest Service was also dissatisfied with some of the resolution's provisions. Dale Robertson, Mount Hood Forest Supervisor, stated that the Forest Service would not recognize Portland as an "equal partner" because the watershed was on federal land and was therefore a federal responsibility. He favored a regular process of consultation with the city during which timber harvest would be discussed (Oregon Journal 2/17/77).

The Water Bureau, the city, the Forest Service, and the interest groups were all concerned about any legislation

that would be enacted in 1977. The legislation that would result from this mix of interests and attitudes would establish new relationships between Portland and the Forest Service.

5. Summary and Discussion

The cooperative relationship between the city and the Forest Service in the period 1958-1977 was marked by the beginning of commercial timber harvest in the watershed, the closing of Bull Run as a result of the lawsuit, and the groups involved jockeying for position in order to influence expected legislation.

The Forest Service, the city and Water Bureau, and forest industry interest groups perceived the watershed as suitable for timber harvest and water production. The 1959 Cooperative Agreement explicitly recognized timber harvest as a watershed activity for the first time, and later that same year 42,500 acres of the reserve were opened to public recreation by unilateral action of the Forest Service. This action was supported by the City Council after the fact and aroused little opposition.

However, 12 years later when the Forest Service suggested opening up the Bull Run to recreation within the watershed itself, the City Council and public strongly objected. The Forest Service, quick to react to criticism, moved to establish a closer cooperative relationship with the city in the 1971 Memorandum of Understanding. Closer

cooperation and tighter control on release of information concerning plans for the watershed were part of the memorandum. Clearly the Forest Service was learning that both the city administration and the public had been awakened by the Larch Mountain controversy and were henceforth going to be more closely scrutinizing activity in the watershed.

The Bull Run Planning Unit was set up in 1973 to institutionalize cooperation between the city and the Forest Service and to involve the public. However, some segments of the public decided that the formation of the unit was too little and too late. They sued the Forest Service and were successful in stopping all activities in Bull Run that did not affirmatively "protect" the forest. It is important to understand the difference in the burden of proof in the case. It was not enough for the Forest Service to assert or even provide evidence that timber harvest did not harm the water. Judge Burns' interpretation of the Trespass Act of 1904 only permitted activities that would affirmatively "protect" the forest. Ruling that timber harvest and related activities did not protect the forest, the judge enjoined any further timber harvest or recreation in the reserve.

In spite of the continuing lawsuit, cooperative planning for development continued. The city, the Forest Service, and industry and environmental groups began to plan for the expected legislation that would address Bull

Run management. The Draft Environmental Impact Statement issued in 1976 proposed alternatives that would serve as a basis for legislation.

The significant factor affecting the city-Forest Service relationship during this era was the emergence of groups and individuals who opposed the timber management policy in Bull Run. Coincident with the emergence of the environmental movement in the 70's, the managers of the resource were being confronted with an aroused public which would no longer accept Water Bureau and Forest Service "professional" management who knew what was best for the watershed. Both environmental and industry groups were determined to exert their influence on legislation affecting the future of Bull Run.

D. Continuing Conflict 1977-1989

1. Legislation 1977

The city council's resolution of February, 1977, which advocated co-equal management of Bull Run with the Forest Service, aroused powerful opposition. In addition to Mount Hood Forest Supervisor Robertson, Robert B. Duncan¹, Third District Congressman, opposed the "partnership" plan of the city council. Duncan stated that "I have problems with any city having a veto power over federal policy in the national forests" (Oregonian. Keller. 2/26/77). He also expressed concern about setting a precedent that would allow 3,000 municipalities with watersheds on federal land "dictating" federal policy. In a memorandum to Duncan, Mayor Goldschmidt replied that an arbitration provision would resolve disagreements with the Forest Service and that the city would not have a "veto" over federal activities.

With Portland's own congressman in disagreement with the city over the management structure in Bull Run, there was no united front that would ensure smooth passage of a new Bull Run bill. In May, 1977, Congressman Duncan introduced his bill in the House. It required the Forest Service to coordinate and consult with the city and instituted multiple-use management unless the Secretary of Agriculture found any activities that could significantly affect water quality (Oregonian. Keller. 5/11/77).

Reactions to the bill were mixed. Senator Hatfield stated that Duncan's bill was a way to get discussion started. He had drafted a bill containing a ten year partnership provision between the city and the Forest Service but withheld the bill because he and the city could not agree about the filtration plant payment issue. Mildred Schwab, city commissioner, refused to support Duncan's bill because it did not have the control Portland was seeking, neither the joint control nor the arbitration.

The Oregon Environmental Council (OEC), one of the original plaintiffs in the Bull Run lawsuit, was less charitable in their comments. Larry Williams, executive director, stated that the bill would put Bull Run in the same category as other National Forest lands and pay "lip service" to advice and consent from the city. Calling the legislation a "complete capitulation" to timber interests, he announced that the OEC would draft their own bill and submit it to Congress (Williams 1977).

An Oregonian editorial pronounced the bill unsupportable because the management plan did not give the city enough voice in what happened in the watershed. Although supporting some level of commercial logging, the editorial noted that Portland should be involved in setting water quality standards. Concern was also expressed about who would pay for a filtration plant if necessary (Oregonian 5/12/77).

Although there was substantial disagreement among the city, the Forest Service, and environmental and forest industry groups on the Forest Service-city management relationship and the filtration question, the boundary issue was easily resolved. There was general agreement that the boundaries of the reserve should be readjusted to exclude the areas opened up to recreation in 1959. Representative Les AuCoin, First District Congressman², introduced a bill which would open up the 42,500 acres in the reserve but outside the watershed and it was signed by President Carter June 25, 1977. The bill had an automatic termination date of December 25, 1977, by which time a bill addressing the whole management question was expected to be passed.

On the other questions there were substantial differences. Three bills were introduced which varied considerably in addressing the relationship between the Forest Service and the city. Congressman Duncan's bill, the city's bill, and the Oregon Environmental Council's bill became the basis for discussion in the committee hearings held in July, 1977. All three bills reduced the reserve to 95,382 acres, removing the 42,500 acres that were opened to recreation in 1959. However, their other provisions provided different roles for the Forest Service and the city.

H.R. 7074, S. 1478 - Representative Duncan, Senator Hatfield

1. Multiple-Use unless the Secretary of Agriculture finds significant effect on water quality or quantity.

2. Consultation and coordination with Portland; public participation; land use plan by Sept. 30, 1979.
3. Forest Service, Portland meet at least annually to review cooperative agreements.
4. Entry controlled by Forest Service; regulations made in consultation with city except in emergencies.

H.R. 7457, S. 1622 - City of Portland

1. Reserve would be managed jointly with equal authority.
2. Neither sustained yield logging nor recreational activities allowed in watershed.
3. Primary purpose water quality. Activities allowed that protect water quality or do not affect it.
4. Portland reimbursed for planning and monitoring costs from timber receipts.
5. If filtration is necessary, Portland is reimbursed for capital costs and maintenance.

H.R. 8223, S. 1857 - Oregon Environmental Council

1. The 1904 Trespass Act is retained. Only the size of the reserve is changed.

Even before the hearings were held in Washington, D.C., a controversy broke out over the issue of holding hearings on the bills in Portland. In June, the city council sent a letter to Bob Duncan, requesting that hearings should be held in the city because of the "strong feelings" surrounding the bill (Oregonian 6/16/77). Duncan had already had a sample of the strong feelings when he had a town hall meeting at Clinton Kelly School in Portland in March. Asking for a show of hands of those opposed to logging in Bull Run, a majority held up their hands and vociferously let him know their feelings about the issue (Oregonian 3/22/77). Three months later, when requested by the city council to hold hearings, Duncan stated that everything had already been said about the issue, and that hearings were not necessary (Oregonian 7/21/77).

Duncan was heavily criticized for his refusal to hold hearings in Portland. An Oregon Journal editorial noted that everything may have been said about the issue, but nobody had said it to the Congress. The Portland congressman was " . . . short-circuiting the process to serve his own philosophical goals and has ignored a large number of people he was chosen to represent" (Oregon Journal 7/23/77). Portland commissioner Connie McCready was even more incensed, sending a mailgram to Duncan that expressed " my disappointment with your performance-or lack thereof-on Bull Run. It's shocking to me to have verification that you and you alone are responsible for preventing your constituency from having the opportunity to be heard here in Portland" (McCready 1977).

These protests did not convince Duncan to press for local hearings and the Washington hearings began in July. The issues that would have significant effects on city-Forest Service relations discussed in the hearings were the financing of a filtration plant, setting a precedent in Federal-municipal relations, and managing the watershed on a co-equal basis.

Portland's bill included a provision that would have the Forest Service pay for a filtration plant if water quality was degraded as a result of timber harvesting. Rexford Resler, Forest Service Associate Chief, testified that it would be very unlikely that a filtration plant would be needed, but if one was necessary, there were

other federal agencies responsible. Mayor Goldschmidt and Larry Williams, executive director of the Oregon Environmental Council, replied that the city wasn't receiving revenue from the logging but was taking all the risks. Williams stated that it would seem only fair that those receiving the benefits accept the risk.

Setting a precedent was a serious concern for the Forest Service, which foresaw other municipalities with watersheds on national forest land demanding a co-equal role in management of their watersheds. Associate Chief Resler mentioned the excellent cooperative relationship between Portland and the Forest Service and that whatever bill was adopted would have significant implications for other watersheds on national forest lands. He rejected the concept of joint management by statute and stated that management should be on an open and cooperative basis with final authority vested in the Secretary of Agriculture. Supporting Duncan's bill, he noted that Portland could participate in continuing land use planning with annual updates. Structural authority would be through cooperative agreements jointly developed (U.S. Congress. Senate. 1977).

In supporting Portland's bill, Mayor Goldschmidt testified that Portland did not want to be merely consulted but to be an equal partner in management. He pointed out that there were fifteen acts and executive orders relating to watersheds on federal lands. Each was a

response to unique circumstances. Why would this one be different? The relationship in a federal system is constantly being adjusted and this was an opportunity to institutionalize cooperation in a creative way. He noted that "such cooperation is encouraged by formalizing the principle of equal participation in decision-making, and equal accountability for the decisions" (U.S. Congress. Senate. 1977).

Interest groups' positions on the joint management issue varied. The Western Council of Lumber, Production, and Industrial Workers was not concerned about joint management as long as the Trespass Act was removed quickly and logging was resumed. The International Woodworkers of America, however, saw joint management as a threat to timber activities on "thousands" of other national forest watersheds. John Ball, Secretary-Treasurer, stated that "the potential for economic disruption and unemployment are tremendous" (U.S. Congress. Senate. 1977).

The Oregon Environmental Council supported the retention of the Trespass Act, which would keep the reserve closed to multiple-use. They were wary of either Forest Service or city management, since both supported commercial timber harvest in the watershed, although at different levels. Executive Director Williams did not support co-equal management because turning over management of federal lands to local authorities ". . . could cause problems across the nation" (U.S. Congress.

Senate. 1977).

However, the city council had some powerful allies in its attempts to achieve a substantial management role in Bull Run. Teno Roncalio, D-Wyo. and Chairman of the House sub-committee considering the bill, supported an official role for Portland. He rejected Duncan's argument about setting an undesirable precedent, noting that "precedent be damned. Precedent has always been used as an argument against progress" (Oregonian. Keller. 7/26/77). Senator Mark Hatfield was also receptive to new ideas in the Federal-municipal relationship. Stating that he didn't want to get locked into the idea of precedent, the Oregon senator said that the distinct character of the watershed might be justification for a new management policy or structure (U.S. Congress. Senate. 1977).

The Oregon congressional delegation was in disarray after the hearings. Environmentalists, city officials, and the delegation could not agree on a role for the city in Bull Run management. In a telegram to Oregon congressmen Duncan, Hatfield, Packwood, and AuCoin, some members of the city council reiterated their position. If co-equal authority and a filtration funding mechanism were not possible, a return to the protection of the 1904 Trespass Act would be preferable (Jordan et al. 1977).

There were several efforts to compromise. Duncan modified his bill to include an arbitration panel made up of three scientists who would decide disputes over

management activities. Roncalio suggested that a 3-member panel made up of a Forest Service representative, an elected water user representative, and a third member chosen by the first two manage the watershed. Duncan and Ullman reacted strongly, claiming this arrangement would "surrender the integrity of the federal management responsibility" (Oregonian. Keller. 7/30/77). Unable to agree, the sub-committee forwarded the amended Duncan bill including the arbitration panel to the full House Committee on Interior and Insular Affairs without recommendation. In the full committee, consideration of the bill was postponed for the August recess of Congress.

During the recess, Congressmen Duncan and Ullman pressed for their view of the management structure, publicizing a letter from Forest Service Chief John R. McGuire, who repeated Resler's views from the July hearings and added that sharing Federal lands with a non-federal entity would be "inefficient, confusing, and subject to administrative delays" (McGuire 1977). He supported his argument that Portland would have ample opportunity for management input by citing passages in the 1976 DEIS that referred to the city-Forest Service relationship. The passages noted Portland's participation in the DEIS planning process and pointed out that a memorandum of understanding spelled out the process for developing future management direction.

An Oregonian editorial supported a wider role for the city, noting that in some cases local authority over federal agencies' actions would be appropriate. The paper stated that the Bull Run issue had wide implications and would be a test to see whether federal supremacy theories should be followed slavishly or whether a superior federal-local partnership could be developed (Oregonian 8/3/77).

The Portland City Council stated that any bill would need to include a statement of nondegredation of water quality standards set by the city, and allow the city to deal with proposed activities before impacts had taken place. They also wanted the bill to emphasize that the primary purpose of the watershed was to produce clear, potable water, not timber. Congressman Duncan responded that the statement of primary purpose would not be a problem, but that the city would probably have to accept arbitration if they disagreed with standards set by the Forest Service (Oregonian 9/2/77).

In November, 1977, the amended Duncan bill was agreed to by the Oregon delegation and passed in the House and Senate. It was also supported by the city council with Commissioner McCready dissenting. Mayor Goldschmidt said that the city would lose more than it would gain if the bill was delayed until January (Oregonian. Keller. 11/5/77). President Carter signed PL 95-200 November 23, 1977, and it became the basis for management in the

watershed. The full text is included as Appendix D.

Major provisions of the bill were the following:

1. Boundaries were changed to exclude the 42,500 acres in the reserve but outside the watershed opened to recreation in 1959.

2. The Secretary of Agriculture manages the watershed for multiple-use unless there is a significant decrease in water quality, in which case those activities responsible are modified or eliminated.

3. Management plans are prepared by interdisciplinary teams in consultation and coordination with the city. Water quality standards are developed by the Secretary and incorporated into a management plan to be completed by 9/30/79.

5. Disagreements may be referred to an arbitration board if necessary. The Forest Service and the city each select one member. The third is selected by mutual agreement. If there is no mutual agreement, the third member is selected by the presiding judge of the United States District Court of Oregon.

6. The Trespass Act of 1904 was repealed.

Shortly after the passage of the law, Judge Burns dismissed the public trust decree against the Forest Service and requested the plaintiffs to notify him if they wished to press the other claims. In a letter to Attorney Charles Merten, Joseph Miller, the primary force behind the lawsuit, stated that he no longer had the time, money,

or energy to pursue the other claims (Miller 1977). How the law would affect the relationship between the Forest Service and the city would henceforth be decided by the management plan mandated by the act and not by the courts.

2. Changing Directions 1977-1983

PL 95-200 did not resolve management conflicts in the Bull Run. The emphasis shifted from the defunct Trespass Act to implementation of the new law. The Portland City Council, even before the final passage of the act, had decided that a new institutional structure was necessary to represent Portland's interests in Bull Run management.

Mayor Goldschmidt wanted a commission appointed by the mayor that would serve to advise the council on watershed management. Frank Ivancie, Commissioner of Public Utilities, proposed a committee, appointed by himself, that would serve the same purpose. Goldschmidt lost the council vote, 4-1, and the Bull Run Advisory Committee (BRAC) was created by city ordinance in April, 1977 (Oregonian. Trachtenberg. 4/21/77).

The ordinance provided for a committee that would represent Portland's interest in all matters relating to the Bull Run Reserve. Seven members, two from the general public and five with some water management expertise, would be appointed by the commissioner in charge of the Water Bureau and approved by the city council. Serving terms of three years, the committee was given the duties

of "reviewing, evaluating and assisting the Bureau of Water Works and the Forest Service in the preparation of management plans" (Portland. City Council. 1977). BRAC would submit annual operation and management plans to the city with recommendations to the commissioner and the city council.

In November, 1977, BRAC submitted its first report, which recommended a sharp decrease in logging in the Bull Run. The committee rejected the need to harvest old growth in order to prevent catastrophic fires but would support logging in areas damaged by floods, disease, or landslides. Stating that any activities in the watershed should be evaluated on their effects on water quality, the committee stated that these criteria would be used in evaluating the Final Environmental Impact Statement (FEIS) then being prepared by the Forest Service (Oregonian 11/7/78).

The BRAC held 14 meetings in 1978 with the Forest Service and issued recommendations to the Water Bureau and city council. The major recommendations included a new memo of understanding responding to PL 95-200, and a silviculture management plan. BRAC also suggested the creation of a formal system for coordinating plans between the Water Bureau and Forest Service which would include an administrative and operational plan, a water resources plan, and a water quality monitoring plan with specific standards. These recommendations were incorporated into

the FEIS issued in early 1979.

The FEIS also differed from the 1976 draft in that primary emphasis was placed on water quality preservation and timber harvest was reduced from a target of 47 mmbf to 19 mmbf in the buffer while remaining at 21 mmbf in the watershed. The actual amount would be set in the annual operation plan with consultation and coordination with Portland. First priority for harvesting was the removal of dead or diseased trees, prevention of fire hazards, and accommodation of water development projects. Second priority was dealing with potential long range problems such as floods, landslides, and wildfire. Last was the use of the timber resource where it did not affect water quality. The buffer area had an objective of reducing fire risk, preventing trespass, and maintaining a sustained yield timber program (Forest Service 1979).

The new memorandum of understanding which would formalize the planning procedures in PL 95-200 and the 1979 FEIS was approved by the city council in May, 1979. The memorandum addressed a number of topics:

Cooperative Planning - Sub-basin plans and annual activity schedule are submitted the first day of February each year.

Responsibilities - The Forest Service administers all lands within the unit and the Water Bureau operates the water transportation, collection, and storage systems.

Communication - During specific development projects, the Forest Service communicates directly with the Water Bureau manager or his project representative. The Water Bureau communicates with the Columbia Gorge District Ranger or his representative.

Mutual Responsibilities - Public education and involvement. Administration and Operation Document (floods, fires, and other emergencies). Water Quality monitoring plan. Research plan.

Disputes - Both the Forest Service and the Water Bureau will try to solve problems outside the arbitration system if possible.

An appendix addressed the heretofore confusing situation involving communication between the Portland Water Bureau, the Forest Service, BRAC, and the city council. The Forest Service and Water Bureau communicate on all matters before presenting issues to BRAC. Agreement will be reached if possible, but if no agreement is reached, each agency will submit their separate views. BRAC studies these positions, formulates its own recommendations, and submits these to the city commissioner in charge of the Water Bureau. The commissioner then presents these recommendations to the city council, which decides on a course of action. The complete memorandum of understanding, which along with PL 95-200 and the 1979 FEIS is the current formal basis for Forest Service-city relations, is included as Appendix E.

In February, 1980, the first timber sale was completed since December, 1976. The sale was primarily dead standing or fallen Douglas fir, hemlock, cedar and other conifers. In 1981, BRAC reported that there had been no significant level of water quality degradation during 1980 and they expected to negotiate a timber harvest level with the Forest Service that would include standing timber (Oregonian 3/12/81).

3. The Blowdown Issue 1983-1988

During the early 1980's, the controversy which had persisted through the 1976 court case, the new Bull Run Act in 1977, and the planning for the 1979 FEIS finally began to recede. Except for the persistence of the Bull Run Interest Group in challenging any activity in the watershed, public interest in the watershed decreased.

However, this situation was not to last. In December, 1983, a severe windstorm with 90 mph winds blew down more than 300 mmbf of timber in the watershed, mostly old growth Douglas fir. The blowdown affected 5770 acres, approximately 8.8% of the watershed (Forest Service. DEIS. 1987). The question of what to do with the blowdown, if anything, immediately arose. Eugene Zimmerman, Columbia Gorge District Ranger, said that much of the timber was "decadent" and had been affected by the windstorm because the old growth stands lacked young, vigorous trees. They needed to be salvaged immediately or become a breeding

ground for Douglas fir bark beetles (Oregonian. Hayes. 3/20/84).

These claims were disputed by environmental groups, who pointed out that of the 121 patches of blowdown which occurred in 1973 and 1983, 99 of the largest ones were immediately adjacent to clear-cuts or logging roads. The Forest Service admitted that the existence of clearcuts in the watershed increased the probability of blowdown, but that this fact did not decrease the necessity for treating the downed timber (Oregonian. Hayes. 10/23/85). The idea that disease was to be a major problem was also disputed. In the 1988 FEIS, an insect survey taken in 1986 showed an increase in Douglas-fir bark beetle attacks over the previous 3 years but the extent and degree of insect attacks was expected to decline (Forest Service. FEIS. 1988).

The specter of fire was again raised, as it had been in the original arguments for logging Bull Run. Timber sales were seen as a method of reducing the natural fuels generated with the deterioration of old growth stands (Oregonian. Enders. 8/14/84). At a Portland City Club forum, Richard Pfilf, Mount Hood National Forest Supervisor, warned that the blowdown could provide the fuel for "what could be an uncontrollable fire of enormous proportions." Carl Goebel, Water Bureau administrator, stated that "something needs to be done and done promptly" (Oregonian. Running. 11/15/84).

The fire question had been a point of contention since Bull Run logging had begun in 1958. In the Bull Run court case, plaintiff's lawyer Charles Merten cited Forest Service figures showing that between 1900 and 1977, 15,020 acres had burned on the watershed, only 82 of which were attributed to nature-caused (lightning) fires (U.S. Congress. Senate. 1977). The 1988 Blowdown FEIS showed that 62% of the fires in Bull Run from 1965-1987 were caused by slash burning and other human activities (Forest Service. FEIS. 1988).

The Forest Service had already begun a planning process to determine a course of action. In late 1984 and the winter and spring of 1985, a plan was developed with opportunities for input by organizations and individuals outside the Forest Service. An environmental assessment issued by the planning team in late 1984 recommended logging more than 2000 acres of the blowdown (Oregonian. Hayes. 10/23/85).

The environmental assessments of the proposed sales were appealed by environmental groups and in addition, the Water Bureau was pressing for a restriction of the harvest to those areas where fire danger was most critical (Oregonian 2/5/85). The Bull Run Advisory Committee, requested by the city council to provide a recommendation on blowdown management, replied that the Forest Service report was confusing and unclear. District Ranger Zimmerman pressed the committee for a recommendation,

noting that the Forest Service wanted to advertise the first sale by April 15, and that "the train is pulling out, and we feel like we have met our obligation" (Oregonian. Van Horn. 3/17/85).

Because of the confusion and controversy surrounding the assessments, the Forest Service decided to postpone the timber sales and form a consensus group to facilitate communication. Several meetings were held with environmental and industry groups, interested citizens, BRAC, and Water Bureau representatives in the spring and summer of 1985. In July, a decision notice and environmental assessment was published which dealt only with the most critical blowdown areas. This assessment was also appealed by the Bull Run Interest Group but was denied by the Regional Forester and four timber sales were awarded on Sept. 10, 1985.

Although BRAC had approved the plan by a 4-3 vote, the city council was scheduled to review the plan in October and had not yet given its approval. After the contracts were awarded, the council felt that they had been left out of the decision process and wrote directly to John R. Block, Secretary of Agriculture. They noted that PL 95-200 required the Secretary, as represented by the Forest Service, to cooperate with the city in developing water quality standards, a monitoring plan, and administrative and operational guidelines. Only the operational guidelines were in final form and the water quality

standards and monitoring plan were still being reviewed. Yet clearcut logging had already begun without those plans in place.

The letter quoted a forester who, in an interview with the Oregonian, stated that "We felt we waited long enough for them to decide. I don't think we're ever going to hear from them, yes, go ahead and log. I think it's going to be a de facto thing." Noting that the city had made a good faith effort to cooperate with the Forest Service, the letter pointed out that less than a month had passed between the submission of the monitoring plan to the city and the signing of contracts to begin logging. "If logging is to be on a de facto basis, then not only the spirit but the letter of Pl 95-200 is being violated. We want to know that implementation of the law is not viewed by the Forest Service as an exercise in public relations, with no bearing on what actually happens in the management of the watershed" (Portland. City Council. 1985).

As a result of the controversy surrounding the plans for the watershed, in September, 1985, the Forest Service decided to prepare an environmental impact statement to assess alternatives for managing the blowdown. The formal planning process began in February, 1986, and in June, 1987, a draft EIS was issued.

The objectives cited in the DEIS were in keeping with Pl 95-200 in recognizing the preservation of water quality as the prime objective while utilizing renewable

resources, including timber. Planned by an interdisciplinary team from the Forest Service and the Water Bureau, the plan suggested eight alternatives ranging from harvesting none of the blowdown to harvesting 88 mmbf of the 90 mmbf of marketable timber. The preferred alternative would harvest the most timber at 88mmbf covering 1,968 acres and extend over four years. The Forest Service would meet with the Water Bureau on a day-to-day basis when necessary and water quality data would be compared at least annually (Forest Service. DEIS. 1987).

The Water Bureau reaction to the DEIS noted that salvage was concentrated in the wrong places and that logging should be in areas that present the greatest risk of providing fuel for fires. The bureau claimed that in some areas that the Forest Service planned to log, there would be greater risk to water quality than is warranted (Oregonian. Goetze. 7/27/87). Bruce Niss, watershed resources manager in the bureau, said the Forest Service plan was based on economic return to the U.S. Treasury while the Water Bureau plan was based on preserving water quality (Oregonian. Lane. 8/13/87).

BRAC concentrated their criticism on the lack of a water quality monitoring plan and the lack of information on specific effects on water quality. There was only relative information as to which alternative was better or worse than others in affecting water quality. They also

noted that the preferred option spread the risk over 4 years, rather than one to three as did the other alternatives (Oregonian. Oliver. 6/23/87).

The city council, with both the Water Bureau and BRAC expressing serious concerns about the DEIS, voted unanimously to oppose it and directed the Water Bureau to pursue negotiations with the Forest Service (Oregonian. Lane. 8/13/87).

The final EIS was issued in April, 1988, and the preferred alternative was modified considerably. 1,400 acres containing 64 mmbf would be harvested over 4 years. Entry days were lowered and logging in ten of the twelve areas with the highest risk of soil erosion were eliminated. Edward Tenny, Water Bureau Director, stated that, "I think it's a real positive move on their part" (Oregonian. Goetz. 4/16/88). In July, 1988, salvage logging began in the watershed.

4. Present Management Issues 1989

There are several issues that continue to strain the Forest Service-city relationship. Setting water quality standards, installing a monitoring system, and possible filtration requirements are current issues.

In 1979, PL 95-200 gave the Forest Service the authority to set water quality standards with consultation by the city. Negotiations between the Forest Service and the Water Bureau were still incomplete when the 1983

blowdown put increased pressure on the effort. In late 1984 the Forest Service proposed standards and BRAC approved them subject to modifications by the Water Bureau, which wanted monitoring at a higher level than the Forest Service (Thomas 1985).

Commissioners Mildred Schwab and Margaret Strachan challenged the Forest Service and the Water Bureau to explain how the proposed standards and monitoring system could protect Portland's drinking water, noting that it would be "to late to unsaw the trees if logging affected water quality" (Oregonian. Hayes. 7/11/85). The city council postponed indefinitely action on proposed water quality standards and the Forest Service replied that they wished to obtain the endorsement of the city council but that the standards could be used without the city's approval (Oregonian. Hayes. 8/1/85).

Finally in July, 1987, the city council, with a positive recommendation from BRAC, adopted water quality standards and a monitoring plan (Oregonian. Lane. 8/13/87). A year later, after the completion of the FEIS, salvage logging of the blowdown in Bull Run began. However, in response to environmental groups' appeals, Representative Ron Wyden, D-OR, proposed an independent review of the Water Bureau and Forest Service monitoring system. A five member panel with representatives from 1000 Friends of Oregon, the Western Forestry Association, the State Health Division, the Water Bureau, and the Forest

Service selected three independent consultants to review the monitoring program. The Forest Service paid 60% of the \$75,000 consulting cost and the Water Bureau 40%. The consultants' review was released in April, 1989 and was discussed in the research section on pages 48-49 of this study.

The emphasis on an extensive monitoring system would be decreased if Portland were forced to build a filtration plant. Since 1927, Portland has added only chlorine and ammonia to Bull Run water. Filtering the water would have two effects: removing micro-organisms from the water and removing particulate materials which form surfaces on which micro-organisms can adhere, making disinfection more difficult. Now there are only screens at the headworks which serve to filter coarse materials (Forest Service. DEIS. 1987)..

In June, 1986, an amendment to the Safe Drinking Water Act (SDWA) directed the EPA to determine when surface drinking water sources must be filtered. The original deadline was December, 1987, but was changed to June, 1989. If Portland is required to build a filtration plant, it will be costly. A Water Bureau memo in 1986 estimated the cost at 185 million dollars to build a filtration plant and conduit if Portland cannot meet the new standards. However, Bruce Niss, bureau watershed advisor, maintains that filtration will not be needed because Bull Run water exceeds minimum standards only a few times a

year due to increased runoff from storms (Niss. Interview. 8/22/88).

Other officials are not so optimistic. Jim Boydston, manager of drinking water systems for the Oregon health Division, stated that "I think there's no question that if logging continues up there, it will be just a matter of time until a filtration system is needed" (Oregonian. Durbin. 9/9/86). Water Bureau Director Edward Tenny agreed that a filtration plant might be required, but it would have nothing to do with logging.

5. Summary and Discussion

The period from 1977 to 1989 was marked by a dramatic shift in the relationship between the city and the Forest Service because of the passage of PL 95-200. In 1976, enforcement of Judge Burns' ruling that the Forest Service was violating the Trespass Act stopped timber sales in the watershed. Less than twenty months after a decision that had taken three years in court, the Trespass Act was dead. Multiple-use had become the objective of management, with the proviso that water quality would be of primary importance and no "significant" deterioration would be allowed.

And what did Portland receive for its efforts to achieve equal management status with the Forest Service? The effort to indemnify itself against the cost of a filtration plant failed. The Forest Service was willing to

accept the responsibility for managing the watershed but if a filtration plant was necessary, they argued that it wouldn't be due to timber harvest and in any case, other federal agencies had the responsibility for assisting municipalities in water treatment problems.

The city did salvage the right to be consulted on management issues. Most importantly, a provision was included that made the Portland-Forest Service relationship unique. Arbitration would be used to resolve differences that could not be negotiated successfully between the two parties. This was not attained easily, since the Forest Service and some influential members of Congress were concerned about a municipality sharing management control over federal lands.

Another important result of PL 95-200 was that it shifted the burden of proof. Judge Burn's decision upholding the Trespass Act had put the burden of proof on the Forest Service, requiring them to show that harvest activities affirmatively protected water quality. PL 95-200 removed this burden, requiring that a "significant" decrease in water quality must be shown before remedial action would be mandatory. Since Bull Run research is inconclusive, primarily because of an inadequate data base, this is a heavy burden indeed for anyone trying to show that timber harvest is affecting water quality.

The effect of PL 95-200 also had wide-ranging effects on the operations of the Water Bureau. Accustomed to

managing only the water supply and transport system, after 1977 the bureau was expected to comment on all facets of timber management plans. The bureau created the new position of watershed manager, who would review Forest Service plans for effects on water quality and suggest alternatives. The bureau has representatives on watershed planning teams and issues formal written comments on management plans. After negotiating with the Forest Service, plans are presented to the Bull Run Advisory Committee, which bureau watershed manager Bruce Niss sees as a "referee" between the bureau and the Forest Service (Niss. Interview. 8/22/88).

The creation of BRAC during this period was an attempt by the city council to create an institution that would advise them on Bull Run management. Why didn't the Water Bureau fulfill this role? Apparently the council felt that the Water Bureau and the Forest Service represented the "professional" view of watershed management and that views more representative of the community at large would be useful. This was illustrated rather directly by Mayor Goldschmidt when he stated that "I think the public is going to get shafted," after he lost the vote that would have enabled him to appoint the members instead of the commissioner of Public Utilities, who was closely connected to the Water Bureau (Oregonian. Trachtenberg. 4/21/77).

The Water Bureau put increased emphasis on communication with the public. In an article in Water Engineering in 1981, the bureau emphasized its increased use of non-engineering personnel such as foresters and land-use planners. The article also mentioned engineers' "limitations in socio-political issues" and emphasized its new public information and involvement programs.

The period from 1977 to 1989 also should have laid to rest any doubts about the unspoiled nature of Bull Run. The popular perception of the watershed as a "pristine" area has not fit the Bull Run for years, noted Eugene Zimmerman, Columbia Gorge District Ranger (Oregonian. Hayes. 10/20/85). By 1985, 1 billion board feet of timber had been harvested from the watershed. Clearcuts covered 17,000 acres and 160 miles of roads crisscrossed the watershed.

But the myth of Bull Run continues in the minds of those involved in trying to minimize or stop timber harvest. "The purity of the Bull Run Watershed is almost mythical. It's like the Holy Grail. The fact you can't go there makes it almost like a place that exists only in people's minds" (Oregonian. Hayes. 10/21/85). That myth, translated into pressure put on the city council, Water Bureau, and Forest Service by groups such as the Bull Run Interest Group, has affected and will continue to affect the city-Forest Service relationship.

6. Endnotes

1.The third district contains portions of Clackamas and Multnomah counties.

2.The first district contains Clatsop, Columbia, Lincoln, Tillamook, Washington, Yamhill, and portions of Multnomah and Polk counties.

CHAPTER IV. CONCLUSIONS AND RESOURCE DECISION MODELS

Resource studies in geography have increased our understanding of the complex nature of resource management. The objective of this chapter is to contribute to increased knowledge of this man-land relationship by addressing the last two objectives of the study. What conclusions can be drawn from this study of the Bull Run Watershed concerning the effects of attitudes, interest groups, and research on management relationships in federal-municipal watersheds? And, how do the interactions of these factors contribute to a framework for analyzing the larger issue of decision-making in natural resource conflicts?

A. CONCLUSIONS

Three important variables in the Portland-Forest Service relationship were attitudes, interest groups, and research. This section discusses how each of these factors affected the management of the Bull Run Watershed. For reference, table 4 provides a chronological sequence of events important in Bull Run management history.

Table 4

Important Events in Bull Run Management History

 1890-1958 A Restricted Watershed

- 1892: Bull Run Proclamation issued by President Harrison.
 - 1895: Water flows to Portland from Bull Run.
 - 1904: Bull Run Trespass Act passed.
 - 1934: First logging occurs. City logs blowdown trees.
 - 1943: Legal opinion from Department of Agriculture solicitor general that Trespass Act does not prevent multiple-use in Bull Run.
 - 1952: Forest Service memorandum outlining plan for development of the Bull Run watershed.
 - 1954: Cooperative Agreement - access roads.
 - 1955: Cooperative Agreement - responsibilities, research.
 - 1957: Comptroller General instructs Forest Service to log Bull Run or force Portland to pay for lost revenue.
-

1958-1977 Multiple-Use

- 1958: Large-scale logging begins in Bull Run Reserve.
- 1959: March - Cooperative Agreement - timber harvest on city land.

August - Region 10 Forester unilaterally opens 42,500 acres of the Bull Run Reserve to recreation.
- 1971: May - Larch Mountain-Bull Run management plan released. Proposed opening watershed to recreation.

Table 4 continued

- November - Memo of Understanding - Responsibilities
- 1973: July - Suit filed to stop logging and recreation in the Bull Run Reserve.
- November - Supplement to 1971 Memo of Understanding - Authority, Citizen's Advisory Team, Bull Run Planning Unit.
- 1975: March - Bull Run Land Suitability Analysis released.
- June - Memo of Understanding - Authority, Joint review of development projects.
- 1976: March - Judge Burns' opinion halting logging and recreation in the reserve.
- June - Bull Run environmental assessments issued.
- August - Bull Run Planning Unit Draft Environmental Impact Statement issued.
- November - Judge Burns enters final decree halting all recreation and logging within the Bull Run Reserve.
- 1977: May - A new Bull Run bill is introduced in the House and Senate.
- July - Hearings are held in Washington on various versions of the bill.
- November - A new Bull Run bill is passed by Congress, signed by President Carter, and becomes PL 95-200.

1977-1989 Continuing Conflict

- 1978: Bull Run Advisory Committee is formed by the Portland City Council.
- 1979: Bull Run Planning Unit Final Environmental Impact issued.

Table 4 continued

- 1983: Severe windstorm blows down 5,770 acres of forest in the Bull Run Watershed.
- 1985: February - Forest Service environmental assessments of blowdown treatment appealed by environmental groups.
- 1985: April - Consensus group formed to provide for public input into blowdown management.
- July - Decision notice and environmental assessment issued on blowdown removal.
- August - Environmental assessment appealed.
- September - Appeal denied by regional forester. Timber sales to remove blowdown awarded. Forest Service makes decision to prepare a full environmental statement for managing additional areas of the blowdown.
- 1987: Bull Run Blowdown DEIS issued.
- 1988: April - Bull Run Blowdown FEIS issued.
- July - Salvage logging begins in the watershed.
- 1989: April - Wyden Task Force report on Bull Run monitoring issued.

CONCLUSION 1. ATTITUDES TOWARD THE BULL RUN WATERSHED WERE A MAJOR FACTOR IN MANAGEMENT RELATIONSHIPS BETWEEN THE CITY AND THE FOREST SERVICE.

As the management of Portland's water supply evolved, differing attitudes of the Water Bureau, the Forest Service, and interest groups toward the Bull Run Watershed affected the management activities of Portland and the Forest Service. At the beginning of the restricted watershed period (1890-1958), the Water Bureau attitude toward the Bull Run Watershed was one of a pristine area that should not be disturbed by humans lest it be "rendered useless by a few individuals for a few thousand dollars worth of sheep, cattle, and lumber" (Failing 1895 in Portland Water Bureau 1983). The Forest Service attitude was based on the utilitarian ideas of Gifford Pinchot, who advocated development of the nation's forest resources.

The only interest groups active in the beginning of this period were recreationists (Fig. 6). Recreationists wanted a road built into the reserve for tourism and summer home development. This idea was fought vigorously by Portland and never succeeded (see discussion in text, p. 55-56).

Despite differing attitudes of the city and the Forest Service, no major disagreements occurred in this period as there was little demand for forest products from the

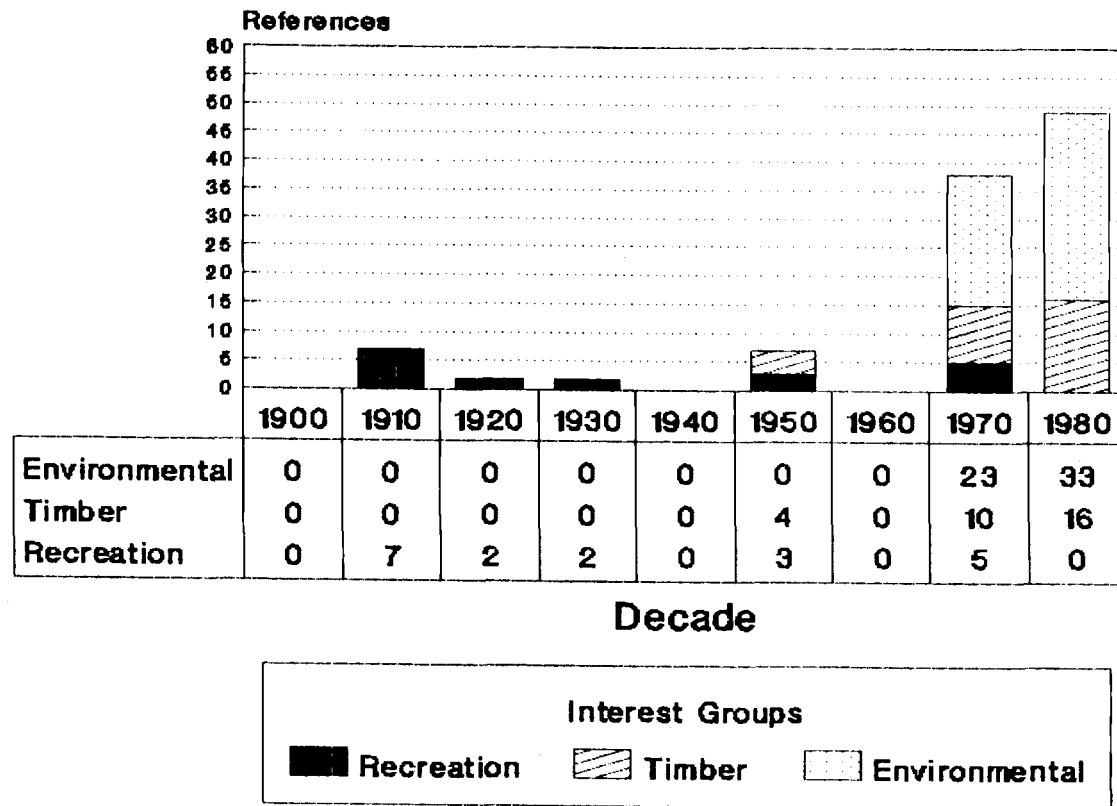


Fig. 6 Number of References to Bull Run Interest Groups
in Oregonian Articles 1900-1989

national forests. No formal agreement between the city and the Forest Service was necessary, and both concentrated on excluding trespassers (primarily recreationists), and preventing fires.

However, toward the end of this period, the city's attitude toward timber harvest began to change. The Forest Service, under pressure to increase logging activity on federal lands, began to press for a timber harvest program on Bull Run. The 1952 internal memorandum clearly stated the intention of the Forest Service to develop the Bull Run to its fullest potential as a timber producing resource. The Forest Service recognized that the protectionist attitude of the city would have to be changed and mounted a public relations campaign to convince the city that timber harvest could decrease the possibility of a catastrophic fire in the watershed (Forest Service 1952).

The Forest Service development efforts were helped when Ben Morrow retired from the Water Bureau in 1955 and was succeeded as Chief Engineer by H. Kenneth Anderson. Morrow had been a staunch opponent of logging in the reserve while Anderson believed that the Bull Run old growth "long ago reached their age of maturity, and in the best interest of forest management should have been logged decades ago" (Anderson 1958).

Shortly after Anderson became Chief Engineer, the 1955 Cooperative Agreement was signed by the Forest Service and

the city. It was a successful step by the Forest Service in changing the city's attitude toward timber harvest. Research on timber harvest and water quality was emphasized, setting the stage for logging in the watershed. Although timber harvest was not specifically mentioned, the "efficient use of resources" was cited as an objective of the agreement.

The comptroller general's decision in 1957 that Portland would have to pay approximately 1 million dollars a year for lost revenue if they opposed timber sales also was a factor in changing the city's attitude. This shift in attitude was noted in the Oregonian, which moved from an editorial position of "rigidly excluding all persons except the rangers" in 1912 to citing the increasing demand for timber and the fire protection benefits of removing the old growth in 1958 (Oregonian 9/13/58).

The period from 1958-1977 brought the beginning of large-scale timber harvest to the watershed and the emergence of interest groups with differing attitudes toward Bull Run management. The 1959 Cooperative Agreement mentioned timber harvest explicitly for the first time, and in 1971 the Larch Mountain plan was released. The plan contained recommendations for recreational activities in the watershed itself, including boating on the reservoirs.

The plan aroused a storm of opposition from both the city and environmental interest groups. While the city was willing to agree to a timber harvest plan, recreation in

the watershed was adamantly opposed (Oregonian 6/27/71, 7/1/71, 7/3/71). Environmental groups opposed both recreation and timber harvest in the watershed. The Larch Mountain plan forced the Forest Service and the city to recognize that some groups retained a protectionist attitude toward Bull Run and would fight to keep it free of recreation and timber harvest.

The 1973 Memo of Understanding recognized these differing attitudes in creating the Bull Run Planning Unit. Public participation through a citizens' advisory group, with representation from environmental and forest industry groups, would be a part of the planning process. The Forest Service and the city had learned from the Bull Run lawsuit and the Larch Mountain furor that inclusion of interest groups in the planning process had become a political necessity.

This diversity of attitudes continued into the 1977-1989 era. Both the city and the Forest Service saw the watershed as a political problem, a need to accomodate the competing interests of timber and environmental groups. Industry groups saw the watershed as a rich source of old-growth timber while environmental groups wanted Bull Run to be protected from human impact. Figure 6 shows the increase in activity in this era by environmental and industry interest groups as they fought for their views on Bull Run management.

In summary, the attitude of the Forest Service affected management of Bull Run through emphasis on development of the watershed's resources. The attitude of the city changed from anti-timber harvest to agreement with the Forest Service that logging in the watershed would be beneficial. In the 1970's, interest group attitudes began to affect Bull Run management and their effects are discussed in conclusion 2.

CONCLUSION 2. THE GROWTH OF INTEREST GROUPS PROVIDED THE INCENTIVE TO FORMALIZE THE MANAGEMENT RELATIONSHIPS BETWEEN THE FOREST SERVICE AND THE CITY.

In 1957 at the Governor's meeting on economic development, the Industrial Forestry Association pressed for increased timber harvest on federal lands, including the Bull Run Watershed. This was the first time that Bull Run had been included in the demand for increased timber harvest, an action followed by other timber industry associations. Timber industry interest groups increased their lobbying efforts in the 1970's, when environmental groups began organized efforts to influence Bull Run management plans (Fig. 6).

In 1973, the Bull Run Interest Group was formed with the purpose of preventing further timber harvest in the watershed. It was joined by other environmental groups in

the effort to preserve what they saw as a pristine watershed.

The growth of forest industry and environmental groups as shown in Figure 6 influenced the type of management relationships between the city and the Forest Service. Interest group demands forced the creation of new institutions that would incorporate their views into the planning process. The Bull Run Planning Unit created in 1973, the public participation and arbitration provisions of the 1977 Bull Run Law, and the creation of the Bull Run Advisory committee in 1977 institutionalized public participation in Bull Run management.

CONCLUSION 3. RESEARCH ON THE RELATIONSHIP BETWEEN TIMBER HARVEST AND WATER QUALITY IN THE BULL RUN WATERSHED IS NOT CONCLUSIVE AND HAS BEEN USED ONLY TO JUSTIFY EXISTING POSITIONS OF THE VARIOUS INTEREST GROUPS.

The major research project in Bull Run is the B-1 study initiated by the 1955 Cooperative Agreement. Although it shows insignificant increases in sedimentation levels as a result of land use, environmentalists point out that the study area is not typical of most of Bull Run topography and soils.

The review of water quality monitoring done by Rinella (1987) was inconclusive because of an inadequate data

base. However, it is used to both support and oppose timber harvest practices in the Bull Run, depending on who is presenting the argument. Similarly, the review of the monitoring system by the Wyden task force found that monitoring was inadequate but praised the high quality of Bull Run water.

The research in Bull Run has affected cooperative relationships through the lack of conclusive evidence establishing a relationship between timber harvest and water quality. Every cooperative agreement since 1955 has contained provisions for continued research. Yet the results of this research, published in 1974 (Fredriksen and Ross), in 1987 (Rinella), in 1988 (Harr and Fredriksen), and in 1989 (Aumen et. al) have been interpreted according to the attitude toward the resource held by each interest group. Each report contains material that if exerpted from the context of the report, can be used to praise or condemn Forest Service-city management. Environmental and forest industry interest groups have not hesitated to cite only the sections that support their views.

For example, forest industry interest groups often cite the above studies in noting that no study has shown a significant decrease in water quality in the Bull Run Watershed. Environmental groups quickly respond that these same studies note that other watersheds similar to Bull Run have shown marked decreases in water quality resulting

from timber harvest (see p. 45).

In summary, the changes in Portland-Forest Service relationships have been affected by differing attitudes toward the resource, the emergence of interest groups, and the use of research to support pre-conceived attitudes. Other geographic research on resource conflicts have also addressed these and other factors.

B. RESOURCE DECISION MODELS

Geographers have made contributions to natural resource decision-making through studies of resource conflicts. This study presents a framework for future research in this area by employing a stress model of the Bull Run conflict which illustrates how attitudes, interest groups, and research are significant factors in resource decision-making.

Geographers have developed stress models of resource decision-making based on White's study of resource use in 1961 (see p.6). This section reviews the stress models of Kasperson (1969) and Wood (1976), and then presents a stress model based on the Bull Run conflict.

1. Kasperson's Stress Model

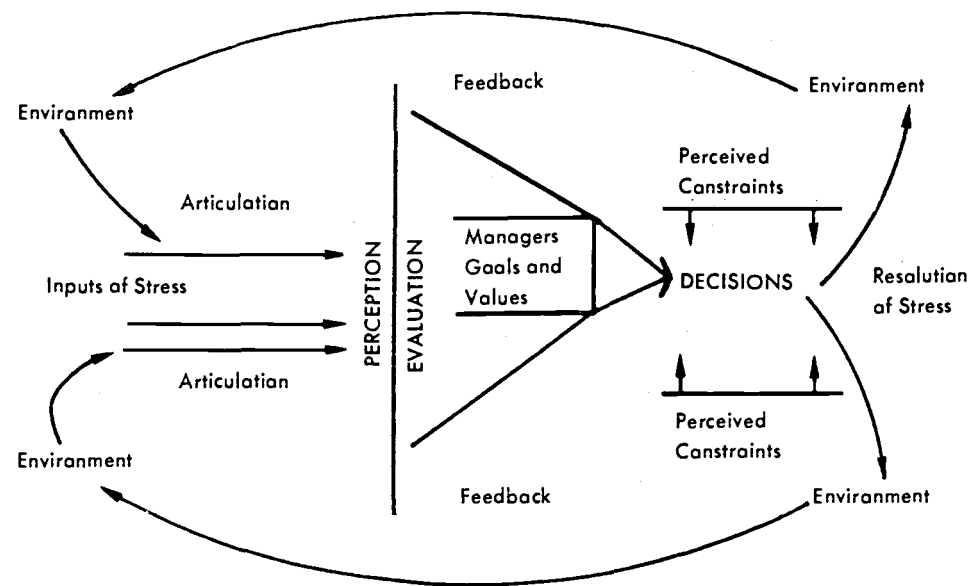


Fig. 7 A General Model of Municipal Stress Management

Kasperson's stress model was based on a 1969 case study of a drought in Massachusetts that caused conflict between municipal water managers and interest groups. The conflict is described in the prior research section of this study (p.7).

Kasperson noted that stresses are articulated to managers by the media and evaluated according to individual perceptions of the conflict. The manager seeks to evaluate the problems by seeking different alternatives, responding to feedback from the social and political environment and constantly shifting alternatives until a decision is made. The decision is affected not

only by perception but by perceived constraints such as budget limitations, applicable research, and preoccupation with other stresses in the political system.

2. Wood's Stress Model

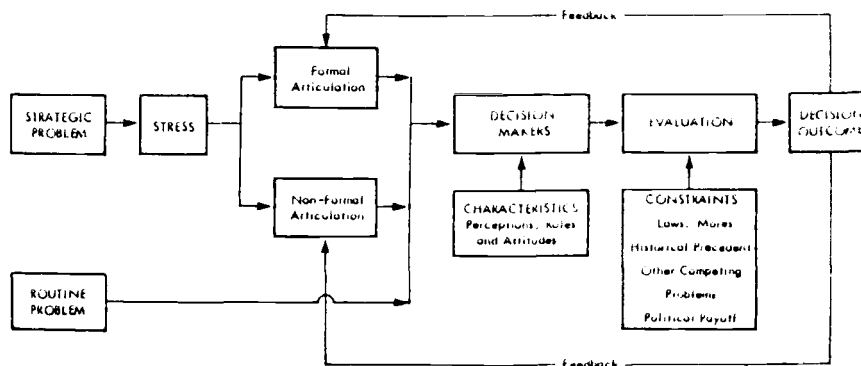


Fig. 8 Response to Environmental Stress

Wood constructed his stress model based on a water resource conflict in Victoria, British Columbia. The conflict is described in the prior research section of this study (p.8). He refined the model suggested by Kasperson by theorizing that a community evolves a decision-making structure to process problems and addresses those problems according to the degree of stress they engender. A problem with a high degree of stress may require formal articulation through the construction of a new institutional approach or be handled routinely if the stress is low.

Attitudes affect decision-makers' evaluations of conflicts. Outcomes result not only from the decision-makers' perceptions, but are influenced by laws, historical precedent, other problems, and the political payoff of alternative decisions.

3. Bull Run Stress Model

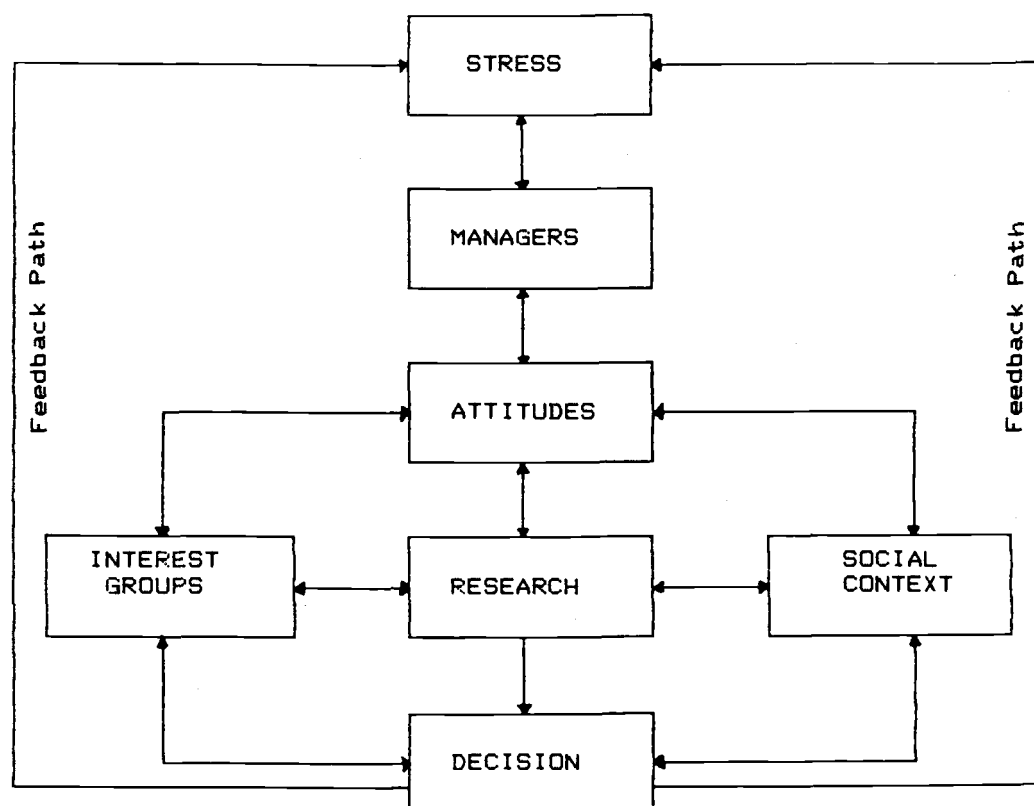


Fig. 9 A Stress Model of Resource Decisions

The stress model in Figure 9 emphasizes the relationships between factors important in resource conflicts. While incorporating aspects of the Kasperson and Wood models, this model based on the Bull Run case study emphasizes the interaction of stress, managers and interest groups, attitudes, research, social context, and decision outcomes. Feedback paths indicate the interactive nature of these factors.

In this model, resource conflict produces stress when a manager (group or individual) must make a choice among competing alternatives. For example, the 1983 blowdown produced a stress situation when the managers (Portland and the Forest Service) had to make a decision on the level of timber salvage. The attitude of each was favorable to salvaging some part of the blowdown, although at different levels.

As diagrammed in the model, the managers' attitudes are affected by interest groups, research, and social context. In the blowdown example, industry groups desired to log most of the blowdown while environmental groups wanted little or no logging. Both put pressure on the city and the Forest Service through public hearings. In the blowdown decision, the managers modified their attitudes as a result of industry and environmental group participation. The Forest Service decreased the initial estimate of acres to be harvested but refused to eliminate logging the blowdown altogether.

Research plays an important role in the process. If there is significant evidence to support one view of the conflict, interest group strategies will change. As in many environmental conflicts, in the Bull Run case there are conflicting views of the relevant research. However, as interviews with participants showed, even if strong evidence supporting one view existed, another strategy would be used to maintain pre-existing attitudes (e.g. the preservation of the spotted owl or maintenance of local economies). Thus the interactive feedback mechanism would continue.

Social context refers to influences in the society at large. Resource conflicts do not take place in isolation. Changing economic conditions, social movements, laws, and spatial scale affect the allocation of natural resources. In Bull Run, increasing demand for timber was an important economic factor while the environmental activism of the seventies encouraged public participation in resource decisions. Both affected the 1977 law that presently governs Bull Run management.

Spatial scale is a social factor that affects decisions through emphasis on the level or levels of government which are involved in the conflict. The Bull Run case illustrates this factor well because federal-local relationships were important in determining the type of institutional structure resulting from the conflict. The clash over the arbitration provision in the 1977 law

illustrated how concerns over power-sharing between national and local levels were incorporated into the city-Forest Service relationship.

The arbitration provision was a point of contention in the hearings on the 1977 bill. While the Forest Service was adamantly against any system that would decrease its power to make final management decisions, Portland was equally determined to achieve more than advisory status. The arbitration provision was a compromise in which a local entity could resort to a process outside the Forest Service decision review system. The inclusion in the model of spatial scale recognizes this conflict between different levels of decision-making. Decisions that are made in terms of national priorities may differ considerably from those which have local priorities.

In summary, the decisions reached in resource conflicts are affected by the attitudes of the managers and interest groups and their interaction with research and social context. As pressure on resources increases, it becomes imperative that the complex nature of environmental conflict with its numerous interlocking variables be more fully understood. The objective of this model is to provide a framework for future research on these natural resource conflicts.

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3.

APPENDICES

APPENDIX A

Act of May 28, 1940

AN ACT

May 28, 1940

[S. 229]

[Public, No. 532]

To authorize the withdrawal of national-forest lands for the protection of watersheds from which water is obtained for municipalities, and for other purposes.

National-forest lands.
Setting aside, for municipal water-supply protection.

Proviso.
Utilization under Federal reclamation laws.
Restoration of lands withdrawn.

Administration.

Rules, etc.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever a municipality obtains its water supply from a national forest and has entered into a cooperative agreement with the Secretary of Agriculture for the protection of the watershed within the national forest from which the water is secured, the President of the United States may, and he is hereby, authorized, upon application by said municipality, and endorsed by the governing board of the county or counties in which the lands concerned are located and approved by the Secretaries of Agriculture and the Interior, to reserve and set aside from all forms of location, entry, or appropriation any national-forest lands, which are covered by such cooperative agreement, subject, however, to valid, existing rights and claims, and such reservation shall remain in force until revoked by the President or by an Act of Congress: *Provided*, That nothing herein shall affect the power of the Secretary of the Interior to withdraw and utilize withdrawn lands under the Federal reclamation laws: *And provided further*, That the President, upon recommendation of the Secretaries of the Interior and Agriculture, may, by Executive order, when in his judgment the public interest would best be served thereby and after reasonable notice has been given through the Department of the Interior, restore any of the lands so withdrawn to appropriation under an applicable public-land law.

SEC. 2. Lands withdrawn under the provisions of this Act shall be administered by the Secretary of Agriculture under such agreements for the protection of the watershed as he may make with the municipality concerned, and the Secretary of Agriculture is hereby authorized, in addition to the rules and regulations adopted for the administration of the national forests, to adopt and prescribe such further rules and regulations as he considers necessary to effect the adequate protection of the watershed, including a rule or regulation forbidding persons other than forest officers and representatives of the municipality from going on the lands so reserved or making any use whatever thereof.

SEC. 3. Whenever national-forest lands are withdrawn under this Act, and the municipality concerned objects to the utilization of the timber or other resources of lands withdrawn, and the Secretary of Agriculture agrees to withhold such resources from utilization, said municipality shall pay to the Forest Service annually an amount which the Secretary of Agriculture shall determine is necessary to reimburse the United States for the loss of net annual revenues which would be derived from the resources so withheld from disposition.

Reimbursement to Forest Service for loss of revenues.

SEC. 4. Any violation of the regulations issued under this Act shall be punished as is provided in section 50 of the Act entitled "An Act to codify, revise, and amend the penal laws of the United States", approved March 4, 1909 (35 Stat. L. 1098).

Penalty.

18 U. S. C. § 104.

Approved, May 28, 1940.

APPENDIX B

Bull Run Proclamation - 1892

An Act For the protection of the Bull Run Forest Reserve and the sources of the water supply of the city of Portland, State of Oregon.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That from and after the date of the passage of this Act it shall be unlawful for any person or persons, except forest rangers and other persons employed by the United States to protect the forest, and Federal and State officers in the discharge of their duties, and the employees of the water board of the city of Portland, State of Oregon, to enter, for the purpose of grazing stock, upon any part of the reserve known as the Bull Run Forest Reserve, in the Cascade Mountains, in the State of Oregon, which reserve was established by proclamation of the President of the United States in eighteen hundred and ninety-two, as provided by section twenty-four of an Act of Congress entitled "An Act to repeal timber culture laws, and for other purposes," approved March third, eithteen hundred ninety-one, and which reserve includes within its area the water supply of the city of Portland, State of Oregon; and any person or persons, save those hereinbefore excepted, who shall engage in grazing stock, or who shall permit stock of any kind to graze within said Bull Run Forest Reserve, or who shall knowingly trespass thereon, shall be deemed guilty of a misdemeanor, and on conviction thereof in the district court of the United States for the district of Oregon shall be fined not to exceed five hundred dollars, in the discretion of the court. And the Secretary of the Interior is hereby authorized and directed to enforce the provisions of this Act by all proper means at his command, and to exclude from said forest reserve stock of all kinds and all persons, save as hereinbefore excepted.

APPENDIX C

Bull Run Trespass Act - 1948 Codification

Whoever knowingly trespasses upon any part of the reserve known as Bull Run National Forest, in the Cascade Mountains, in the State of Oregon, or unlawfully enters thereon for the purpose of grazing stock, or engages in grazing stock thereon, shall be fined not more than \$500 or imprisoned not more than six months, or both.

This section shall not apply to forest rangers, and other persons employed by the United States to protect the forest, or to Federal and State officers and employees of the water board of the city of Portland, State of Oregon, in the discharge of their duties.

APPENDIX D

Bull Run Act - 1977

An Act

To provide improved authority for the administration of certain National Forest System lands in Oregon.

Nov. 23, 1977
[H.R. 7074]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

National Forest
System Lands,
Oreg.
Water resource
management.
16 USC 482b
note.

PREAMBLE

The Congress finds that an area of land in the State of Oregon known variously as the Bull Run National Forest and the Bull Run Forest Reserve is presently the source of the sole domestic water supply for the city of Portland, Oregon (hereinafter called the "city") and other local governmental units and persons in the Portland metropolitan area, reserved for the city by a Presidential proclamation issued in 1892 and furnishing an extremely valuable resource of pure clear raw potable water, the continued production of which should be the principal management objective in the area hereinafter referred to as "the unit"; that the said area is now managed under terms of a Federal court decree issued pursuant to turn of the century law which does not appropriately address present and future needs and opportunities for the protection, management, and utilization of the resources contained therein.

DESIGNATION OF UNIT

SECTION 1. There is hereby established, subject to valid existing rights, a special resources management unit within the Mount Hood National Forest, State of Oregon, comprising approximately 95,382 acres as depicted on a map dated April 1977, and entitled "Bull Run Watershed Management Unit, Mount Hood National Forest", which is on file and available for public inspection in the offices of the Chief, and the Regional Forester—Pacific Northwest Region, Forest Service, Department of Agriculture, minor adjustments in the boundaries of which may be made from time to time by the Secretary of Agriculture (hereinafter the "Secretary") after consultation with the city and appropriate public notice and hearings.

Bull Run
Watershed
Management
Unit, Mount
Hood National
Forest.
Map, availability.
16 USC 482b
note.

MANAGEMENT

SEC. 2. (a) The unit and the renewable resources therein, shall be administered as a watershed by the Secretary of Agriculture in accordance with the laws, rules, and regulations applicable to National Forest System lands except to the extent that any management plan or practice is found by the Secretary to have a significant adverse effect on compliance with the water quality standards referred to in section 2(b) hereof or on the quantity of the water produced thereon for the use of the city, and other local government units and persons using such water under agreements with the city (and the Secretary shall take into consideration the cumulative effect of individually insignificant degradations), in which case, and notwithstanding any other provision of law, the management plan and all relevant leases,

16 USC 482b
note.

permits, contracts, rights-of-way, or other rights or authorizations issued pursuant thereto shall forthwith be altered by the Secretary to eliminate such adverse effect by application of different techniques or prohibitions of one or more such practices or uses: *Provided, however*, That use of such water for the production of energy and the transmission of such energy through and over the unit are deemed consistent with the purposes of this Act and the rights-of-way heretofore granted to Bonneville Power Administration by the Forest Service through and over the unit are validated and confirmed and deemed consistent with the purposes of this Act.

Land
management
plans.

Public
participation.

Completion date.

Data, annual
comparison.

Planned
management
programs, review.

Cooperative
agreements.

Arbitration
board,
establishment.

(b) The policy set forth in subsection (a) shall be attained through the development, maintenance, and periodic revision of land management plans in accordance with procedures set forth in section 5 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (88 Stat. 477, as amended; 16 U.S.C. 1604), through the maintenance of systems for monitoring and evaluating water quality, and through supporting scientific research as the Secretary may deem necessary after consultation and in coordination with the city. In the development and revision of land management plans for the unit, the Secretary, except as otherwise provided in section 2(a) hereof, shall provide for public participation and shall consult and coordinate with appropriate officials and advisors of the city, and shall consider such data and research as the city may collect through its own monitoring systems and scientific efforts, if any. Such plans shall be prepared by an interdisciplinary team; be embodied in appropriate written material, including maps and other descriptive documents; shall contain water quality standards developed by the Secretary after consultation and in cooperation with the city, which standards shall be substantially based on and shall reflect a quality of water not significantly less than the quality reflected by percentile curves developed from data collected from 1967 through 1973 and, if none, from data collected in the first three years of record thereafter; and be available to the public at convenient locations. The initial plan or plans shall be completed as soon as practicable after the enactment of this Act, but not later than September 30, 1979. Current data shall be compared to historical data at least annually for the purpose of determining compliance with the standards and the significance of any deviation therefrom. Deviations occurring from operation, maintenance, alteration, or construction of water storage, or electrical generation and transmission facilities, seasonal fluctuations, variations in climate, and other natural phenomena, fire, or acts of God, shall not be considered in determining the historical or current percentile curves.

(c) The Secretary or his representative shall, upon request, and at least annually, meet with appropriate officials of the city for the purpose of reviewing planned management programs and the impact thereof on the quality and quantity of the water produced on the unit and assuring that their respective management and operational activities within the unit are appropriately coordinated. The Secretary shall negotiate in good faith cooperative agreements with appropriate officials of the city to effectuate activity coordination.

(d) In the event there is disagreement between the city and the Secretary with respect to the development or revision of the water quality standards provided for herein, or with respect to the effect or the significance of such effect of one or more proposed or existing programs, practices, uses, regulations, or boundary adjustments (except as otherwise specifically provided for herein), on the quantity of the water produced on said unit, or on compliance with the water

quality standards referred to in section 2 (a) and (b) hereof and, therefore, with respect to the necessity for an alteration or prohibition of any such program, practice, use, regulation, or boundary adjustment as required in section 2(a) hereof, an arbitration board for resolving such disagreements shall be established. The Secretary and the city shall, each, forthwith appoint one member to such board and those two members shall select a third. In the event agreement cannot be reached on the third member within seven days after the appointment of the first two, the third member shall be appointed by the presiding judge of the United States District Court for the District of Oregon within seven days after being notified of such disagreement by either of the first two members. All of said members shall be qualified to make a scientific determination of the facts. The contentions of the city and the Secretary shall be submitted to the board in the form of written contentions of fact together with the evidence and analysis that tends to support the position being presented. The board shall forthwith consider and decide, on a scientific basis, the issues in disagreement by majority vote, taking into consideration the evidence and data presented by the parties and such other tests and data which the board by majority vote may require. The decision of such board shall be in the form of written findings of fact and conclusions based thereon and shall be final and binding on the parties. The Secretary and the city shall compensate their designees and share equally the compensation of the third member, and shall provide such technical and administrative support as required.

(e) The Secretary is authorized, after consultation with the city, to promulgate regulations for controlling entry into the unit by all persons including but not limited to—

- (1) employees or contractors of the city engaged in the inspection, maintenance, construction, or improvement of the city's facilities;
 - (2) (i) Federal, State, and local government officers and (ii) employees thereof acting in an official capacity;
 - (3) Federal, State, and local government permittees and contractors conducting authorized activities;
 - (4) members of advisory groups formed pursuant to this Act or ordinances of the city in the performance of their official duties:
- Provided*, That no regulation promulgated pursuant to this subsection shall prohibit ingress or egress to non-Federal lands or to authorized occupancies on, or uses of, Federal lands: *Provided further*, That the Secretary may independently and directly prohibit or restrict all entry into the unit during fire or other emergencies as he may determine.

EFFECT ON OTHER LAWS

SEC. 3. (a) Nothing in this Act shall terminate or affect any lease, permit, contract, patent, right-of-way, or other land use right or authorization existing on the date of approval of this Act and otherwise valid except for the provisions of section 1862 of title 18 of the United States Code.

(b) Nothing in this Act shall in any way affect any law governing appropriation or use of, or Federal right to, water on National Forest System lands; or as expanding or diminishing Federal, State, or local jurisdiction, responsibility, interests, or rights in water resources development or control.

Members.
appointment.

Qualifications.

Decisions.

Compensation
and
administrative
support.

Regulations.

Emergencies.

Savings
provision.
16 USC 482b
note.

Repeal.

(c) Section 1562 of title 18 of the United States Code is hereby repealed.

**Preemption of
State and local
laws.**

(d) Except as otherwise provided for herein, this Act shall take precedence over and supersede all State and local laws dealing with or affecting the subject matter of this Act.

Challenges.

(e) Challenge to actions taken by any governmental unit or official under the provisions of this Act shall not be sustained by any court except upon a showing of arbitrary, unreasonable, capricious, or illegal action or an absence of substantial good faith compliance with the procedural provisions hereof substantially prejudicing the rights of an interested party.

Approved November 23, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-622 (Comm. on Interior and Insular Affairs).
CONGRESSIONAL RECORD, Vol. 123 (1977):

Nov. 2, considered and passed House.

Nov. 4, considered and passed Senate.

APPENDIX E

Memo of Understanding - 1979

PURPOSE

The Bureau of Water Works, City of Portland, hereinafter referred to as the Bureau, and the Forest Service, United States Department of Agriculture, hereinafter referred to as the Mt. Hood National Forest, do establish by this document, an understanding of each agency's role in management of the Bull Run Watershed Management Unit, referred to as the Unit.

AUTHORIZATION

Public Law 95-200, signed by the President on November 23, 1977, directed the Forest Service to develop plans for management of the Unit in accord with the Forest and Rangeland Renewable Resources Planning Act of 1974.

It further directed that the Forest Service, to ensure the principal management objective of the Unit, that being continued production of pure, clear, raw, potable water for use of the City and others, would consult and coordinate with appropriate officials and advisors of the City by:

- a. Considering such data and research as the City may collect through its own monitoring systems and scientific efforts.

- b. Conferring with City officials and advisors in development and revision of plans for the Management Unit.
- c. Assuring that Forest Service and City management and operational activities are coordinated through cooperative agreements which would insure continued production of pure, clear, raw, potable water.

Public Law 95-200, being specific legislation for the Unit, takes precedence over more general legislation affecting the National Forest including but not limited to the Multiple Use-Sustained Yield Act of 1960.

The Charter of the City designates the Bureau of Water Works as the agency responsible for the collection and distribution of its water.

The City Council established the Bull Run Advisory Committee (BRAC) by Ordinance #143520 (Chapter 3.105 City Code) to review all matters relating to the Unit and advise the Commissioner in Charge and the City Council thereon. The BRAC is authorized to function substantially in accordance with the process outlined in Appendix A.

PLANNING AND MANAGEMENT COORDINATION

The objectives and activities for the Management Unit are defined in the Bull Run Planning Unit Final Environmental Statement, dated January 24, 1979. The Unit is located within the boundaries of the Mt. Hood National Forest. Legal boundaries of the Unit have been established by PL 95-200 as shown on a map dated April, 1977.

The Bureau and the Mt. Hood National Forest will cooperate in a planning process and preparation of plans for proposed and active management activities in the Unit. These plans are of two basic types. Sub-basin plans will assess the potential for and prioritize programs within the designated sub-basins of the Drainage. The Annual Activity Schedule will describe management activities planned for the upcoming year within sub-basins, and describe proposed management activities outside the sub-basins but within the Unit.

1. Sub-basin Plans - Plans will be prepared for each of the five sub-basins within the Drainage. Their purpose is to assure that established water quality is maintained. These plans shall consist of five parts, as follows:
 - a. A refinement of the FES land uses, allocations and resources data through the use of a small scale mapping system.
 - b. An "area-specific" ranking of suitability and capability of the land units to support management activities in relation to potential for water quality improvement, maintenance or degradation.
 - c. Development and prioritization of alternative watershed management program areas.
 - d. A cumulative environmental analysis of carrying out the prioritized management programs developed in a, b, and c above. The individual site-specific analysis for each program area will be included in addendums or separate environmental reports. (Both of these analyses will include a statement of the expected water

quality and quantity resulting from the implementation of the programs.)

- e. An annual and cumulative summary of activities carried out and water quality and quantity experienced as a result of program and plan implementation.

The summary of water quality and quantity experienced (e. above) and the results of research and special studies shall be used to periodically update the plan.

The sub-basin plans shall be prepared within the framework of guidelines for, including but not limited to, the following functional plans and planning processes. However, to the extent that it is consistent with PL 95-200, criteria and assumptions upon which some of these guidelines are based will be periodically reviewed to determine their applicability to the principal objective for the Management Unit.

- a. Water Quality and Quantity Monitoring
- b. Fuels Management
- c. Wildfire Pre-Attack Planning
- d. Transportation Systems
- e. Streamside Management Units
- f. Administration and Operation (to include Flood, Spill, Fire, Entry Policy, etc.)
- g. Timber Sale Planning
- h. Public Participation
- i. Research

Buffer Zone Plan - Planning for those buffer zone activities having possible effects on water quality and quantity within the physical drainage (including

but not limited to fire, fuels, and entry control) will be conducted on an annual basis until the sub-basin plans are complete. At that time a long term plan will be developed. Plans for these activities will be developed on a cooperative basis between the Bureau and the Forest Service. A preliminary draft of the sub-basin and Buffer Zone plans will be reviewed by the Forest Service within 30 days of completion. Following such review a final draft will be reviewed by the Bureau within 60 days, during which time the Bureau shall solicit public and City comments. A final plan will then be prepared, taking such comments into consideration.

3. Annual Activity Schedule - This plan will describe in detail all proposed management activities scheduled for the coming year that will carry out all or portions of the sub-basin or buffer zone programs. Typical activities scheduled and described would include water quality and quantity control, timber harvest, reforestation, slash disposal, road construction, dam maintenance, construction, status of basin plans, etc. The plan will also summarize and evaluate all watershed management activities and their impact upon water quality and quantity of the past year.

The Annual Schedule of Activities will be completed by January 1 of each year, following which the Bureau will have 60 days to complete its review. During this time, public and City comments will also be solicited. City Council review of the Annual Activity Schedule will fulfill the annual meeting requirements of PL 95-200 Sec. 2 (c), unless otherwise agreed to between the Forest Service and the City of Portland.

Specific activities will be permitted without assessing the impact of these activities through the Environmental Analysis Report of the sub-basin planning process, when mutually agreed upon by the Mt. Hood National Forest and the Bureau to have no foreseeable effect of water quality or quantity. Such activities undertaken during the past year will be summarized in the Annual Activity Schedule and reviewed periodically for possible impact following completion.

MT. HOOD NATIONAL FOREST WILL:

1. Be responsible for the administration of all National Forest Lands within the Unit.
2. Advise the Water Bureau Manager monthly, in brief written form, of all scheduled slash burning, timber yarding and major earth disturbing activities. All other activities which relate to the protection and management of the Unit will be included in a quarterly schedule. Notification of emergency or unscheduled events or activities will be made prior to or as soon as possible after they occur.
3. Provide forest management service for City lands, both inside and outside the Unit, in accordance with the cooperative agreement. These services would include activities such as inventory of commercial forest land, sales preparation, contract administration, reforestation, thinning, etc.
4. Be responsible for all forest fire activities such as prevention, detection, and suppression.
5. Communicate directly with the Water Bureau Manager or his designated project representative in matters relating to the Sub-basin Plans, Buffer Zone Plan, and the Annual Activity Schedule.

6. Annually on February 1, submit to the Water Bureau Manager the names of project representatives.
7. Establish, after consultation with the Bureau, rules governing entry into the Unit. Issue permits and keys to its employees, contractors, and others on official business. Monthly advise the Bureau as to names and destinations of individuals with entry permits.
8. Review and expedite all applications for Special Use Permits by the Bureau. Inform the Bureau within 30 days of receipt of applications as to the expected date of decisions of such permits.
9. Submit to the Water Bureau Manager, for 30 day review, all applications for Special Use Permits within the Unit. The Manager's comments will be considered in processing the application.
10. The Mt. Hood National Forest is responsible for installing and maintaining signs prohibiting entry into the Unit at all major points of entry.

The Mt. Hood National Forest is responsible for locks and keys. They will be changed at least annually. Sufficient keys and permits will be provided to the Bureau. Cost of locks and keys will be shared on a proportional basis. The Mt. Hood National Forest is responsible for enforcement of the entry regulations.

The Mt. Hood National Forest will furnish materials and the Bureau will provide crews and equipment for construction and maintenance of gates.

THE WATER BUREAU WILL:

1. Be responsible for all improvements and operations relating to the collection, storage, treatment, and transmission of the water to its users. Such responsibility includes the operation of hydroelectric power facilities. (It is the objective of this agreement to ensure that "improvements" does not include a filtration plant necessitated by activities in the Drainage.)
2. Advise the Columbia Gorge District Ranger monthly, in brief written form, of all scheduled channel work, Bull Run Lake release, major earth disturbing activities and deviation from reservoir standard operating procedures. Other activities which relate to security or maintenance and construction of improvements will be included in a quarterly schedule. Notification of emergency or unscheduled events and activities will be made prior to or as soon as possible after they occur.
3. Communicate directly with the Columbia Gorge District Ranger or his designated representative in matters relating to the Sub-basin Plans, Buffer Zone Plan, and the Annual Activity Schedule.
4. Annually, on February 1, submit to the Columbia Gorge District Ranger the names of project representatives.
5. Issue permits and keys to its employees, contractors, and others on official business. The Bureau will monthly advise the Columbia Gorge District Ranger as to names and destinations of individuals with entry permits.

6. Develop and keep current a Water Resource Development Plan, including but not limited to the development of reservoirs, hydropower and additional water sources. The Bureau will coordinate with the Columbia Gorge Ranger District on all aspects of the plan concerning activities within the Management Unit. The Bureau will submit the plan annually to the Columbia Gorge Ranger District, which shall have 60 days to review and respond.
7. Make application for Special Use Permits for any improvements proposed on National Forest land within the Unit. Modifications to existing permitted improvements should be proposed by applying for a change in the Special Use Permit.

Further, it is mutually agreed that:

1. Both parties shall participate in development and execution of public education and involvement concerning management of the Unit.

Both parties will cooperate on conducting public educational tours of the Unit for the purpose of explaining the management and utilization of the resources therein. Each party shall be responsible for escorting and controlling the activities of persons on such tours within the Unit boundaries.
2. Both parties will assist in developing an Administration and Operation document. This document will include such things as plans for preventing and mitigating the effects of floods, contaminant spills, fire and other emergencies. The Entry Policy will also be a part of this document.

3. Both parties will assist in developing a water quality and quantity monitoring plan. The Bureau will provide requested analyses for the Mt. Hood National Forest. Analyses costs will be shared by the Bureau and the Mt. Hood National Forest, based on the project responsibility.
4. Both parties will assist in developing a plan for research and special studies. This plan will identify issues requiring additional research and prioritize them based on potential for water quality degradation and attendant health hazards. Design and execution of research will be on a cooperative basis. Funding for research will be determined on a case-by-case basis.
5. Both parties will assist in developing a long range plan and time schedule for definition of the term "significant" as used in PL 95-200. Until such time as sufficient records are established and analyzed for determination of statistically significant impacts, or lack thereof, on long term water quality and public health, both parties agree that watershed management plans shall be developed and implemented with the intent of having no adverse change in water quality parameters from those levels expressed in the historically established water quality standards. If, in the plan, a deviation from historic standards is anticipated as a result of its implementation, the Forest Service and the Bureau shall review and approve the proposal prior to its implementation.
6. Both parties will offer their advice and services to those committees and officials of the City of Portland, the State of Oregon, or the Federal Government who are investigating or reviewing management practices within the Management Unit.

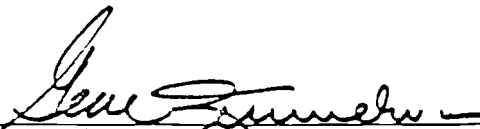
7. Both parties will seek to discover and remedy the source of any raw water quality degradation should the water sampled at any designated monitoring point fail to meet raw water quality standards.
8. It is understood that this document will be reviewed periodically and amended when such amendments are found to be beneficial and mutually acceptable.
9. Both parties will actively pursue a land exchange program to consolidate ownership where it will improve and facilitate management of the Unit.
10. Nothing in the Agreement shall be construed as obligating the Mt. Hood National Forest or the Bureau to expend funds, or involving the Mt. Hood National Forest or the Bureau in any contract or other obligations for the future payment of money in excess of appropriations authorized by law.
11. In carrying out the terms of this Agreement there shall be no discrimination against persons because of race, religion, sex, color, age, or national origin.
12. This document supercedes the Memorandum of Understanding dated June 18, 1975, and any addendums thereto.
13. Neither party shall be liable to the other for any damages incidental to performance of this Memorandum of Understanding.

The staff of the Water Bureau and the Mt. Hood National Forest enter into this agreement in a spirit of mutual cooperation and trust. Any dispute or disagreement on the part of either agency as to planned activity in the Unit will be openly discussed by both to settle any disagreement outside the formal arbitration process established in PL 95-200.

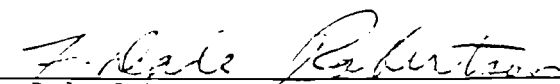
IN WITNESS WHEREOF, the parties hereto each have executed
this Memorandum of Understanding as of the 4 day
of May, 1979.

U. S. FOREST SERVICE
MT. HOOD NATIONAL FOREST

BY



Gene Zimmerman
Columbia Gorge District Ranger

BY

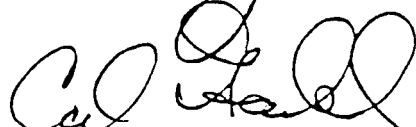

F. Dale Robertson
Mt. Hood National Forest Supervisor

CITY OF PORTLAND
BUREAU OF WATER WORKS

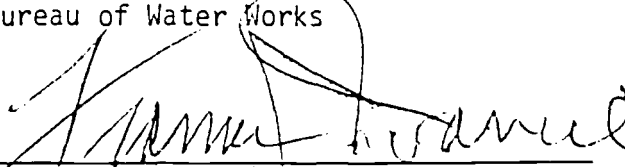
BY


Robert Hyle, Manager
Bureau of Water Works

BY


Carl Goebel, Assistant Manager
Bureau of Water Works

BY


Francis J. Ivancie
Commissioner of Public Utilities